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Taxation on Rural Sector: Tax Burden, Land Value and Property Right

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Abstract

The paper analyzes tax burden on rural sector and its implication on property right of land. First, tax burden on land property and rural activities, and its incidence on land values are analyzed; next, the author tries to advance an economic foundation theory for evaluating a legal quantitative limit for the determination that judicial intervention had established, or may establish in the future, to define or differentiate tax burden as confiscatory and, therefore, violating property right.

Key words: taxation on rural sector, tax burden, land value, property right, confiscation.

JEL Code: H2.

Taxation on Rural Sector: Tax Burden, Land Value and Property Right

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1) Introduction

Studies and contributions on taxation on rural sector for decades have been of important concern for many experts in Argentina and the author has not escaped to this interest.[2] While the topic has been an attractive issue for the economic and political analysis in Argentina - a country with obvious economic advantages in agricultural activities, thus with important potential tax returns and usual intentions of many governments to use them for income redistribution objectives - in present decade has enhanced the academic and political interest, and surprisingly has won the general interest of ordinary citizens with a singular difference of the one verified in previous decades.

In this heated scenario, the author explores the question of tax burden levied on rural sector and its implications for private property right on land.

The aim of the analysis is to arrive or be able to answer two fundamental questions:

1) How tax burden on rural sector should be measured?

2) How to elaborate an economic guideline for determining the legal tax burden limit that legislation has already fixed or would have fix in the future, to define a fiscal situation as confiscatory?

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[2] See Piffano, H. (2004a, 2004b, 2007); Piffano and Dudiuk (1981, 1982a, 1982b), Porto, Piffano and Di Gresia (2007); Piffano and D'Amore (2007); Piffano and Sturzenegger (2009) (in progress).

To achieve this aim, first the paper addresses the issue of how tax burden applied on rural sector should be measured, whether it is levying an administrative determinate land value or over some variable relative to rural activities (for example, cost of production, sale prices, etc.). Second, it discusses the issue of the "bracket" used to identify or distinguish a fiscal situation as confiscatory and, therefore, violating property right. Finally, the conclusions.

It should be recognized that the attempt to link an essentially legal concept - such as "confiscation" – to an economic approach for its measurement or determination will not be usually found in the economic literature. Perhaps the closest antecedent can be found in a recent article by Phillip Magness (2009).[3]

2) The effects of taxes on rural activities and property right on land

a) Background

The characteristic of ownership in case of a limited resource as land - not renewal and not tradable- has been discussed by philosophers, sociologists, ethicists, religious, political scientists, lawyers and economists since many centuries ago. Private property has been challenged by socialist ideologies that interpret factor of production “land” with a different characteristic of reproducible factors of production (labor and capital); for those ethical-religious-socialist ideologies land should be considered a community ownership without exclusion of domain. Of course this approach brings about enormous challenges regarding the degree and ways of assignment and management of the common use of land, issue that has been analyzed in economics, concluding with the well-known theorem “tragedy of the commons”[4].

[3] Magness examines the case brought in U.S. in 1842 by John Calhoun, suggesting that the point of the Laffer curve that maximizes the revenue could be used to differentiate tax policy as "tax collection" from the one imposing a "protective" barrier and thus contrary to constitutional provisions dealing with free trade in the United States.

[4] Hardin (1968).

Discussion background come up from the eighteenth century, from Physiocrats to classics, Adam Smith (1776), David Ricardo (1817), and, Henry George (1879), and has gone on till now a day, though recognition of private property rights principle has won in practice in most countries. The non-capitalist or socialist experiences, such as the ex - Soviet Union or today's Cuba, Vietnam or China, are lower in number of countries and relatively narrow in scope and duration, but have involve a relatively large population.[5]

The political intermediate alternative of public ownership of land and leasing mechanism for private exploitation, can be seen as operational in some socio-political contexts (as the case of Hong Kong),[6] but carries on serious questions about its efficient and not corrupt manipulation by governments in many countries.[7]

Assuming that the private property regime will be the scenario prevailing and ever lasting in countries like Argentina, we will exclude the alternative of socialization or confiscation of land.

b) The relationship between land rent, land value and rural taxation

From the economic point of view and with adequate preservation methods, land is of unlimited lasting. So, the land rent can be understood as a permanent stream of earnings or surplus after payment of the variable factors (labor and capital), that will be permanent over time and, therefore, land acquisition can also be interpreted as the acquisition of a "promise

[5] In Argentina the socialist attempt dates back to 1921, in the early history of rural land taxation. See Arceo and Basualdo (1997).

[6] Hong Kong Government (1998). For more information on this alternative see Piffano and Sturzenegger (2009).

[7] The Cuban government, communist experience in Latin-American continent, has just admitted its disappointment over the lack of efficiency in the allocation of land and food production. Cuba imports 80% of food that consume its 11.2 million people, mainly from U.S., since food and medicines are excluded from the blockade that Washington applied to the island since 1962. In the first months of 2009, Cuban imports quadrupled in value to exports, leaving the island with a distressing lack of liquidity. Regarding the use of land, president Raul Castro gave the latest figures: "*690,000 hectares have been delivered, about 39% of the 'leisure area' and were only seeded a third of it"*, while announcing a second stage of adjustment of the precarious Cuban economy by requiring greater efficiency in land distribution and in food production, he said "*The land is there, here are the Cubans, we will see if we work or not, if we produce or not. It's not the point shouting 'homeland or death', 'down with imperialism', 'blockade hits us', while the land is there, waiting for our sweat*". La Nation (2009) and El País (2009).

of future income or rent". Assuming infinite periods, the present value of land results in a geometric progression that it is simplified with the familiar formula:

$$Va = R / i$$

where:

Va = present value of land
R = regular (annual) total rent
i = real interest rate or opportunity cost of capital.[8]

However, the concept of "land rent" has often been incorrectly understood, like similar to an "extraordinary" gain in comparison with the "normal" earnings obtained from activities with similar risk. This wrong idea comes up from summing "rent of land" to the "capital returns", rather to understand it as a payment "normal" and "residual" of factor "land". That misleading confusion[9] causes two important consequences:

a) It confuses the identification of the economic compensation of land use with the capital use - two "separate yields" belonging to two different factors of production: capital and land - as if they were a unique factor of production (capital).
b) The superimposition of rent considered as an extraordinary gain added to the normal return on capital, reduces the value of land - absorbing a significant portion of rent - to the

[8] In any integrated financial system all financial assets should observed the following profitability conditions: risk, timing and liquidity of each asset. In case of the acquisition of an asset such as land, the opportunity cost to use as reference should have these characteristics: it should be a real rate of return and not a nominal one, because the land value similarly to any asset except special circumstances, adjusts with the inflation rate; should be an asset with similar risk; should be essentially a non-liquid asset; and, finally, should be a long term interest rate, not a short term interest rate.

[9] Lucio Reca comments that in our country the meaning of "land rent" has also had other interpretations. For example, Reca explains that one of the pillars of agricultural economics education in the faculties of Agriculture in Argentina was the methodology for calculation of "production costs", which were used during many years in the Ministry of Agriculture, and (in theory) serve up to provide "a basis" for setting the "sustain prices" for wheat, etc. Land rent was determined with a rate of 3-5% on an approximate valuation of land price. They do not regarded rent as a "residual payment" after paying the cost of variable factors of production by nature. Land factor had similar category to any other input or factor used in the production process. Probably that unconscious collective conception may still be around, adding an element of more confusion, by failing to understand that an approximate valuation of the land price eventually encloses the true concept of long term residual rent obtaining from it.

point of a possible confiscation or indirect expropriation, causing the market value of land (not necessarily its social value or shadow price) tends to cero. In front of a null private rent (that is, in absence of a portion of social rent appropriable by landowner after payment all other factors and taxes), market land value would be cero.

c) How to avoid the mistake of confusing the land rent with the return from capital invested in it?

The way to avoid the confusion alluded in the previous section is to realize that rural activity is performed in terms of the use of two kinds of factors of production: fixed and variables. The former category is identified with the factor “land" (specifically the soil), and the latter category would be facilities and buildings, and those inputs substantially variable.[10]

Actually, the factor "land" has two components: the original and indestructible factor land or the "raw land" defined by Ricardo, and “extraordinary improvements” as drainage channels, land leveling, etc. While these improvements are not original by nature, but arise from economic decisions of landowners or governments, they become inseparably attached to the original land and they have a very low rate of depreciation, so they have a similar characteristic to the fixed-factor of Ricardo. The facilities and buildings make up the rest of the improvements in the rural property, usually called “ordinary improvements”, such as facilities and rural buildings, fences, waterholes, barns, silos, housing for staff and workers, and others that although are also attache to the land, their rates of depreciation are much higher than those for the extraordinary improvements, and they have been introduced by their specific purpose which is to develop of a rural activity. That is, without any intention to develop rural activity, these investments would not occur. For that reason they may be considered as a variable factor. Meanwhile, the substantially variable factors are the well-known seeds, machinery, livestock, chemicals, fuel, rural labor, etc.

[10] Certainly it could be possible to identify facilities and buildings, as a third factor, "quasi-fixed" or "cuasi-variable"; but on purpose of the Ricardean distinction that is used and explained later on, is also convenient identify them as variables.

Taxation policy on rural sector should observed different treatment for each type of factor. The economic return of the fixed factor "land", which arises from the **rural property** (**RP**), should be levy differently, and separately of profitability or gain of "variables factors" that is gains arising from the **rural activity** (**RA**).

Therefore, the main distinction to avoid mistakes is taxation design on rural sector, is to treat separately the fixed component (RP) and the variable component (RA), and in turn, acording with this distinction, it is appropriate to treat individuals operating in rural sector 'á la Ricardo', that is: the owner (landlord) and the producer (capitalist). Ricardo in his work on the subject made a sharp distinction between the fixed and the variable factor. In his model, the rural sector is composed of those two types of economic agents. On one hand, the landowners, who are paid by the rent obtained from their land. This rent arises from differentials in productivity of lands, obtained both by the 'extended margin' (expansion of harvested acreage) or by the 'intensive margin', in the land use (marginal gain due to incremental investments on the acres occupied). On the other hand are farmers – the capitalists in Ricardian taxonomy - who through the use of the variables factors capital and labor, operate the rural productive activity. Perfect competition among capitalists, demanding land for leasing, makes this sector gets only normal profits for the investment. Any eventual extra-gain greater than normal, either due to agricultural prices increases, by reduction in agricultural inputs prices, by technological improvements in land exploitation, or for any other reason, will not be accrued to normal gains of capitalist agents. Due to the mobility and competitive access of capitalists searching to maximize the return on their investment, all increase in rural commodities performance will be completely transferred to the owners of the fixed factor - the rural landowners - through the increase in rent or leases that in that competitive scenario would occur.

But in the current organization of rural sector, in fact there is not such a sharp Ricardian separation. At present, owners sometimes decide to rent their land to contractors or tenants, the "capitalists" by Ricardo, but sometimes landowners decide to exploit their own land, that is, in addition to be owners, also choose be capitalists.

However, despite the hybrid status of our rural organization, in the taxation design is convenient to maintain the separation of Ricardian view precisely in order not to make conceptual errors as mentioned above. Any economic return that arises from the RP should pay a tax, while profitability that arises from the RA should pay another tax of a different nature. This means that when an owner leases his land to a contractor or capitalist should pay a tax on land rent (which is what justifies leasing). Furthermore, the contractor or capitalist should pay a tax due to profitable rural activity, that is, on the gain obtained after paying the cost of leasing to owner. If the owner operates his or her own land, would be acting in two roles. One, as landowner, and must to pay a tax on land rent, as if he had paid the land lease to himself. The other, as a rural producer and he must pay taxes associated to that rural activity, that is, the net gain after deducing the cost of the land rent, on which he or she would have already paid the tax, as RP.

Why is it important the distinction between RP and RA? It is important at least for two reasons. First, because in case of RP, the tax should levy the land rent, that is, the "fixed and not reproducible factor" (land), whereas in case of RA, the tax should levy gains obtained by the use of variable factors. Through a tax on value land or Rural Real Estate Tax (RPT), of the type a "tax on land free of improvements" (TLFI), the Government will absorb a portion of the rent of the land factor without affecting incentives for their use, which means without causing excess burden. Besides, optimum taxation criterion suggests that tax should be also relatively fixed, that is, not levy tax on the short term land rent - relatively volatil - but levy a tax on the potential long term of land rent. This type of tax, induces to lease or operate land efficiently, so as to obtain the highest possible rent; so this type of tax is compatible with the best productive use of land factor.[11] By contrast, in case of taxing gains obtained from the use of variable factors, such as the Income Tax, it is optimal to tax income in proportion to the effective gains. These factors are mobile in the economy and it should be taxed as they are in all other economic activities.

[11] As it will be discussed later on, the Argentine Supreme Court of Justice, while considering tax confiscation, mentioned that the tax base of reference for measuring confiscation of a rural real estate tax should be the actual market value of land, or the potential rent of the property exploited "diligently". This form of taxation on land value relatively fixed - taxing the long-term potential of land rent - does not exclude the possibility of schemes of tax payments linked to major changes in annual, current or effective land rents, not only through "sporadic plans", allowing reductions or deferment of payments through ocasional policy decisions, but also through "automatic plans" (that is, through policy decisions designed as permanent "rule").

Second, if land rent and capital gains are summed up for tax base determination of a tax (like the Income tax), the tax leads to double taxation. Actually, the Rural Property Tax in many Argentine provinces is a tax on the rent of land – or a tax on land value that is the same – but in many cases they also levy the tax on ordinary investments (that is, the land improvement is also included in the tax base), while the national level of government, levies a tax on profits of Rural Activity, through the Income Tax. So, in some provinces, taxation on Rural Property levy a tax on sunk investment in ordinary improvements of land - that is the same that taxing the economic return from equity applied to the rural activity (double taxation) -. In turn, the national Income Tax - in cases of confluence of the RP and RA in the same person (natural or legal) - can not avoid to levy the tax on land rent and earnings of capital invested in the AR at the same time (double taxation). The Income Tax legislation only allows labor cost deduction. That is, the land rent is taxed differently and separately for both levels of government. This double taxation could be avoided through allowing the deduction of a "presumptive lease", like a self-payment of a leasing acting as producer (RA).[12]

Of course that avoiding double taxation on rent and income from sunk investments in rural properties will necessarily require an agreement between levels of government (national and provincial), so the Rural Property Tax would not levy a tax on land improvements, and the national Income Tax would allow the deduction of the lease (the effectively paid in the case of a capitalist, or the "presumptive lease" in the case of a landlord-capitalist), the same way that the Income Tax in Argentina allows to deduce from the tax base dividends of shareholders, avoiding double taxation on capital.

However, it is clear that the private property of land could be affected by the consolidated fiscal policy, as a result of all tax policies adopted separately by levels of governments (national, provincial and municipal). Because all taxes on land - even avoiding double

[12] In some countries, like Brazil, income tax law allows companies to make a deduction for the opportunity cost of capital invested in order to taxable income determination. This measure attempts to avoid bias against financing through own capital or fraudulent simulation of the financing structure with the use of credit or debt, that is, to avoid the problem of "thin capitalization".

taxation as already suggested - will affect the land market value; that is, no matter what tax or set of taxes on the RP and the result of the RA, would exist.[13]

Reduction of land value is synonymous of reduction of the net present value of the private land rent. Therefore, the value of land depends on the level of tax burden on it, either directly through the Rural Property Tax or a Personal Property Tax, or indirectly through the Income Tax, Tax on Exports, or by a Gross Turn Over Tax (Ingresos Brutos). Each tax will capture a portion of land rent and the consolidated may lead to a tax burden that finally becomes confiscatory, or not depending obviously on its level. This topic is analyzed next.

d) Taxing rural rent and confiscation

Tax confiscation has been always of concern of tax experts (accountants, lawyers, jurists, constitutionalists, economists). But in the case of the factor "land", the property right has been discussed mostly in a different political scenario relative to the rest of activities and/or real and financial resources. The eternal discussion recognizes an especial concern respect private ownership of land. The domain of a non-reproducible resource, necessary for living to any individual, and linked to this characteristic, the ethical-religious conception of land with the original attribute of a "natural right" for its use, has lead many times to support the principle of a "common right" for use of all humanity.

However, it is clear that discussion about private property right or public property of land finally becomes irrelevant, since no matter the possible constitutional arrangements (recognition of private property or public ownership) ultimately the Government will always exercise the "effective domain", even though from the purely formal or legal side, constitutions sustain the principle of “private ownership right”. The effective control of Government can come about simply through expropriating land, or indirectly "recognizing private property" but taxing the land rent to unreasonably high levels.

[13] The next section will explain in detail this important aspect of rural taxation.

What is the difference of the tax burden and confiscatory taxation on land relative to tax burden on other factors of production? Precisely that the land is not tradable, and is not reproducible. Variable factors can avoid the confiscatory effect in the long term, though suffering a confiscatory tax in the short term. Simply due to the mobility of variable factors, through regional and sectoral reallocations - in a free crossing borders scenario - the private owners can escape from the Leviathan effect of the Government, while landlords shall suffer the respective expropriation of their land without any possibility of "voting with their feet" (Tiebout).[14]

For this reason, discussion on tax confiscation affecting land value becomes highly relevant, not only from the economic point of view but also legal and political, because ultimately the only limit to taxation seems to be only "the law"; there would not exist an economic limit. However, in rural land case: what type of reference can help to define the level of tax burden that may be defined as confiscatory? Let's review the two approaches: the legal approach and the economic approach.

From a legal point of view, the Constitution of Argentina protects property right by prohibiting the confiscation of property (Art. 14 and 17).[15] The Supreme Court jurisprudence also has sustained that confiscation is verified when tax burden goes beyond 33 per cent of property value or its rent (which is the same). Within that line, the supreme magistrates have insisted that "this pattern" (the 33%) has been recognized repeatedly by the Court, so confiscation occurs in all cases where the tax burden exceeds the prescribed percentage.[16]

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[14] For a similar reason, the sunk investment in rural property could also suffer the expropriation.

[15] **Article 14**: *All the inhabitants of the Nation enjoy the following rights under the laws that regulate their exercise, namely..... "Use and dispose of their property".... **Article 17**: Property is inviolable and no inhabitant of the Nation can be deprived thereof except by sentence based on law.... "The confiscation of property is hereby abolished forever from the Argentine Criminal Code. No armed body may make requisitions nor demand assistance of any kind*".

[16] The Supreme Court of the Nation in many cases and in various issues established the tax rate beyond which tax law violates the constitutional principle of non-confiscation. This limit was always set at 33% (see bug: 209:114, 210:310 and 125/126, 320, recital 6° among many others). The ceiling of 33% in the tax burden is the one that fixed the Argentine Supreme Court with its present composition explicitly in the famous ruling "Vizzoti, Carlos A. C/AMSA SA s/dismissal" in November 4, 2004, that capped the cut of the tax basis for compensation of labor dismissal, contemplated by art. 245 of Argentine Labor Contract Law. However, in a most recent jurisprudence - July/03/2009, Pronouncement C. 866. 42. Candy SA c/AFIP and other s/judicial

That is, when the tax burden exceeds the indicated limit, applied on "real value of assets" - which equals the present value of the private rent generated by them - property rights would be altered in substance; in rural sector case, covering the domain, land leasing, and/or all products that land produces.

However the clearness of the recent Court jurisprudence about the limit of confiscation, which "is not absolute but variable in time and circumstances", dealing with taxation burden should be recognized that there is a close relationship between the State of Law and constitutional guarantee to private property as an institution. The abuse of the taxing power of government can demolish the State of Law and jeopardize the private property right, pushing society toward collectivism. The attribute of confiscatory of any tax is independent of its economic purpose, and the injustice committed by any taxation on assets or incomes of any person, produces an economic damage that should always be repaired. This is guaranteed not only by art. 17 of the Constitution, which guarantees private property right, and by art. 18 that prohibits confiscation as penalty, or that any armed force

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protection in relation to inflation adjustment in balance sheets - the Court has pointed out that the limit of the tax burden is not absolute but **variable in time and circumstances** (Judgments: 314:1293; 322: 3255), and that the criterion for judging the tax burden and its rationality can not be tightly uniform for all cases in orden to declare a tax as confiscatory or not, "... it is not enough consider the tax rate but also other reasons relative to taxation matters, the timing of its implementation or its impact, and so on, which is a matter of study by the Congress within the constrain of the constitutional guarantees "(Judgments: 160:247). However, in the same vein, the Court has established that due to changing circumstances in the country - even under the same circumstances - the different link of certain kind of taxes with general welfare, derived from the type of wealth or taxable activity, or from the direct or indirect taxpayer, and the country where the wealth has located or where the gain has been obtained, may justify that the limits vary more or less. Except for the case in which the amount of the tax burden behaves virtually as the annihilation of property in their substance or in any of its attributes, the limit is not absolute but relative, variable in time, and even capable of differentiation at the same time (Judgments: 210:1208; see also Judgments: 210:855). It should be remembered also that since many years ago and in certain matters, the Court ruled the famous 33% as the ceiling for the tax burden, limit beyond which art. 17 of the Constitution would be affected, "but this limit could not be erected... as a rigid parameter ..." (see paragraph 25, majority vote in Judgments: 318:676). In particular, and only as an example, it is noted that this pattern was maintained always in real estate taxation (Judgments: 196:122, 209:114 and 200; 210:172 and 310; 220:322, 236: 22) and yet it has been based on very specific requirements for determining the value on which that proportion o rate would be calculated, such as considering the real value of the property or the productive, normal or potential value, according to a rational exploitation of it and not its administrative or cadastral assessed value, (Judgments: 239:157; 314:1293 and appointments 322:3255, among others). Also came up to that rule in the case of the inheritance tax (Bugs: 234:129, 235:883), dealing with the provincial tax levying on fees earned in court (Judgments: 220:699); finally, the contribution of improvements, if it is slightly exceeds 33% of property value after the improvement (Judgments: 210:351). At least but not last, for comments about Candy versus AFIP see Teijeiro and Ballone (2009).

can make requisitions neither demand assistance of any kind, but also by the "reasonableness guarantee", that emerges from art. 28 of the Argentine Constitution.[17]

Although depth discussion of the legal issue is obviously beyond the scope of this document - the author acknowledges his professional weakness in this area - some additional comments about a possible conflict in the very common statement of the Supreme Court that justice can not "play politics", deserves a mention. About this usual point of view, an obvious question arises: in which way should be defined the institutional mechanism to determine the "reasonableness" of a tax, and determining whether it violates property or not, diferent to "making politics"? The Justice will not resolve the problem by arguing that a trial is politically complicated, corresponding to Congress the attribute of how to define trade policy, exchange policy, fiscal policy linked to provision of public goods, problems of income redistribution policies, etc. Trials in Supreme Court, complicated or not, being a consequence of Congress decision or not, must be resolved by Judges when they arise at that instance. It seems that the problem of Justice, at least in recent years in Argentina, is to wield a careful attitude in order "to avoid political decisions making" or "not judicialize politics", arguing that "to define policies is a function of the Congress". So in Argentina seems to be of no concern to the Justice, for example, people protesting and cutting streets or roads with police acquiescence (in any case actually "legitimized" by the government). It seems that Court neglects to recognize that Justice is an institution whose existence responds to the republican regime of government, which therefore constitutes a "constitutional power" and so is also part of Government. "Policy decisions" through the Justice are necessary every time Constitution is violated. In the present case, this is so because the justification for the existence of a tax does not depend solely on the opinion of Congressmen, no matter how good, appropriate, timely and well-intentioned from any point of view – economic or social – could be qualified the taxation law drafted by Congress; even supported by opinion of economists awarded with Nobel Prizes - just because what it is set out by Article 28 of the Argentine Constitution.[18]

[17] "Art. 28. The principles, guarantees and rights recognized in the preceding sections shall not be altered by laws that regulate their enforcement".

[18] The justification of a tax law can not be based solely on grounds of economic efficiency arguments (gain/loss of welfare by encouraging or discouraging the taxed activity not offset by deteriorations or

Why then the author was encouraged by the idea of trying to find out a guideline for allowing judges could set out a clearest parameter to define the limit of confiscatory taxation? Because the argument ratified by the Court in Candy SA v / AFIP that 33% would not be a strict limit because the limit is subject to conditions "variable in time and in circumstances", generates an scenery of extraordinary level of uncertainty, and probably destruction or non-viability of many large investment projects - particularly those in long-term maturity - which is incompatible with a free market system and private ownership to operate efficiently. Moreover, if Supreme Court in future trials due to changed circumstances decides that such a limit reaches 66% - double the famous 33% - would be legislating retroactively on tax burden, affecting private property rights and unrecoverable investment. This would contradict the constitutional principle that requires the existence of tax legislation in advance to the economic decision that will be afterwards taxed. So, fixing a new limit of confiscation should not be subject to future discretions in which changes of the 33% parameter were relatively important.

In conclusion, generate a suggestion that could help judges to limit or narrow the definition of the constitutional guarantees dealing with “the reasonableness of taxation” on the rural sector, whatever the policy decided by the Congress is the aim for a possible contribution of this document.

However, it is clear that Supreme Court jurisprudence has not discussed about the tax confiscation due to “consolidated tax burden”, that is, cumulative of all taxes levied directly or indirectly the land property and affecting its value. The land value could be affected by a tax on land property - as the real state tax - or taxes on production or income it generates, as the tax on gross turn over tax (Ingresos Brutos), tax on exports, the income tax, etc. Anyway, any tax on the activity performed with the use of land as dominant factor

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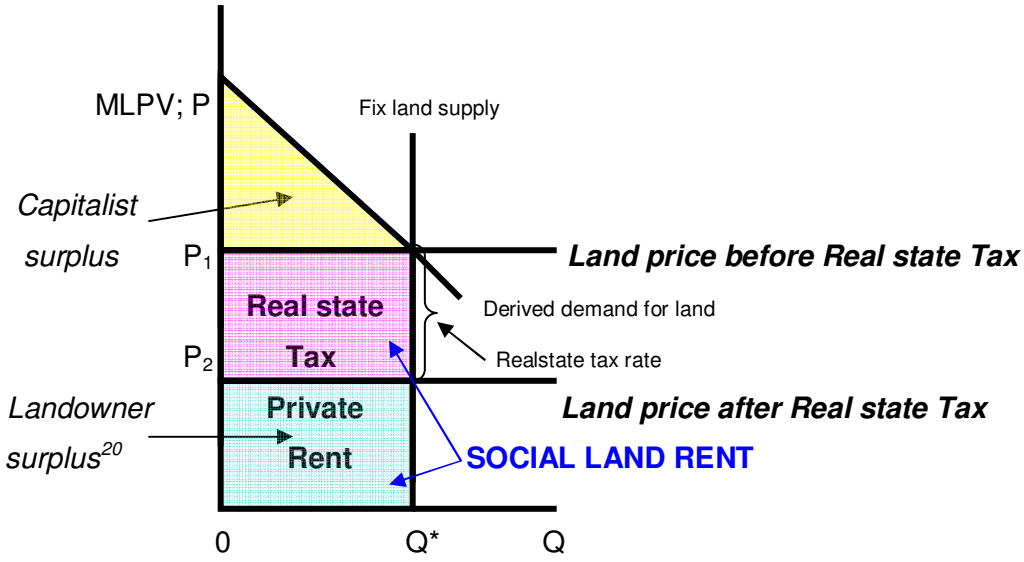
improvements generated in the rest of the economy) or on distributional equity reason (income redistribution policy as a public good or as a merit good) (see Bour, E., 2008, 2009, Chapter XV, on this topic). No matter the justifications that literature has recognized in land taxation (see Stiglitz, 1987), the design of economic policy faces a typical "conditionated optimization problem" - which forces policy makers to achieve a “second best”- and in which one of the operating restriction is the “confiscatory level of taxing power”, no matter the objective function to optimizing.

of the production, end up affecting the residual payment to landowners (the land rent or land leasing) due to tax-amortization effect on land value. Figures 1 and 2 explain this important aspect of the study.[19]

Figure 1



Notes:

MLPV: marginal land productivity value

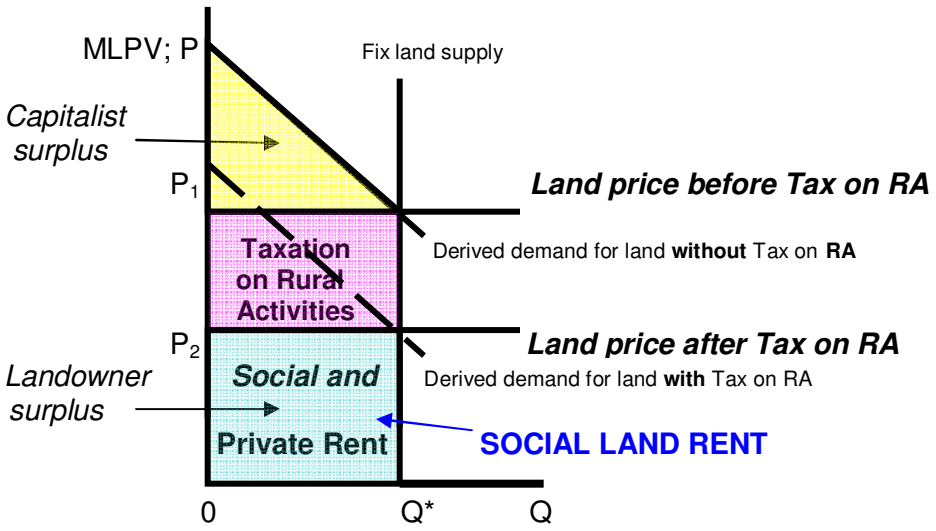
P: land price

Q: acres

SOCIAL LAND RENT = Real state Tax + Private Rent

[19] In Appendix 1 you will find a formal description of this point.
[20] The Real state Tax affects the landowner surplus (implies instant "tax-amortization"), regardless if land is leased or operated by landowner direct administration.

Figure 2



Notes:

MLPV: marginal land productivity value

P: land price

Q: acres

SOCIAL LAND RENT = Private Land Rent

The abscissa, both in Figure 1 and in Figure 2, measures acres of land of certain quality (or fertility) and Q* the available acres or farm size. The ordinate axis measures the marginal productivity value of land (derived demand for land), where the negative slope takes account of diminishing marginal returns in land exploitation.[21]

The integral of the demand curve in the range 0-Q* expresses the gross social value of the exploitation of available land, that can be split between the "surplus" that the capitalist appropriates and the "social land rent" accountable to the use of the fix resource land (the area below the line indicating the price of an acre of land before taxes). The level or height from the abscissa axis of the derived land demand curve depends on the type of land or quality of soil; a better quality means higher altitude level from the abscissa axis. An

[21] This assumption is not crucial for the economic analysis posed here; it is possible to assume constant returns, in which case the demand curve for land would be a flat-derived demand curve, parallel to the abscissa axis, indicating that there is no surplus for the capitalist or demander for land. However, from the economic and legal point should be necessary to clarify something more regarding land improvements. This aspect will be analyzed later while discussing the possible benchmark for land value determination.

increased height of the curve belonging of one property over another, will thus indicates the existence of an differential rent due to fertility or location of the former relative the latter (therefore of lesser aptitude). It may also be due to the effect of increased investment in improvements (tillage modern technology, fertilization, etc.), which increases the benefit obtain from the rural activity on the property, generating a differential land rent due to intensive margin. Linked to this, it is important to assume that technology used in the exploitation of rural property correspond to "frontier technology", depending to the present state of arts.[22]

Figure 1 shows the incidence of a Real Estate Tax - Tax on Land Free of Improvement (TLFI) - by which the government captures a part of the social land rent (SR) and the "private rent of land" (PR) obtained by landowner; and, Figure 2 shows how any other tax burden on rural activity (RA) – levying a tax on production costs or on the sale price of rural products - also reduces the net rent of land received by private landowners, moving down the derived demand for land.

Figure 1 also shows that a tax on land rent - such as a TLFI or a "normal potential land rent tax" - does not affect the level of gross social land rent obtained before and after tax. For that reason the derived demand curve for land remains unchanged after the appearance of the TLFI. That's why tax burden on rural property through a direct tax like the TLFI, means a non-distorting tax, that is, it doesn't change the level of rural production, while tax burden on the use of variable factors, like a "gross turn over tax" (Ingresos Brutos) or a tax on exports, affect production and the social land rent. TLFI would only have distributive effects through the appropriation of social land rent (the government partially socializes the land rent, and lets the difference be appropriated by the private landowner).

Figure 2 shows that a distortionary tax levying on inputs or production cost and/or on the value or the price after tax of rural products, brings down the derived demand curve for

[22] This assumption guarantees judges that land rent is attributable to the present estate of arts which links to the concept of a "normal potential land rent" which could be achieved working productively.

land, which means a decrease of the social land rent and a similar reduction of the private land rent, appropriated by landlord, while capitalist surplus remains unchanged.[23]

In conclusion, the difference between the two types of taxation is that a TLFI does not reduce social land rent, simply reduces its appropriation by landlord, i.e. reduces the private rent; the rest is socialized by the government. But a tax on RA not only reduces private rent appropriated by landowner, it also reduces social rent. In case of combining a tax levied on the use of inputs, or a withholding tax on sales, the capitalist must be paid anyway according with the opportunity cost of variables factors labor and capital, which means a lower rent value attributable to rural production and a consequent lower level of rent for landowners (backward shifting of tax burden or incidence). If tax burden on rural activities goes on increasing, the derived demand for land will continue falling (moving down) and, eventually, cause an excess supply of land, i.e. the demand for land would be less than the total available acres of land (would reduce the extensive margin of land factor use). The derived demand curve for land will continue descending, reaching the abscissa at some point - on the left of Q* - showing at that moment the existence of idle land, and tending to zero the property value.[24]

The reader can imagine another diagram including the two types of taxes simultaneously. The result is that both – the consolidated tax burden - will affect the “residual rent of land" for landlord - after paying the opportunity cost before taxes of the other factor (capital and labor) - causing a sharp drop in the market value of land..

So, it is clear that both types of taxation - a direct or indirect tax burden on rural activity and, consequently all taxes: state-provincial taxes (like a TLFI and any type of sales

[23] The integral of the derived demand curve for land between the abscissa intervals 0 and Q* measures the gross social value of rural farm production and clearly shows a higher value in the case of TLFI (which does not change the level of that curve after tax). While the integral of the derived demand curve for land, in the same range 0-Q*, of a distortion tax, shifted down that curve. As capitalist surplus will not change, the result is a lower social rent attributable to land factor of production. For further explanation of this topic see Appendix 2.

[24] If the derived demand for land is assumed parallel to the abscissa (constant costs in the use of the variable factors), reaching the abscissa level, land would be totally put out of production and property value would be zero. See Appendix 2 for extensions.

provincial tax, etc.), the national taxes (Tax on Exports, Corporate Income Tax, etc.), and the local or municipal taxes (like the Tax for Maintenance of Road Network) are "amortized" in land value, and the consolidated tax burden could lead to a scenario of confiscation.[25]

Finally, if social rent of land is totally expropriated by government, i.e., if government reduces private rent of land to zero, will lead land market value to zero. In this case, and despite the usual "normative welfare approach" which supports that "social rent of land " will anyhow survive, it is natural to expect that there will be no incentive for the landowner to make his land produce.[26] Let us clarify this point: why with "private rent of land" equal to zero can be expected that there will be no incentive for the landowner to lease land or assume the risk of direct exploitation of his land? The normative welfare approach argues this way: if the social rent of land is greater than the cost of rewarding the variable factors or the opportunity cost of labor and capital, a capitalist (tenant) will be certainly willing to pay a leasing with the equivalent difference between sales value less those costs (the residual rent or the private rent of land). It is also true that if the owner does not lease his land, would face a huge loss, because he should pay the TLFI the government anyway. On the other case, if a landlord-capitalist decides to run the rural activity directly, he will estimate the risk of his investment in the same manner as the tenant does, and the situation would then be equal, and the TLFI would be paid exactly with the difference o residual land rent after rewarding variable factors cost. If owners decide not to exploit their land could not avoid paying the TLFI anyway, consequently, would have to produce and get as much rent as possible. From this argument arises the premise that nothing would change in terms of incentives. But this is not really correct; let's explain this point:

(i) if land is given on lease, the landlord must be sure of achieving a minimum positive private rent for covering own risks – of relative unknown magnitude - depending on: 1) how the tenant make use of land (most notably the possible exhaustion of soil through organic components exhausting or a poor use of technology), and 2) losses in the collection

[25] Appendix 3 provides a summary of recent author studies on tax burden measurements on the rural sector in Argentina, Piffano and D'Amore (2007) and, Piffano and Sturzenegger (2009).
[26] Assuming a long-term scenario.

of rents (a circumstance that was lived in 2009 in cases of the deferred lease payment modality, due to the failure of the agriculture campaign caused by drought). These are two risks assumed by the owner (not by the tenant). That is, leasing land do not means “living on rent” without any efforts or without problems. A lease contract needs to be managed, and those risks need to be covered (insisting, not by the tenant but by the landowner). Experience indicates that there is no formal lease that can avoid them. Let’s remind once more that the residual rent is what any tenant or capitalist will be willing to pay after paying the variable factors, labor and capital, plus taxes, not more, so that the “residual social rent of land” determines how much money will remain for the landowner or for government (taxing directly land rent). But, even more, if the government absorbs all rent, the landowner could not survive, because even assuming that those risks do not exist the question is: on what income will allow to landlord and family, afford their living? The landowner would be the owner of a factor of production with a return equal zero! The rent of land property - the expected "positive future flow" of income to live on - from that moment on would not exist due to government confiscation.

Is it possible to imagine a permanent economic scenario of this kind? Will the landowner put his land in production anyhow? There would not be any reaction to confiscation? From what source the landlord and his family will live from that moment on if the land rent is the only source of income?

(ii) if the land is exploited directly by the landlord-capitalist, differential costs usually arise relative to the ones of tenants or contractors (pools) due to economies of scale (the use and access to modern technology, bulk or wholesale purchases of inputs, risk diversification in terms of regions and product structure, etc.). In this case landowner would not face the risk of land predation (land misuse), or at least depend on his decision to avoid it or not, but must assume that differential cost relative to contractors. If government captures the full social rent, measured by the potential lease value of land, the producer or capitalist-

landowner could not cover this differential cost.[27] The only solution could be to fix a TLFI of lesser burden on this type of exploitation. But a TLFI with a different tax burden for each type of operating system would most likely be affected by fraudulent conducts or maneuvers, administratively very difficult to avoid.

In both cases, therefore, recognition of a private positive rent above the TLFI is required to prevent the net loss and ensure a minimum income for subsistence of landowners. Of course, if land is not being efficiently used losses would be even higher; because owner would have to pay anyhow the TLFI. But then the question that arises is how to imagine in the long term a permanent net loss and lack of income to survive for landowners?

The landlord could not keep on working on rural activity for long, because he would be working either in administering a lease, or as a "private agent" producing for the exclusive benefit of the government with a net loss and without income at sight. Then, the landowners will face a scenario of slavery, where it is not clear what income source shall finance their life. Probably they will decide to throw to trash their property titles, go abroad and thus avoiding any net loss and pay nothing to the government. Indirect expropriation or abandonment of lands would be observed. If Justice would not exist or would not appear the alternative to land abandonment would likely be a violent conflict.

Supporting this argument, Enrique Bour in his commentary, while suggesting that this paper should advance a set of essential attributes to consider in the design of rural taxation, rather than being concerned exclusively with the problem of the quantitative tax limit for confiscation,[28] as first principle or essential attribute points out: "*Security in property rights: farmers shall produce if they do not fear an arbitrary land confiscation. Entrepreneurs and inventors will not develop new products if they have no property rights such as patents, trademarks and intellectual property rights. Property must be guaranteed*

[27] The landowners who would be most affected are those with fewer acres of land (and to some extent, with lower soil quality) who obtain rents at levels below to the "average land potential rent". Go back to Appendices 1 and 2 for explanations.

[28] Bour is thinking of a much larger work, such as being developed in the already mentioned Piffano and Sturzenegger (2009), but the aim of this paper is much more limited.

by a predictable rule or law enforcement against possible robbery form private or government organizations".

In conclusion, if landlords do not obtain any positive net private rent will have no motivation to make their land produce because they would not have any income to live on. In that case, if government want to keep on rural production, it may do it by "a direct and explicit act of land expropriation" – allowing other capitalists to exploit land for the government, with paying it the full lease (land rent) - or by an "indirect act of expropriation forcing owners or farmers to produce anyway".[29]

Now, without going to an Stalinist extremes full expropriation scenario, the relevant question for any capitalist country that respects or guarantees property rights and freedom of individuals, is: what could be the benchmark to identify the "reasonable bracket" to tax burden on the value of land - or the present value of private rent, which is the same - that legitimize a land rent to private landowners avoiding confiscation? Is there any "economic parameter" that may help answer this question?

[29] It would reiterate the historical phenomenon of the kulaks or small farmers who did own land in Ukraine. Stalin did not want to expropriate their land, but he wanted to capture the land rent, so as to force farmers to live as "serfs of the glebe". The farmers who exploited the land of their ancestors resisted, being denigrated and stripped of the fruits of their labor. They objected strenuously to turn over the cattle and corn from their lands. They organized resistance, hiding crops in underground silos protected with cloth with tar and tarred roads blocked to prevent the looting of their products. This infuriated the tyrant Stalin who decided to use brute force and unleashed a violent propaganda campaign against the country accusing them of being selfish, rich oligarchs, subversives and enemies of the Soviet people. He could not initially send the Red Army to suppress them because at that time were spread across a multitude of small places and the Red Army would be drained in an endless series of tiny battles. Then organized shock troops made up of militias led by political commissars. But he also ordered to starve Ukraine farmers. He began by accusing them of violating an absurd law that established as serious criminal offenses: a) providing false information in affidavits, b) sell smuggled cereals and oilseeds, c) eat a particular stock of self production, d) resist the delivery of production to government, e) refusing to plant or harvest the products demanded by the government. The measures were on the rise. He seized all agricultural production and livestock based on the argument that by this way secured the supply of urban populations. In the documented work of Stéphane Courtuois (Director) (1997), may be found hundreds of terrifying photographs (from 1932 to 1933) where almost ten million people were deported to concentration camps in Siberia, killing a third part of them. Facing the Soviet propaganda and irrational battle many rebel kulaks even killing local political authorities. But success of farmers was short lasting. The Red Army led by political commissars was finally sent to drown the agrarian revolt. The GPU secret police launched a terror campaign to bring down the morale of the rebels. When local communist party leaders, sent massages to Stalin begging for a little leniency, the tyrant responded ordering them to exterminate those leaders with the firing squad, and turned up Ukraine into a huge concentration camp. (Margariti, 2008).

Later a proposal to answer that question is suggested, but previously is necessary to make new clarification.[30]

Certainly, the justification of the jurisprudence of the Argentine Supreme Court of Justice on the confiscatory level of taxation of 33% was the "reasonableness", based on the subjective viewpoint of judges, which according the decision upheld by the Court would be anyhow "variable in time and the circumstances", a particularly important aspect as already were commented. In fact, how to distribute the land rent would be considered as a policy decision, outside the scope within which Justice and also the economic theory could provide "optimal" solutions in its allocation, and the decision will depend on which is the distributive justice criterion sustained in policy desing.

On that vision, it seems that any proposed expropriation of land (or land rent) with a tax essentially non-distortive, as the TLFI - would not have any economic significance - and therefore would not need to be particularly studied by economists - because there's no harm in a pure economic sense with expropriation; it will not affect the supply of land, and consequently will not affect production (there is no excess burden). Porto in his critique reminds that the second welfare theorem, in its most raw and pure definition, shows that property transferences make redistributions possible without affecting incentives; and, models "*à la* Henry George" and his proposal of a "single tax", where the public expenditure is just equal to the land rent, levied with this single no distortive tax.

However, we disagree with the "pure" welfare approach at least for two reasons:

First, in an open economy with perfect factor mobility between countries, any compulsory property transference and/or any attempt to reduce prices of variable factors (labor and capital) below their reserve values, will affect incentives (input supplies), precisely due to mobility.[31] In the case of land, according to welfare approach, this will not happen, because

[30] The author must thank Alberto Porto for his first criticism to a very preliminary version of this document that induced to make this additional explanation.

[31] In a general equilibrium model "*à la Bator*" it is possible to identify the "*optimum optimorum* solution" through "lump sum transfers", which given the assumption of "fixed factors' supply" can not obviously by

the supply of land is fixed, i.e., land can not cross borders. However, such attitude of confiscation or expropriation by government, very clearly will affect the "sovereign risk" of a country showing signs of not respecting property rights and the possibility that expropriations may go on beyond land. The evolution of spreads of sovereign risk rates among Southern Cone countries shows the incidence of the conflict between Argentine government and rural sector in 2008, in its attempt to expropriate a higher land rent. The Argentine sovereign risk was later in 2008 damaged once again, by government's expropriation of private saving funds from private pension administrations (AFJP). That is, a government that shows many expropriating decisions - very unpredictable but at the same time regular - affect the incentives very seriously.[32]

Henry George was right...levy a single tax (no distortive), why to levying another tax affecting the activity level? But the small detail of this suggestion is that is a socialist concept that not even respects the constitutional taxation principle in Argentina of individuals' equality - no matter if they are landowners, capitalists or ordinary workers without capital or without land - in paying the burden of taxes, and not compatible with the property right principle. If the scenario within which this issue must be analyzed is that of a capitalist system (which respects the rights of private property), any economic decision faces the question of how to maximize social welfare subject to the restriction of not confiscation. For a socialist country would be a second best that could be avoided, for a liberal or capitalist country that recognizes private property right, namely that recognizes the value of land that landowners had paid at the time of purchase, is a simple robbery when burden is higher than the legal limit (the restriction of the optimization model), that

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definition register any economic agents response, in terms of incentives in the supply of factors. Economic policy in such a simple model can introduce a social welfare function that identifies a point on the utility possibility frontier, with specific implications with respect to ensuring certain levels of welfare of each person and a specific Pareto-optima's configuration in the economy (and, only one production structure and unique relative prices between goods and factors of production). Certainly this type of model is not valid to an open economy with free mobility of factors and, consequently, the policy result is innocuous to any attempt to confiscate property of resources, which will remain fixed regardless of any legal scenario (privately property or publicly owned), and either to the implications over their relative prices.

[32] Unfortunately the governments behavior in Argentina have revealed repeated violations of properties and contracts (expropriations of large sunk investments, the public debt repudiation, confiscation of private savings, etc.) that have grown - in frequency and size - in the last two decades. The implications are clear - largely in decline in FDI and capital outflows – but the detail analysis of this issue is beyond the narrative of this document.

regardless of the legal question, will affect incentives. Now appears the question, which one may be the "reasonable legal limit" of tax burden for not giving signals of confiscation to the market? That's the question that this paper intends to answer.

(ii) Once the separatist Ricardian concept - among rural landowner and capitalist - is accepted, all landlords who live on from rent of land - beyond any additional income obtained as an entrepreneur - will be affected by the governmental attitude which could be perceived confiscatory by the rural sector. That perception may or may not be related to the parameter fixed by the Supreme Court jurisprudence. In fact the tax burden on the landowners in Argentina has been increasing in the last decade; however, was political, legal and economically tolerated until the dictation of the now "suspended" famous Resolution 125, which implied a price ceiling or a fixed price for any possible future increase in all agricultural commodity prices.[33] Basically the resolution implied a maximized level of expropriation of land rent by the government, without contemplating possible future increases in the cost of rural inputs. The uncertainty generated in rural activity was at that moment very important. [34]

The conflict between government and rural sector generated enormous economic cost, i.e. when the market perceived the confiscation and the high uncertainty scenario being created, economic agents and public in general reacted politically generating enormous social costs (in terms of excess burden, and revenues' losses in many activities due to conflict). So the welfare theorem - far from considering the institutional and political implications that a positive approach however could anticipate – is not enough as "recipe" to solve the real economic problem in any economy.

[33] The resolution fixed a dynamic system of tax on export with a progressive tax rate structure, linked to the international commodities prices.

[34] See AACREA (2008). During 2007 and until the endorsement of the cited "Resolution 125", the agricultural and industrial activities, and the entire country, had been benefited from the sustained rise in international commodity prices, so increases in the tax on exports rate (*retenciones*) from 10% in 2002 to the ones that was fixed in early 2008 (35% for soybean) were assimilated by the rural sector without creating any further conflict. As Daniel Artana said in his comment, political reaction to the R.125 accumulated not only the perception of confiscation of the land rent from landowners, but also of the sunk capital costs by capitalists in rural activities.

Perhaps it is not necessary to recall here to Friedrich A. von Hayek and Ludwig von Mises to highlight the importance of markets and their functioning in terms of economic efficiency. Nor adding contributions of the literature on “law-economics” and authors like James Buchanan and Gordon Tullock with its “economy of constitutions”, and all the literature on institutional economics that explores the effects of good or poor implementation of public policies on resource allocation, including attempts of redistribution of income that will affect the incentives, depending on how these policies are perceived by the market (consumers, capitalists, landowners, workers or employers).

Precisely when perceptions of economic agents through the markets - when they observe or anticipate changes in relative prices and on income earning opportunities from their activity - are considered important, a direct way for find out an answer to the original question of the paper on the "economic perception" on a possible limit of confiscation of land rent, is simply observing what the "land markets” say about it.

The answer to the question about which could be the reference or benchmark to set a legal limit to tax burden for confiscation of the land rent; the level that could produced harmful effects on economic activities and generates social conflicts, and whether there is an "economic parameter" that can help for answer that question, engender a first reaction that quickly comes to mind: the old recommendation of Jean-Baptiste Colbert (1661/1665), - Minister of Finance under Louis XIV of France, collected by the literature. Colbert said: “L'art de l'imposition is l'oie à plume pour obtenir le plus possible de plumes avant d'obtenir le moins possible de cris”- “The art of taxation consists in so plucking the goose to obtain the largest possible amount of feathers with the least cry hissing”-. But this ingenious recommendation, addressed to the policy makers very eager to get money and not so concerned about the productive consequence of their policy decisions, let everybody free to choose “the level of the goose's hissing” of the Colbert reference. Moreover, governments can go ahead despite the goose hissing. Actually, a more objective alarm reference of goose's hissing - indicative of rent confiscation from the economic standpoint - can be provided by land market. That is, the answer can be found in a comparative analysis of lands value in the capitalist world, corresponding to lands with similar quality, same

aptitude or same productive potential level of agricultural commodities production, and belonging to countries with similar institutional characteristics and economic/productive profile comparable to Argentina.[35] We will return to this proposal in the next point.

Finally, recalling opinions from Alberto Porto, and also from Ricardo Lopez Murphy who suggests that "the level of taxation is a question of values", and Martin Krause that "taxation has to be sufficient to pay expenditure. But, what expenditure?"..."There is no objective criterion that the economy can provide about what the state should do. Then we are back to political philosophy..." Actually, from political economy point of view is very important that economists can identify through market data the level of respect for private property of any country in the concert of capitalist nations. The governments' fiscal behavior, can explain different levels in land values. Anyhow, the benchmark will finally be fixed and will be judged in a range that only policy makers, judges, and naturally citizens who through the vote should be able to guide on the level of spending mentioned by Krause.

3) An approach to the benchmark

a) Introduction

The characteristic of land - a fixed factor and a non-tradable factor - may lead to think that land' values in different countries should not have any relationship. But this is not true, particularly in case of rural properties. The explanation is the same use of rural land in all countries producing commodities such as wheat, corn, soybeans or another crop, or used for cattle' breeding and fattening. The land will generate equal "land social rent", as residual benefit, after paying back services of the variable factors. As the variable factors have characteristics of being reproducible and spatially mobile, in

[35] Reader should take into account the meaning of the expression "similar institutional characteristics", i.e. no "constitutional characteristics", because it is possible to make comparisons with Federal and also with Unitarian countries; all countries guarantying private property right and individual freedom. Dealing with land value, any tax levying land factor – through national or federal, provincial or state and municipal or local governments' taxation – will affect land value no matter the political or constitutional scenario.

the global economy will converge to similar payments. So, it follows that in the case of lands with equal characteristics, the social residual land rent should also converge to similar values.

But convergence of social rent values is not similar to equalization of absolute levels of market land values (of lands with similar productivity or equal original soil characteristic). The absolute differences that will be observed in market prices may be due to the following factors:

(i) **Location -** and therefore differences in transport costs to the centers of demand for farm products -; differences that, however, is reasonable to be relatively stable at least in the medium term; and the **Improvements or Investments**.

(ii) **Tax burden** differentials - taxes and subsidies – on rural sector; and,

(iii) **Sovereign risk (or Institutional quality) of each country.**

About these three determinants, let's make a brief consideration of the third one, in honour to the anticipated critic by Daniel Artana - who mentioned the limited space devoted to institutional quality - and in particular by Martin Krause in the same direction. As already quoted, Krause notes that, to define if tax burden is confiscatory or not, it is essential some reference to the public expenditure side and warns of possible differences in political philosophy to adopt on the issue. "*For many could be the idea of Robert Nozick, for others the one of John Rawls*" says Krause and adds: "*As in the meta-utopy of Nozick, I would like to live in a community with an insurance company, to supply me security and other services, which I could change at any time. Others will choose a welfare state. In fact, the Swedes give up 60% or 70% of their income, when they pay taxes to government, and they accept it (those who don't are citizens of Monaco).* And he adds finally: "*People in Swedish surely may believe that taxes are confiscatory if they do not receive from the government what they want. In*

Argentina we do not receive almost anything (the old phrase that we have to pay twice for education, etc.); and a tax burden above 15% may be considered confiscatory".

On Krause comments - that are correct – is necessary to explain that within the definition of "institutional quality" and "its measurement" should be considered the quality of services provided by governments. We are actually referring to a concept of "institutional quality" that would include quality indicators in justice, health, education, security, etc. So, finally, this variable (meaning the package of public goods provided by governments) and the tax burden, can somehow allow a more adequately measure the "fiscal residuum" or "net tax burden" faced by individuals, regions or industries subject of measurement. If this variable captures the "hicksean's package of public goods" complementary and necessary for private activity, we will take into account the point made by Krause. Nevertheless, this objective will be resolved empirically in a second phase of this study.

It is worth to mention now - in view of the legal interpretation that the issue may demand to judges - that the relevant international market for comparison will necessarily take into account the productivity level of rural activities in the world. That is, the market land values in the world inform about the marginal productivity value of land, which in a global competitive scenario will have necessarily to respond to a "diligent attitude in land exploitation" by capitalists and/or landowners. Judges can not qualify as inept or not diligent to all rural agents operating in a worldwide competitive market. [36]

[36] The specific benchmark to measure tax confiscation not necessarily will be matching for all rural activities, i.e., it's not similar for all rural activities on which the tax burden is measured, though methodology for its identification is the same. For example, it is likely that a study of tax burden on the tobacco industry will estimate a greater tax burden relative to the rest of the agroindustrial chain activities worldwide, usually justified by the objective of public policies to discourage consumption of tobacco. The lands for growing snuff will suffer the "amortization effect" of the higher tax burden and, consequently, lower values for this type of land.

b) The price of land in Argentina and in U.S.A.

To corroborate the tendency of convergence in the international value of land, it is interesting to observe the comparative performance of land prices in Argentina with respect to a country like U.S.A; both countries producer of grains and cattle.

The U.S.A. selection for comparison is interesting, first, not only by the attribute of producing those "homogeneous products" - characteristic that defines a international tradable commodity as such - similar to those produced in Argentina; but also due to the quality of data that can be obtained from the website of the U.S. Department of Agriculture. Second, because it is a federal country, which in turn shows a high level of respect for private property and freedom of individuals, i.e. a country with an institutional quality higher than Argentina, to which it is supposed should also converge Argentina.

A first approximation can be made for example by comparing the land values in the best corn-growing land of Iowa (U.S.A.) with the ones corresponding to the core area of corn-growing in the Province of Buenos Aires (Argentina), *à la Reca* (2008).

Based on data from the Department of Agriculture U.S.A and AACREA (Argentina), Reca shows the price range set out in Table Nº 1.

Table Nº 1

Land prices / ha. in U.S. current dollars		
Year	RA (1)	Iowa (2)
1986	1551,44	2596,00
1987	1486,83	2886,28
1988	1500,36	3476,72
1989	1500,00	3757,11
1990	1779,14	4004,50
1991	2274,99	4020,99
1992	2447,69	4119,95
1993	2134,20	4205,72
1994	2193,35	4472,90
1995	2390,01	4802,76
1996	3141,27	5548,25

1997	4016,60	6059,53
1998	4815,71	5940,78
1999	4248,88	5874,81
2000	3968,35	6125,50
2001	3437,04	6353,10
2002	2707,74	6870,98
2003	3934,36	7504,32
2004	5340,19	8672,02
2005	6112,75	9612,12
2006	7555,53	10568,71
2007	9344,55	12673,00

Notas:
(1) Source for Argentina AACREA.
(2) Source for Iowa USDA. "Iowa best land", estimated as an average or Iowa land values plus 1,32 (based on data analysis)

Source: Reca (2008).

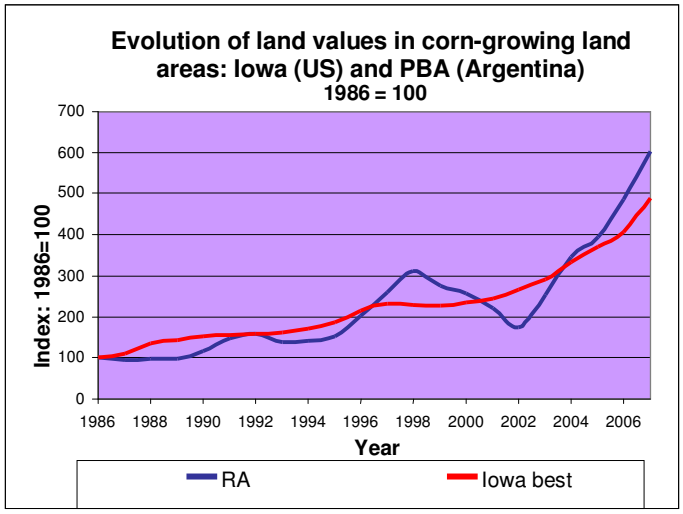
Correlation coefficient of the two series observes a ratio of 0.958729 * (R2 = 0.919161), and eliminating years 2001 and 2002 - corresponding to the two years of acute crisis of Argentina's economy - the ratio rises to 0.974960 * (R2 = 0.950548).

Concept	Full Data	Data excluding 2001 and 2002
Correlation Coefficient	0,958729*	0,974960*
Coefficient R^2	0,917534	0,950548

Note: * Significant at 1%.

Graph Nº 1 shows the evolution of land prices, with base year 1986 = 100.

Graph Nº 1



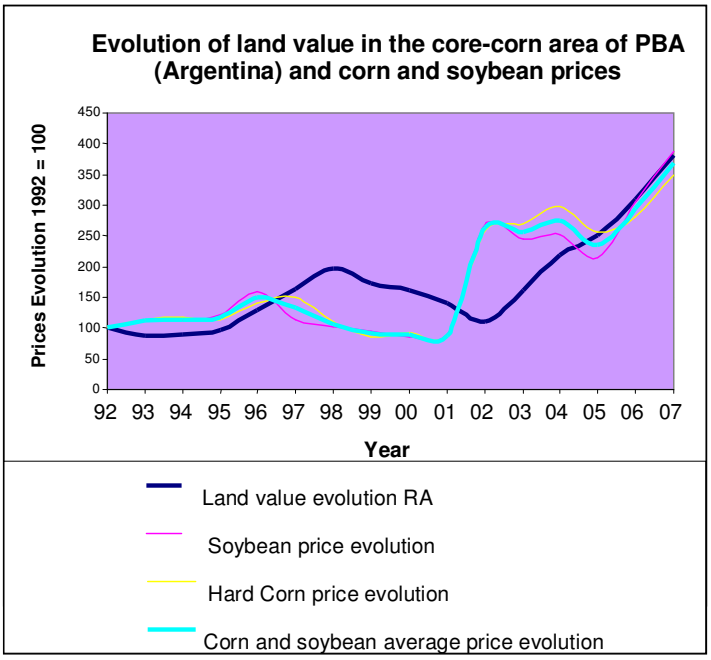
Both curves show the increasing trend of land values during the present decade, which actually coincide with the evolution to record corn price, and also of soybean price in the same period.

Graph Nº 2 shows the evolution of land prices in the Corn Belt core area of the Province of Buenos Aires, and the prices of hard corn, soybeans and the simple average prices of both grains. The figure confirms the relationship between the land values, and consequently its rent, and the commodities prices related to use of land. Calculating the correlation between the evolution of variable "land value" and variable "simple average price of corn and soybeans", yields the following results:

Correlation Coefficient	0,734886*
Coefficient R^2	0,532025

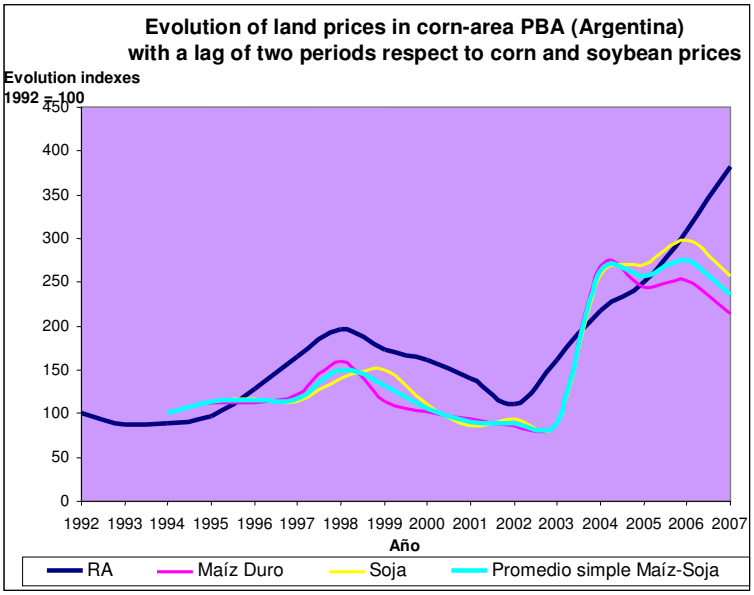
Note: * Significant at 1%.

Graph Nº 2



Graph Nº 2 shows that land values follow with a lag the evolution of corn and soybeans prices. Now, calculating the correlation between both variables with a lag of two periods clearly shows a high association between them. Graph Nº 3 shows this association and the chart below shows the coefficients found between the two variables, i.e. with land value with a lag of two years.

Graph Nº 3



Correlation Coefficient	0,827731*
Coefficient R^2	0,685138

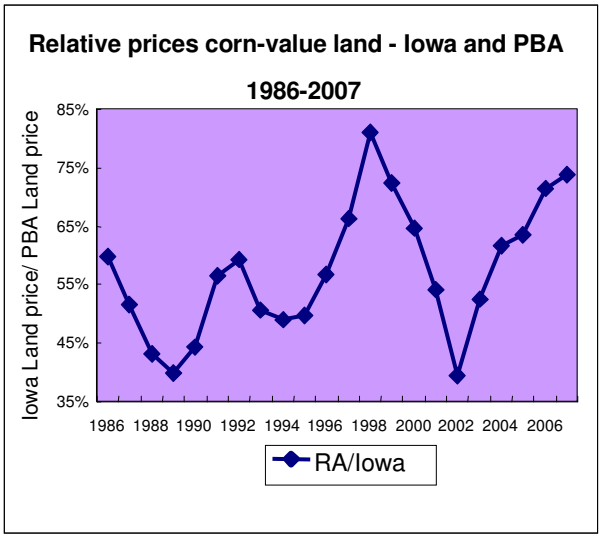
Note: * Significant at 1%.

In short, land values in Argentina closely follow the values of commodities produced with their use. These evolutions also show a similar trend to land prices with equal characteristics in the USA. It follows the hypothesis suggested in the beginning: the land rent and its value can not be far behind the evolution of product prices, that is, from the values of goods produced with the use of land.

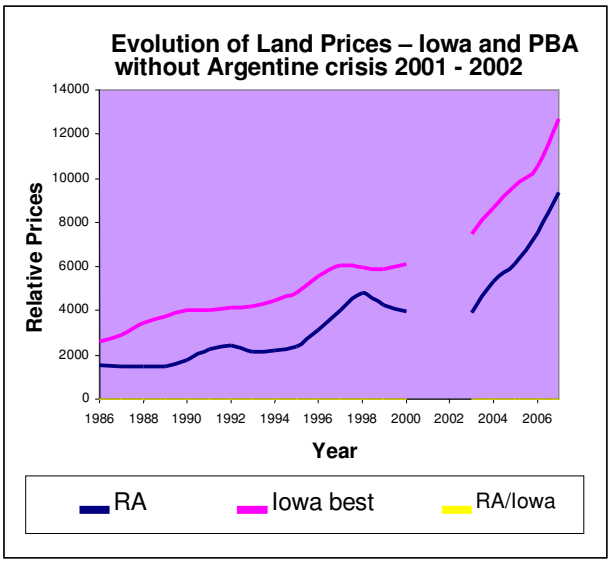
However, short-term variations observed between the land values in Iowa and in PBA, indicate that there are shorter-term volatilities due to shocks that influence the market values of land in both countries. The most striking of these differences, in the analyzed interval, was the negative economic shock and crisis caused by debt default in Argentina.

Graph Nº 4 shows the evolution of the relative price of land in state(Iowa)/province (Buenos Aires) and Graph Nº 5 shows the land prices evolution in Iowa state and in province of Buenos Aires omitting years 2001 and 2002, for a visual approximation of the difference with this omission occurs.

Graph Nº 4



Graph Nº 5



The land price of PBA, relative to land price of Iowa, shows an average trend rate of 0.573512 for the period 1986 to 2007.

Ending this point is important to mention that the market value of land is different to the land value "free of improvements", or the "land original price without investments", the value that usually is suggested must be the land tax base. Land markets measure land values taking into account all three characteristics outlined above: the attributes of original soil and climate, the geographical location and improvements. If tax design intention is that tax burden falls only on land, i.e., on the original characteristics of soil and climate - as could be a TLFI - the problem is how to isolate the impact on market value of soil component only. This problem led David Friedman to comment: "*If you tax the market value of land, discourages people to increase the value of land used for working capital and improve, the supply curve is undoubtedly improved land perfectly inelastic. Therefore in order to impose the so-called single tax (a tax on the unimproved land, proposed as a substitute for all other taxes), you first have to find some way of estimating how much land it would be without any improvement - which is difficult* ".

Therefore, if benchmark measure arises from tax burden on the actual land market value there will be an underestimation of tax burden on the original land value (the "raw land" of Friedman). The Friedman's warning about the difficulty of estimating the value of land without improvements perhaps could be resolved through a thorough econometric study on base of the information now available through the GIS (Geographical Information System) and the satellite remote sensing technique. The possible measure of tax burden and confiscation would be obviously greater than figures analyzed en Appendix 3.

4) Conclusions

The underlying question looking for answer from the previous analysis is finally: Is it possible to attribute the long-time trend of differential of land price in Iowa relative to PBA (omitting short-term shocks) to location and original characteristics of land,

differences in sunk investments, or differences on tax burden and sovereign risk between the two countries?

Based on theoretical considerations and empirical evidence analyzed in this study, is possible to support at least three points:

(1) Despite the recovery of land prices in Argentina in recent years, land values in the PBA (Argentina) is lower - about half - to lands of Iowa (USA), confirmed by the data of the last two decades.

(2) In Argentina, given the insignificant participation of subnational taxation in the consolidated tax burden on rural sector, it is impossible to impute to provinces' policies the impact of fiscal variables and institutional quality; the allocation of both ingredients (fiscal and institutional quality and/or sovereign risk) are clearly assignable to the national level of government.

(3) Finally, "the million dollar question": Which is the “relevant determinant” of the difference? Is it perhaps the "land location and soil quality", is the "sunk investment" rather than government fiscal policies? Is it fiscal policy differencial of both countries? Is the difference in the quality of institutions? Or, there are others relevant factors not included in this analysis?

Even though the absence of detail data on tax burden in the U.S.A., some general references of USA case and data of Appendix 3, are sufficient for a preliminary conclusion. The major determinant of the difference in land values should be attributed to high tax burden on the Argentine rural sector, particularly due to the high level of the tax on exports (retenciones). By contrast, there are no export taxes in the U.S.A., and, instead, there exist subsidies, explicit or less explicit, in the U.S.A. In 2007, tax on exports of rural commodities in Argentina took out from the core zone around the 60% gross margin. This implies that if tax on exports would have not existed, the rent of land in that area would have been approximately a 140% higher. Therefore, the value of

Argentine land could have been higher than the one of Iowa. All other considerations on the rest of the tax burden structure on the rural sector are evidently redundant.
If the benchmark for measuring the "reasonable economic limit" of the tax burden on the rural sector in Argentina (which would be equivalent to the limit of no confiscation), were the U.S., it is clear that confiscation is present in Argentina, from this point of view.

Of course the simple empirical exercise of this document can only be taken as an example of mere approximation to the proposed methodology. For more robust results, would be necessary: first, expand the sample of countries in the comparisons (Federal and Unitary); and countries with different levels of GDP per capita, to finally locate the relative position of Argentina within countries with similar levels of development. Second, exploring the measurement of "tax burden" generated in each country by the taxation and subsidy policies. With the necessary data, econometrics could also provide interesting results if it could correlate land values with differential transport costs (relative to the different distances to centers of higher demand for rural commodities), different sunk investment, and finally, estimates or measurements on institutional quality.

Let's recall once again comments of Daniel Artana and Martin Krause about the "institutional quality". Institutional quality should explain some of the differences, perhaps compensating towards a lower incidence of tax burden; or, conversely, reinforcing it. Krause notes that Iowa rural sector is also taxed, and producers receive some subsidies, but taxes net of subsidies in Iowa are paid; that is, tax compliance is probably much higher than in Argentina.[37] Actually, institutional quality for Argentina is far away of the U.S.A. In a recent document of Martin Krause, the "index of institutional quality" of the United States is level 9, while Argentina is located in level 114.[38] This

[37] Figures on tax burden resulting from national accounts and discussed in Appendix 3 include the incidence of tax evasion, but not is included in the microsimulations, where no adjustments due to tax evasion are made.
[38] Krause (2009). The Institutional Quality Index (IQI), developed by Kause through the ongoing work through the International Policy Network (International Politics) - an NGO from the United Kingdom and the United States - is a measurement that includes seven items: Voice and Accountability, Rule of Law, Press Freedom, Corruption Levels, Competitiveness, and Ease of Doing Business Economic and two indicators of Freedom: the indicator of the Fraser Institute Economic Freedom and the Economic Freedom Indicator of the Wall Street Journal Heritage Foundation (WSJ Heritage). As the author points out, the measurement of institutional quality is relative, i.e. measures the position of one country over others, not

impacts on the capitals flows and, therefore, depresses the relative price of land in Argentina.

The final suggestion is to alert and encourage legal scholars to explore, first, the legal vision of the economic approach to confiscation - particularly regarding how to compute taxes on rural sector to define tax burden, which includes a consolidated tax burden of the three levels of government, (on land property and on rural activities) - and the effects of this consolidated taxation on land value; and, second, the question of the legal boundary (or rate) set by the Supreme Court as confiscatory and the utility which provides the information on the value of land in the world market and its determinants, just in order to define a benchmark for confiscation of land through the relevant international market. This would help to clarify judges (for ratify or modify) their jurisprudence on the current parameter of 33%, and reduce the degree of uncertainty about a possible future re-estimation of confiscation rate, “under new circumstances”.

The legal and political relevance of such determination is evident, and the preliminary figures consulted in this study, perhaps with probable variations up or down, and finally, the preliminary rate of 33% set for the Supreme Court as a general reference repeatedly set till now, are clearly testing an scenario of confiscation in the rural sector of Argentina.

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against a standard of perfection. While America is a country that occupies the ninth position in regard to institutional quality, shows weaknesses that are common to all countries, because after the removal of the gold standard monetary institutions implemented discretionary policies, or, in some cases, they decided to tie their currencies to currencies of other countries that practiced such policies. Today the whole international monetary system is subject to the discretion of the monetary authorities of the United States, when the dollar is the international currency par excellence and those of other major currencies like the euro, sterling and yen. In the same way that “legal discretion” implies "legal uncertainty”, the "discretionary in monetary policies" means "monetary and financial insecurity", which is a poor institutional quality in this particular area.

Appendix 1

Taxation on Rural Sector: Tax Burden' Incidence on Land Value

The analysis of the differential incidence of the tax on land “free of improvements”, with respect to taxes on the use of variable factors (labor and capital), which affect the value of agricultural production or cause excess burden, has been the usual concern in the discussion of land taxation. However, literature has neglected a common consequence of taxation on rural sector, which is that “all taxes” – not only the real state tax - will be depreciated in land value. At the same time, another important effect of public policy on rural sector, not always considered, though anyhow relevant, is the laudable objective to generate incentives to rural settlement, i.e. incentives to invest (assign variable factors) and/or produce within a given territory (provincial or municipal) by landlords, that is, the permanent rural residents; or, conversely, induce the use or explotation of land by tenants or non-resident investors in those territories.

In a federal country, the allocation of variable factors of production in provincial territories, ceteris paribus, will depend on the differential tax treatment on such resources by the consolidated tax burden of the Nation and the provinces. The regional economies have similar production functions in terms of recognizing the existence of the variable factors "labor and capital", and the fixed factor “land”. In that case, different tax treatments in each jurisdiction on variable factors (labor and capital) affect their use and, consequently, the level of activity. In the case of the fixed factor "land" the incidence will impact on its market value - whether, amortizing or capitalizing on its value - depending on whether fiscal treatment is positive (tax) or negative (subsidy).

Suppose that in the Province of Buenos Aires (PBA) consolidated tax burden on factors of production is higher than in the rest of provinces. The difference in net of tax margins perceived by the markets, in the short term would generate - ceteris paribus - a lower farm activity level in the PBA relative to the rest of provinces. If the reallocation of capital and labor migration function according to economic incentives, part of the capital and workers will migrate to regions with low tax burden attracted by cost reduction, and,

in consequence, higher after-tax return on capital and the existence of opportunities of job with relative increase in average wages. In those provinces will increase the exploitation of land or an increase of the intensive use of land; while in the PBA will reduce it. But in the long run, the highest net margin after taxes of the agricultural holdings of the remaining provinces shall be capitalized in land value, while costs investment and residence of workers will rise, so that differences in average returns of capital and real wages after taxes between regions will gradually disappear.[39] In the PBA, the initial effect in the short-term will be a lower level of intensive land use, but amortization of the highest tax burden in the long term will involve a reduction in land values, and finally will lead - ceteris paribus - to the land intensive use equal to the remaining provinces.[40]

In analytical terms, suppose a federation with a set of regional economies operating with the same production functions of three factors: **F (L, K, T)**, labor (**L**), capital (**K**) and land (**T**), and constant returns to scale. Supply curves of factors **L** and **K** are "normal sloping", and the supply of land is fixed (**T ≡ T***). Governments' expenditures (national and provincial) are financed with a consolidated tax rate on factors used. Within each **j** jurisdiction, **tj** is the tax rate per unit of factor, which is assumed to be different betweeen **j** provincial jurisdictions.

The allocation of the supply variable factors **Lj** and **Kj** in each jurisdiction **j** will observe the first order conditions:

$$F_{Lj}\,(L_j, K_j, T^*_j) = wj + t_j$$
$$F_{Kj}\,(L_j, K_j, T^*_j) = \varphi j + t_j$$

Where **wj** and **φj** are the net payments (reserve values) of factors **Kj** and **Lj**, and (**wj + tj**) and (**φj + tj**) are the tax gross-factor costs, respectively.

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[39] That is, average returns on capital and real wages in the long-term could not be different between regions, assuming perfect mobility of both factors and competing regions (price takers) in the national economy.

[40] The adjustment will be a lower income obtained by landowners-capitalist exploiting their own land, or a lower leasing value of land.

Since land factor is fixed (**Tj = Tj***), the production function can be expressed as depending on the use of factors **Lj** and **Kj** per unit of land (**Tj ***), ie:

$$l_j = L_j / T_j^*$$
$$k_j = K_j / T_j^*$$

Then:

$$F_j (L_j, K_j, T_j^*) \equiv F (l_j; k_j; 1)$$

If the regional rural product price is assumed constant and is taken as *numeraire*, the first order conditions require:

(1) $f'_{lj} = wj + t_j$

(2) $f'_{kj} = \varphi_j + t_j$

The land rent at **j** (**Rj**) is then:

(3) $R_j = T_j^* (1 - t_j) - (l_j . f'_{lj}) - (k_j . f'_{kj})$

Assuming that provinces are small compared to the size of the economy, will behave as competitors (price takers) with respect to the remuneration of mobile factors, i.e.:

$$w_j = w^*; \varphi j = \varphi^*$$

Then the values of **lj** and **kj** will depend on **tj** in expressions (1), (2) and (3). Now, differentiating (1) and (2) to changes in **tj**:

(4) $(\partial f'_{lj}/\partial l_j) . (\partial l_j/\partial t_j) = (\partial w^*/\partial t_j) + (\partial t_j/\partial t_j)$

(5) $(\partial f'_{kj}/\partial k_j) . (\partial k_j/\partial t_j) = (\partial \varphi^*/\partial t_j) + (\partial t_j/\partial t_j)$

That is,

$$f''_{lj} \cdot (\partial l_j/\partial t_j) = 0 + 1 = 1$$

$$f''_{kj} \cdot (\partial k_j/\partial t_j) = 0 + 1 = 1$$

Then:

$$\partial l_j/\partial t_j = 1 / f''_{lj} < 0$$

$$\partial k_j/\partial t_j = 1 / f''_{kj} < 0$$

because $\partial l_j/\partial t_j < 0$; $(\partial k/\partial t_j) < 0$. This means that **Lj** and **Kj** will move to other jurisdictions if **tj** increases or immigrate to the jurisdiction if **tj** decreases. So, if **tj** decreases, since **w*** and **φ*** are constant, marginal cost of both factors will decrease (because $t_{j1} < t_{j0}$) and, consequently, their allocations will increase in the jurisdiction.

The described change can be observed in Figures 3 (a) and 3 (b):

Figura 3 (a)

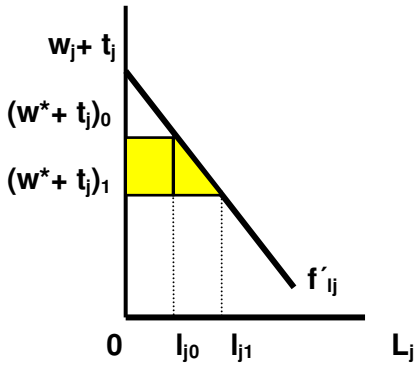
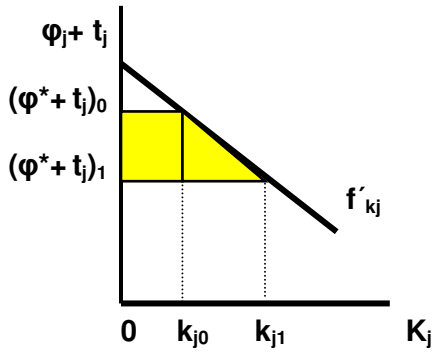


Figura 3 (b)



Therefore, returning to the expression (3) and replacing values for time **0** (before the fall in tax) and of time **1** (after the fall in tax), it follows that:

(6) $Rj_1 > Rj_0$ [41]

[41] An observation made by Eusebio Cleto del Rey (UNSa) in opportunity to develop this model to discuss the economic effects of federal equalization transfers (Piffano, 2004), warns about the possibility of inversion of this result if the increased use of lj and kj factors, set out with a negative sign in (3), more than offsets the fall of the respective marginal products, i.e. depending on whether the elasticities of the curves that show Figures 3 (a) and 3 (b), are greater or higher than one (in absolute value). The answer to this criticism is that the increase in the absolute levels of factors labor and capital variables may absorb higher

Since the value of land in jurisdiction **j** (**Vj**) is equivalent to the present value of rent flow, assuming constant returns in perpetuity, result:

(7) $\mathbf{V_j = Rj / \varphi^*}$

Therefore:

(8) $\mathbf{Vj_1 > Vj_0}$

That is, the tax reduction in **j** has been capitalized in the value of the fixed factor land.

Similar reasoning, but with reversed results, leads to conclude that a greater tax burden in the PBA will be amortized on lower land value in the province. This reduction confirms the impact of taxation on the land values, but can be added other effect. Changes in the net returns (after tax) per hectare may probably modify in the long-term direct exploitation of land by landlords, meaning by the land owner-resident of the affected rural area. Lower rent for private landowners - that is, less financial surplus - generates less ability and incentive to an individual owner to apply capital and labor on his farm, due to higher costs per hectare that usually will face to perform rural activity, and very probably induces the lease policy, hoping that the leasing of his land will generate greater gains that the net margin obtained with direct exploitation, and, on the one hand, that lower rent after tax will anyway attract other capitalists to invest in the property levied.[42] If the purpose of taxation was to ensure the population settlement in rural areas, a high tax burden does not generate such a result. It will encourage the dissemination of leasing

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income in the region of lower tax burden, as a result of increased investment and employment. However, the increased demand for land (fixed factor) will generate increases in value when the variable factors compete to settle in it, generating increases in the level of output per hectare of the region [f (T) in expresion (3)] through a more intensive use of land after reducing tj per hectare. The owner of fixed factor land of that region will increase its surplus (rent) by the use of variable factors equivalent to the shaded areas in Figures 3 (a) and 3 (b). Actually, this increased surplus explains the increase in rents and/or in land value.

[42] The tillage cost, input costs and the use of technology at their disposal, can be less competitive relative to larger producers or associated companies (seedl-pool) that operate with greater economies of scale and posible spreading of risk, than the individual producer. The "seed-pool" is a type of technical-economic-financial organization that allows generating higher margins than those obtained by any individual land owner.

contracts and "tenants' companies" as the more beneficial modality to operate farming businesses, turning the landowner into a mere rentist.

Appendix 2

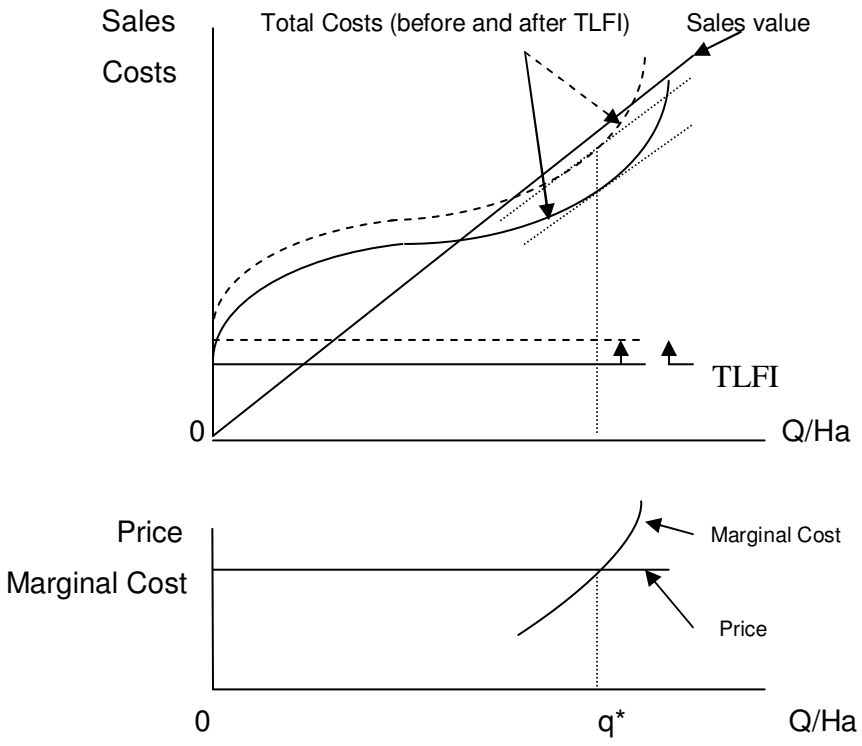
Differences between TLFI and taxes on rural production[43]

i) Neutral effects versus distorting effects of land taxation

One way to explain the effects of taxation on the level of land use or level of agricultural production and, consequently, rent generation, is to use the wellknown diagrams of Figures 4 and 5 set out below.

Figure 4 simulates the effect of a TLFI (Tax on Land Free of Improvements). The introduction of a TLFI displaces symmetrically the total cost curve upward (dotted line), not altering the relationship between price (marginal revenue) and marginal cost. That is, the optimal size of output (q*) is the same before and after tax.

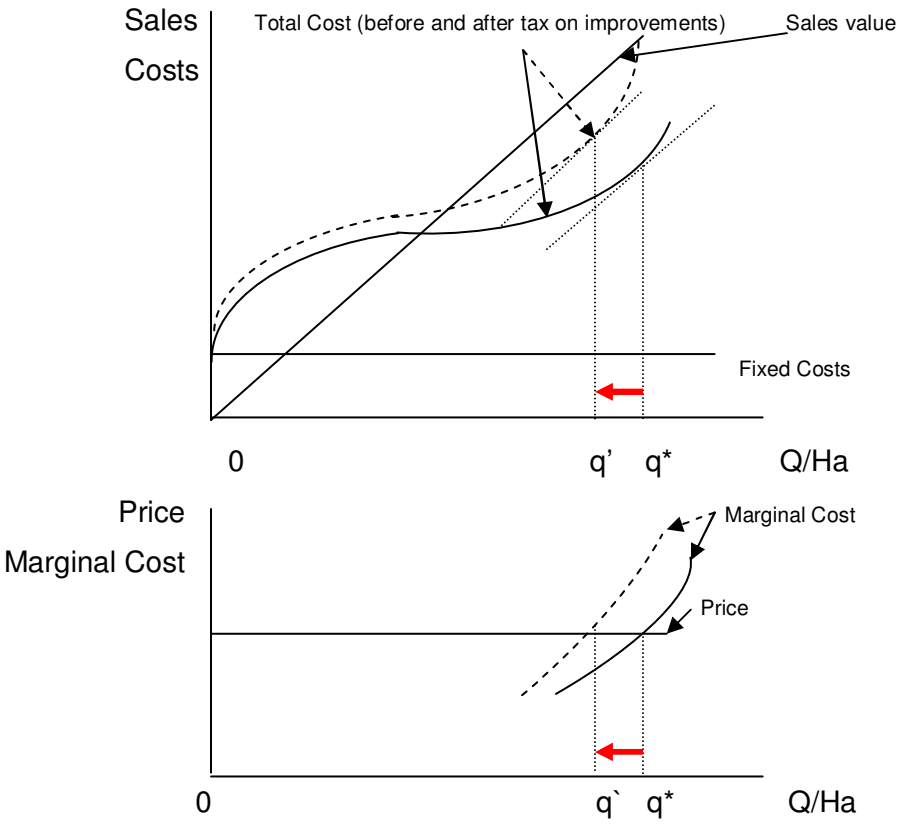
Figure 4 – Effect of a TLFI



[43] Extracted from Piffano and Sturzenegger (2009).

In contrast, in Figure 5 is observed the effect of an introduction of a tax on land improvements being broadly defined, i.e. including variable inputs like agrochemicals, seeds, etc., and semi-variable, such as fences, watering, mills, etc. The optimal production level will be located in q' (where q' < q*).

Figure 5 – Effect of a Tax on Improvements

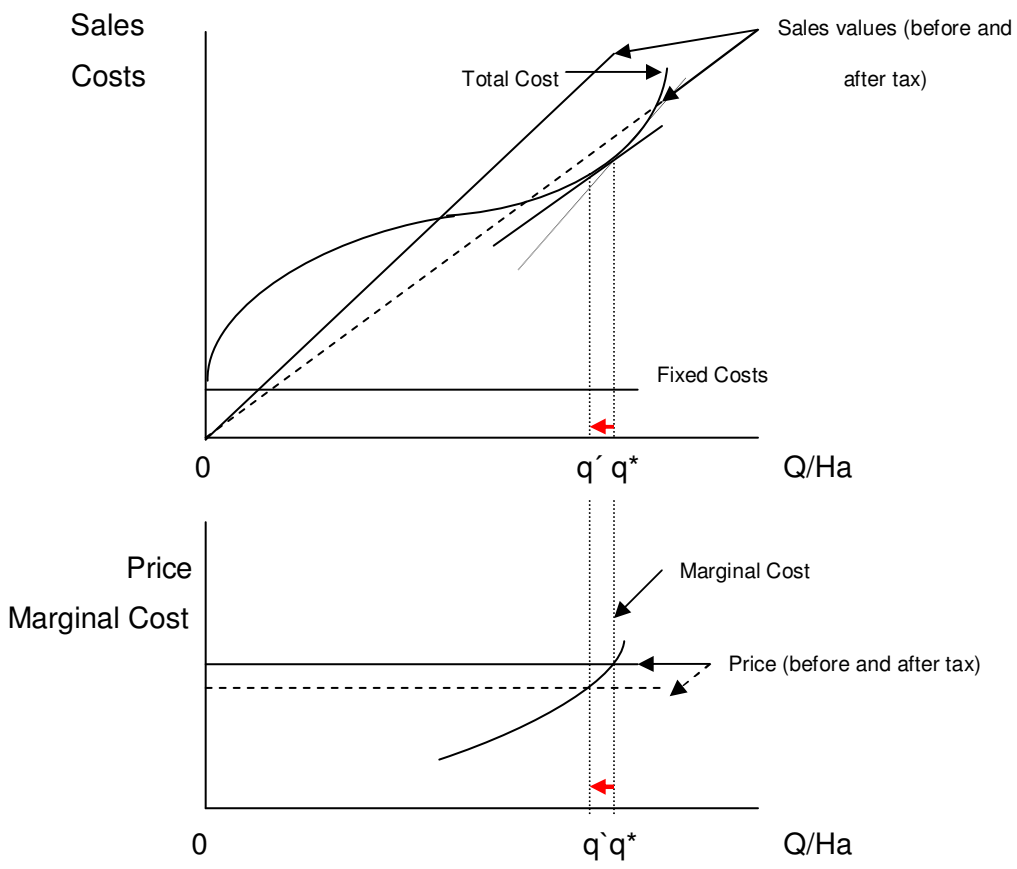


Relative prices of variable imputs and semi-variable inputs are affected, so taxation generates excess burden. Any tax that penalizes the improvements will have this negative effect.

Since agricultural products are tradable goods the price facing by producers are the international price, so all taxes on production could not be shifted forward.

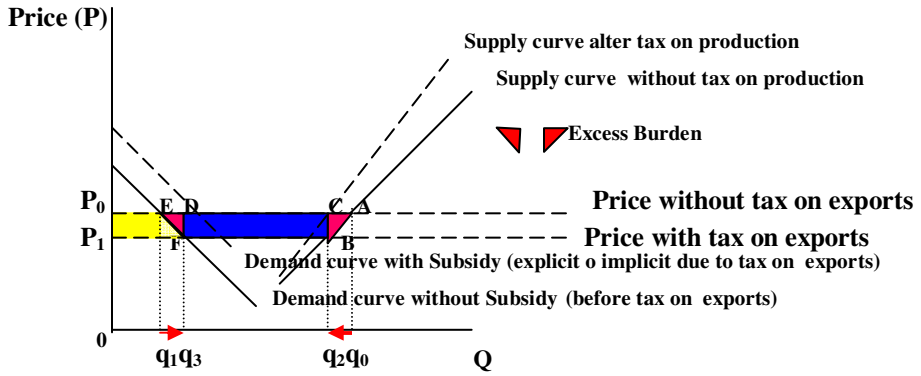
Now, Figure 6 shows the case of a "accumulative sales tax" (Ingresos Brutos) or a Tax on Exports (Retenciones) -; the price net of production tax corresponds to the dotted line. By changing the slope of the sales value line (due to the falling of net price) the optimal size of production is located at a lower level than the situation before tax (q' < q*).

Figure 6 – Effect of a tax on production value
(Ingresos Brutos and/or Retenciones)



Finally, Figure 7 illustrates the loss of agricultural producer surplus - equivalent to the loss of social rent of land – after a production tax and a tax on exports.

Figure 7 – Effect of a tax on production or tax on exports



The reduction of land rent, either social and private, includes the dead weight lost or excess tax burden, along with the revenue obtained by the government, and the subsidy received by the domestic demand (mainly meat processing industries, vegetable oil and grain milling). So, Figure 7 clarifies the negative economic effect of introducing a tax on exports and also a tax on rural activity like the provincial tax "Ingresos Brutos" (turn-over-tax); this tax makes impossible to introduce border tax adjustments' mechanisms.[44]

Without any tax on exports, producer faces $\mathbf{P_0}$ (the international price in dollars by the exchange rate), i.e. an infinitely elastic demand curve at the level of $\mathbf{P_0}$. At this price, rural sector produces $\mathbf{q_0}$. Part of that product - quantity $\mathbf{q_1}$ - is consumed internally and the difference ($\mathbf{q_0 - q_1}$) is exports.

Introducing a tax on export means a reduction of domestic price to level $\mathbf{P_1}$. This lower price and the existence of increasing production costs, induces a supply reduction to level $\mathbf{q_2}$. Conversely, the lower domestic price pushes domestic demand to level $\mathbf{q_3}$. As combined result of production reduction and domestic demand increase, exportable surplus reduces to ($\mathbf{q_2 - q_3}$). The Government obtains revenues equivalent to this reduced exportable surplus multiplied by the price differential caused by the tax ($\mathbf{P_0 - P_1}$) i.e. the area **DCBF**. The effect on owners factors' welfare (landowners, entrepreneurs and rural

[44] Ending Appendix 3 there is an explanation of the different incidence of the national VAT; for further extensions see Piffano (2007).

workers) due to tax is obviously negative; but the the reduction in welfare in monetary terms of rural sector is higher than the revenues obtained by the Government. The loss is equivalent to the trapezoid $\mathbf{P_0ABP_1}$. This welfare loss of rural sector - which will not be shifted forward - can be divided into the following areas: the area **DCBF** corresponding to the revenues collected by the Government, the area $\mathbf{P_0EFP_1}$ that measures the welfare gains of domestic demanders, and the areas **EDF** and **ABC**, measuring the excess burden.

In some estimations of tax burden on agricultural sector, only revenues obtained by Government are computed. However, following a similar approach adopted in public accounting dealing with the notion "tax expenditures", measuring tax burden on rural sector should also include the $\mathbf{P_0DFP_1}$ area. The whole area $\mathbf{P_0ABP_1}$ represents the equivalent effect of setting a “production tax” that reduces the net price obtained by supplier or producer, which partially allows financing the subsidy for domestic demand (area $\mathbf{P_0DFP_1}$).[45]

The effect of a provincial sales tax like “Ingresos Brutos” also implies a reduction in the net price received by suppliers, but in this case without any subsidy to domestic demanders. The welfare reduction in rural sector is anyhow equivalent.

The internal price reduction produced by tax on export means a drop in the value added of rural sector, but, from the diagrams can not be identified which of the specific components of the value added will be affected. With the help of Stolper-Samuelson theorem, changing its assumptions to a new scenario more in line with present economies, and taking into account the characteristics of the agricultural production function - essentially assuming that the supply of capital is infinitely elastic (not fixed), the supply of labor relatively elastic, and supply of land perfectly inelastic or fixed - the result can be demonstrated very simply. The tax on exports will involves falls in rural

[45] The domestic price reduction resulting from the tax on exports is equivalent to generate an additional cost to the sector's production value, and a consequent reduction in rural rent. The lack of calculating the effect "tax plus subsidy" is much more important here than in the traditional concept "tax expenditures” which measures the value of uncollected tax and the equivalent subsidy - without any budget records - which benefits the same taxpayer. In case of a tax on exports, "the tax is paid" and "the subsidy is also paid" through the market mechanism, while those who contribute or pay the tax are not the same peopel who receive the subsidy. For extensions see Piffano (2007).

workers' real wages denoting small regional mobility, and, essentially, declines in values of landlords' properties, due to the effect of amortization of taxes on land values.[46]

Finally, the decrease in production after tax on exports does not imply a similar or equiproportional reduction in all agricultural producers or in all lands. Those affected will be producers and owners of marginal lands, those who will probably obtain a rent near zero or perhaps negative, and, therefore, these lands will be pushed out of production.[47]

ii) The concept "Land Rent"

The theory of taxation on rural sector, specifically referring to taxation on rural land, has recognized the presence of at least three important factors in determining the tax base and linked to them the design of the structure of tax rates: the original characteristics of land (soil and climate), geographical location and improvements.[48]

The differences between those components are important in order to take into account the different economic implications of tax policy.

The agricultural production function, unlike industrial production or services, has land as the predominant production factor; because the land is the fundamental resource on which primary activity is supported. The "land factor" has unique characteristics that distinguish it from the other factors (labor and capital): it is not produced by human labor, is not reproducible, is limited in quantity and its quality is heterogeneous.

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[46] See again Appendix 1 for the formal proof of this point.

[47] The explanation of this effect can be analyzed by a simple numerical example and using diagrams that are explained in the next point.

[48] Actually, it is possible to add at least three variables more to the list of determinants of the value of a property, namely: technology, relative prices between outputs and inputs and the government trade policy. However, the ability of the soil, climate and location, are specific factors (originals factors) of each parcel, while the technology and relative prices - including the impact of trade policy - are common to all parcels, i.e. do not matter the heterogeneity of lands, but land heterogeneity is relevant in the determination of his potential earning. Finally, the relative prices of outputs and inputs affect the development of technology and this in turn will affect the original components of the soil.

Due to this characteristic attribute of land - fixed or not reproducible - it is necessary to emphasize the notion of "rent" to be imputing it as “economic return” by its use. This return is determined as residual income that its landowner will obtain after the payment of the remaining "variables factors", labor and capital.

First, land is not reproducible; it is not possible “to create land”, at least under conditions making their use economically feasible.[49] Second, in principle, land is of unlimited duration, so, if it is misused, i.e., if it is preserved with appropriate techniques, may last over time while maintaining its original fertility. Thirdly, land is not uniform, since it has differences in natural fertility or climate and manifested in higher yields or lower yields, or, from another angle, with lower costs or higher costs for equal level of production. Fourth, land is not transferable in space, unlike the factors labor and capital which can be mobilized with different degrees of intensity, so it is a resource "nontradable” (no possibility of redistribution or reallocation between regions). Fifthly, the geographical land location or distance to the marketing centers generates differentials in transport costs of agricultural products. The geographical location can also generate an extra rent due to proximity to urban areas.

Finally, in spite of its all differential characteristics to the other factors of production already cited, in capitalist countries, land has a common denominator to the rest factors of production: the recognition of the right for private property. In any capitalist society, land is owned by individuals. However, ownership of a resource whose supply can not be expanded and it is inherently immobil, poses a major difference with respect to the ownership of the other factors, which has been discussed and analized by several theories and has lead to different political positions regarding the definition or design of public policies.

[49] According to present state of arts, on a small scale some exceptions are possible, for example, through the "hydroponics". Hydroponics or hydroponic farming is a method used for growing plants using mineral nutrient solutions instead of agricultural land. This is a technology that introduces mineral nutrients in the water supply of a plant which for that reason does not require soil to thrive.

a) The classical and neoclassical notion of "land rent"

Economic theory has developed different approachs for the definition of "land rent". At least two views can be recognized: a) the "Classical School", which is the first school in constructing a theory of land rent (from different positions: William Petty, Adam Smith, David Ricardo, Karl Marx, etc.), and b) the "Neoclassical School" (Marshall, Barlowe, Samuelson, etc.), which, although with no new significative contributions, introduces an important conceptual shift.

The classics understood the notions "rent", "wages" and "benefit" as if they were related to three different social classes: the landlords - who were supposed living on from land leasing and not from their own exploitation - workers and capitalists (owners of capital) who performed the rural activity. Moreover, this conception was linked to a historical conception of the structure of society, where individuals are not all equal in terms of the economic means available to them. In this context, the rent of land is understood as a social category, and can explain the behavior of a part of society. From the neoclassical point of view, however, society is a "conglomeration of individuals"; where people take similar or different markets decisions, but no necessarily have a specific "class behavior". The social behavior can be explained as the sum of these individual behaviors and, therefore, the social demand for land can be explained by the sum of individual demands of farmers. For the neoclassicals, "rent" is also a broad category and relates to the income a person receives by any property ownership or capability available only in smaller amounts for social demand, and which can be "land", "an a natural wealth", "an special ability to play football" or "an very special or a very good voice for singing", and can be permanent or temporary.[50]

[50] Referring to land rent, David Ricardo says: "Rent is that portion of land product that is paid to the landlord for the use of original and indestructible power of soil".

b) The economic yield of land, the original characteristics of soil and climate, and land location (rent differential by "extensive land use" and rent differential due to location)

The concept of differential rent by "extensive margin" refers to the traditional approach of the classical school. To explain the concept, suppose that there is a country where uncultivated lands is freely available to any capitalist that wants to invest in them to produce and thus, obtain an income without paying anyone for land use. The available lands have different qualities depending on their natural fertility, water availability, proximity to consumer markets, etc. These lands could be classified, for example according to fertility and climate, in A, B and C, where land type "A" is land of best quality. Assume further that for the production of wheat, 1,000 units of capital per hectare (ha) should be invested to obtain an average gain of 50% similar to any alternative activity (opportunity cost of capital). This benefit is the one expected by any capitalist to place their capital on any investment, including agriculture, and if he or she thinks that cannot get that benefit by producing wheat, will invest in another activity where that profit would be assured.

If there is demand for wheat in the market and there are different qualities of land to produce wheat, it's reasonable to think that entrepreneurs will tend to invest their capital first in the best lands, while there is nothing that prevents them from doing so. But as fertility will be different (lower) when the available new land is used, and employers are equal, the cost of producing in lands of different quality will be different.

Suppose that yield in land A is 12.5 quintals/ha; in land B is 10 quintals/ha; and in land C is 8.33 quintals/ha. By investing $ 1,000 per hectare, the average land cost will be $ 80/qq in land A, $ 100/qq in land B; and, $ 120/qq. in land C.

At the begining, the capitalist produces in the best lands (land A). Invests $1,000/ha for wheat production, and consumes $80/qq in inputs. This is the "price cost" of a quintal of wheat. As the average profit of capital is 50%, from $80 is expected a profit of $40, so

one quintal of wheat should be sold in $120, to cover costs and earn profits of 50%. With increasing population, the wheat market continues to develop, and the capitalist will continue to occupy lands type A until that availability of this type of land is exhausted, because land availability is finite in extension or quantity. But the price of wheat will increase as demand increases, so with this new (higher) price will justify the exploitation of lands of inferior quality. Then, entrepreneurs will invest in land of type "B" if they get the average rate of profit (this is, the opportunity cost of capital or the average profit rate of the economy). If capitalists can invest in land type "B" and obtain 50% gain, it won't matter to investor, who capitalist has produced, or who capitalist is producing in land type "A" at the same time.

If food consumption is increasing and thus also the price of wheat, there may be entrepreneurs willing to invest now in land type "C". This will finally happen when the price of wheat goes up enough to sell a quintal for $180; then, lands type "C" will enter in production.

Let's see what happens with the profits obtained by capitalists: entrepreneurs located in land type C get a price which covers costs and earn the average return on invested capital (50% = $ 40). Those located in land B cover the costs, obtain the average profit on invested capital (50% = $50) and get an “extra-gain” of $30, because the price he or she was willing to sell (given the assumption of free use of land) is $150. That “surplus profit” above normal profit on capital is the “rent” attributable to land. The entrepreneur located in land type A, finally, covers costs, gets an average profit on capital invested (50% = $ 40) and a gain surplus or rent of $ 60, because the final product price is higher than the total cost (including the average return to capital) of producing wheat on land A.

Then, the benefit identified as “excess profit” above the normal average return on investment, is the "land rent” or “rent differential due to fertility", that is, the economic return attributable to the production factor "land".

Why market does not determine a commercial price which corresponds to the cost of production of individual entrepreneurs? Because the land availability is already exhausted (has a limited use range), it is not possible to use the avaible land for any aditional capital flow, because lands are fully occupied. This means that the capital invested in the poorest lands are those that finally regulate the market trading price (the marginal cost of producing wheat).

So far we have not discussed the ways of land tenure. And suppose now a landless agricultural entrepreneur. He or she is simply a capitalist who wants to invest in agricultural activities with the sole purpose of obtaining an average profit for capital to invest. In addition there will be landlords who have no capital, or who have insufficient capital, and/or finally wish to invest their capital in another business, giving land on lease, not assuming any risk in rural activities. What will be the price to ask for rent or lease for their land? Exactly the surplus income or gains above the normal return on capital, that is, the "land rent": $60 for land type A and $30 for land type B.

In summary, the results achieved by the activity in each type of land (soil) are:

Lands A:	P: $ 180	C: $ 80	G: $ 40	R: $ 60
Lands B:	P: $ 180	C: $ 100	G: $ 50	R: $ 30
Lands C:	P: $ 180	C: $ 120	G: $ 60	R: $ 0

Where:

P: Product Price ($/qq)
C: Average costs of production ($/qq)
G: Average earnings on invested capital ($/qq)
R: Rent (or excess profit above the average return on investment) ($/qq)

That is, lands of different quality will generate different capital productivity. The productivity gap is due to quality differences of land - as the capital invested is always

the same ($1,000) - their payback diferencial is the "rent of land". Remembering the Classics is the landowner or landowner who naturally appropriates this surplus or economic rent.

A similar analysis can be done with regard to differences in location of lands with respect to consumption centers. Suppose that land A, B and C are of equal fertility and differ only by their distance from the market, being the most distant land type C (100 km), but with expected return on investment equal to those of lands types A and B (both at 0 and 50 km. the market, respectively). The costs will be higher in land type C for higher transport costs (freight). In the same way as for the previous case, the differences in earnings or “income surplus” obtained in land type A, in comparison with land B; and lands type B in comparison with land type C, are the "differential rent” due to location.

d) The performance of variable factors and technological change: rent differential due to “intensive margin”

Returning to the case of rent differential due to fertility and assuming an increase in demand for wheat, production could be intensified in lands type A and/or type B. And this is what happen. If the capitalists of different type of lands, increase the amount of capital invested per ha (that is, if they intensify agricultural production), and they manage to get the average profit from that marginal investment, will be interested in producing more intensively. Taking for example the case of land type B, and assuming that the trading price of wheat is still $ 180/qq, regulated by the worst land C, and considering that the average profit is 50%, we can analyze what would happen if the capital investment per hectare in land B is double higher. The new investment, however, will no longer yield 10 quintals/ha, but 9.09 quintals/ha for the second investment of $1,000. The cost per quintal will then be $1,000/9.09 = $110/qq, and if capitalists are seeking to obtain the average profit on capital invested, the wheat price should be $ 165/qq.

But the trading price of wheat remains $180/qq, because lands type C are producing, and they regulate the wheat price at this level. Then the surplus of the second investment in

lands type B will be $ 15. This is due to the difference in productivity of additional investment of capital in a particular type of land, relative to capital investments in the poorest lands. It is the productivity gap between the second equity investment in land type B and the normal productivity of investment in C that leads to this new surplus. Therefore, this new surplus also will benefits the landowners, and is called "rent differential" due to “intensive margin”.

e) The “property rent” and the concept of “absolute rent”

In the literature on the topic can be found also a misleading interpretation of land rent concept.[51] It is assigning a value to the property of land for the simple reason of having legal domain on a non reproducible resource. It is understood that although the lands of worst fertility could not generate any surplus profit on capital invested - or land rent in extensive or intensive sense - however the landlords could enjoy of a rent due to the possibility of Domain transfers for the potential use of land for agricultural production. This rent is called “absolute rent”.

Now if lands type C do not produce any additional surplus or a positive land rent, the question that arises is why there will be a capitalist willing to rent a property of this type, if from the normal return to capital would have to subtract the cost of the lease? The profit would be lower than normal, so that would have no incentive to allocate capital to an agricultural enterprise, but rather allocate that capital to other activities which ensure the normal profit without having to pay royalties or lease for use of a limited resource such as the land. The lands rent is only justified if the "expected return" by the capitalist, is finally higher than normal benefits, that is, if the land exploitation generates a return with a surplus income on invested capital - meaning a benefit higher than the normal benefits of other investments with similar risk - with which to cover the rent. Precisely this surplus is the "land rent", which sets the maximum amount of rent due for the lease.

[51] See for example Pasinelli, L. (2002).

So if land does not generate any differential rent - extensive and/or intensive - its market value would tend to zero, i.e., the land rent would be zero. There would be no capitalist willing to invest in any activity returning money less than the normal return (due to rental value of the property or its use cost) . That is, carry zero differential rent - extensive and intensive - would lead the lands value to zero.

An important consequence derived of zero differential rent, is that the government could not levy any tax on land property, since the land tax base would be zero. And a second implication is that even with a positive land rent, the design of the land tax should take into account possible short-term shocks that could potentially reduce significantly the value of that tax base during one or more fiscal periods, which could lead to a confiscatory scenario, the principal issue discussed in this paper. For this reason it is often suggested that the cadastral values - administratively determinated - or the tax base of rural property taxes, should maintain a "razonable distance" from the market value of land.

From another angle, on considering land ownership may emerge another possible misinterpretation: the qualification of landowners as mere “rentiers”, enjoying a special benefit or a privilege that property rights would be generating, allowing them to obtain income “without any effort”. In fact, the present value of land rent flow is the monetary value of the property. But this value of the property must have been paid by the owner at the time of obtaining the legal land domain.

However, it has been suggested previously that the land value will be linked to its ability to generate profits for a certain maturation period of investment (for example, grain production cycle or the even more extensive livestock production). But land property could lead to an expectation of profits much further apart in time. That expectation of future opportunities (even with a high uncertainty of a future potential rent) could justify a value higher than zero of properties even without an immediate or present productive use. Other arguments for a positive value of the land - also without immediate option to

make land produce - are: its role as a store of future value, as a possible mean for covering saving from inflation, or benefits emerging from the territorial domain.[52]

iii) Good lands and marginal lands

Returning to the neoclassical notion and following Barlowe (1958) and Mochon and Beker (1997) in the treatment of the generation of land rent, is possible to demonstrate that maximization of land rent is equivalente to maximization of profits of any company, that is, the optimal point for maximizing land rent may be obtained by equalizing marginal cost with marginal revenue.

However, to avoid confusion between the concept of the land rent maximization with the maximization of capital benefits, within the cost should be included the normal profit on capital (or average profit), plus the reward to the entrepreneurs. Thus, the surplus over costs so defined will correspond to the notion of "land rent".

The example presented below is taken from Barlowe's original work on the calculation of marginal and average costs per unit of production for determining the economic rent price in variable situations.

In Table 1, column 3, is calculated the marginal product. The marginal cost for each unit of variable investment is assumed to equal $5. If the market price of the product is $2.50 per unit, the entrepreneur will optimize production level when marginal cost is also $2.50. That is, according to the example, will use up to 10 units to maximize the

[52] The attribute of territorial domain has often been cited as an expression of political and social domain for many years in many countries, including Argentina, attributable to the landowners. These landowners seized the land rents generated at the beginning of the agricultural frontier expansion, and political control exercised by them was naturally important. When land is valued by the social prestige that grants its possession or as a store of value that protects against inflation processes, or provides security for possible social seizures or sovereign risk, for example, the investors will be willing to pay more for land property and the land values will then be greater than the value of their present oportunity cost from an exclusive productivity point of view, i.e. its market price will be positive and greater than the present value of long-term productivity. But there are many other assets that can be assimilated to land, which could also offer prestige and / or coverage for any inflationary processes or sovereign risks, such as collecting gold, artwork, jewelry, vintage cars, etc.

investment return. At that point the surplus is equal to Median Income (**MI**), less the Average Cost (**AC**), multiplied by the number of units produced, namely:

$$\mathbf{R = (MI - AC) \times n}$$

Table 1 show that rent at that point will be:

1) If product price is $2,50, then R = ($2,5 - $1) x 50 = $75

2) If product price is $1,67, then R = ($1,67 - $0.94) x 48 = $35.04

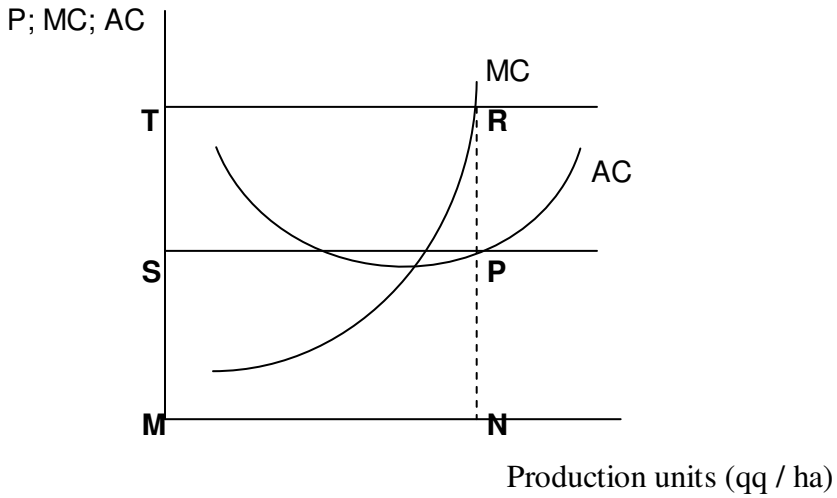
Obviously, a lower product price reduces the quantities produced, and reduces the land rent value.

Table 1

Variable Investment Units	Production Units	Marginal product obtained	Marginal cost (MC)	Average cost (AC)
(1)	(2)	(3)	(4) = $5/(3)	(5) = (1)*$5/(2)
1	3	3	1,67	1,67
2	8	5	1,00	1,25
3	15	7	0,71	1,00
4	23	8	0,63	0,87
5	30	7	0,71	0,83
6	36	6	0,83	0,83
7	41	5	1,00	0,85
8	45	4	1,25	0,89
9	48	3	1,67	0,94
10	50	2	2,50	1,00
11	51	1	5,00	1,08
12	51,5	0,5	10,00	1,17

Graphically:

Figure 8



Where,

MT = Product Price = Median Income = Marginal Revenue;

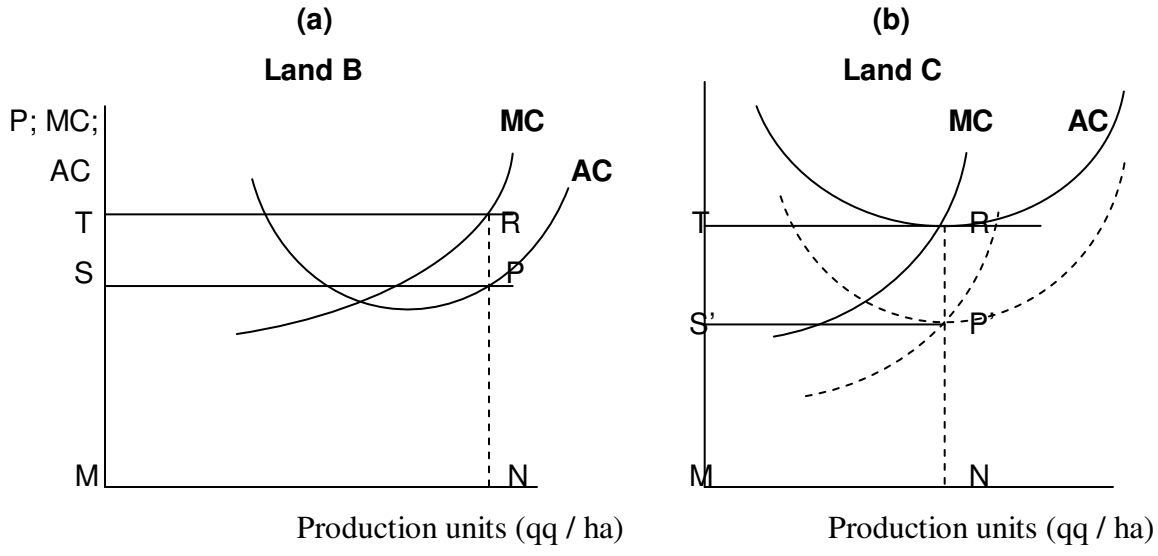
MN = Units Produced;

NP = MS = Average Cost (at the optimal price MT);

TRPS = Land Rent = TS x SP

If Figure 8 is assimilated to the case of land type A, can also be plotted the differences between the rents of lands of quality B and C:

Figure 9



The average cost of producing wheat in land type A, is lower and thus obtains a higher land rent than land rent obtained by land type B. Land type C does not generate rent for intensive or extensive nature (see solid lines in Figure 9 (b)). The marginalist approach, therefore, would not recognize the existence of absolute rent, while any attempt to use marginal land type C would involve a normal profit to be shared between the landowner and the lessor or entrepreneur who decide to lease the land. If the price elasticity of capital supply is infinitely elastic (small country and perfect capital mobility) there would be no interest in exploiting this type of land, unless the landlord hires an enterprise or big society that would operates with lower costs due to scale, and thus reduce unit costs below unit costs which faces the individual landowner of land type C. In Figure 9 (b) this possibility is plotted with dotted cost lines. The land rent would be TRS'P'. Therefore, in case of landowners of this marginal land only would be economically viable the land leasing to that type of big enterprise, operating with economies of scale.

It may be noted ultimately that extensive use and/or intensive land use depends on commodities prices produced by rural sector. In fact, the level of relative prices of products defines which type of land will be exploited, and to what intensity, depending on the differential land rents of each land types (A, B, C). Such land rent differentials will determine, therefore, the magnitude of the extensive and intensive use of land.

Finally, with respect to prices, the relevant prices that will guide decision making of entrepreneurs will be those which they "perceive" or they "expect" - based on the current situation and future prices trends - and risk perception to be assumed by domestic farming.[53]

[53] Farming activities typically are of a long sequence of maturation of the investment relative to other production alternatives, so that future markets play an important role.

Appendix 3

Tax burden on Rural Sector

(i) Results of sectoral tax burden in Piffano and D'Amore (2007)

In Piffano and D'Amore (2007) authors make an empirical research on tax burden on the agricultural sector. Results show a relative high level of tax burden during the last decade. These results are consistent with other recent studies on agriculture sector in Argentina, although some minor methodologic differences are observed, specially dealing with the treatment of the incidence of tax on exports and VAT.[54]

Table 1 shows the estimated sectoral tax burden (STB) for the six most important activities of the agrindustrial chain (AIC), which the authors used to define "Agricultural Sector". The six relevant activities included are: 1) Grain Production, Oilseeds and Forage, 2) Animal Butchering, Conservation and Meat Processing, 3) Snuff Products, 4) Dairy Products; 5) Oils and Oils Byproducts and, 6) Cattle Breeding, Milk Production, Wool and Hair.[55]

As "rural sector", only two of the six activities listed could be identified strictly tied to factor of production "land" , i.e. 1) Grain Production, Oilseeds and Forage; and 6) Cattle Breeding, Milk Production, Wool and Hair. For this reason it would not be strictly correct identify methodologically the tax burden on the two activities linked to the land factor with the results for the six activities. Anyhow in the case of primary agricultural sector, the effect "tax on production" due to tax on exports, happens mostly from the processed product industries - meat, milling and oil industries - and not directly from livestock and

[54] In case of tax on exports including or not the effect "tax on production ", and in case of VAT, if it is taken into account or not the "net tax liability". Arguments about the different criteria on VAT are explained at the end of this appendix.

[55] This bounded set of activities represents 43.4% of value added and 48% of the gross value of production of all 41 activities included in the AIC according to a previous study of "Foundación Producir Conservando" (see Porto, Piffano and Di Gresia, 2007).

grains exports. A direct measurement of tax burden on the two primary activities should be estimated by microsimulations' method.[56]

Table 1

Presión Tributaria Sectorial sobre las 6 Actividades más Importantes de la CAI									
PTS	1997	1998	1999	2000	2001	2002	2003	2004	2005
PT_1	56,00%	56,80%	61,30%	60,80%	59,20%	71,10%	73,20%	80,70%	82,30%
PT_{FPC}	50,10%	50,90%	55,50%	55,20%	53,20%	62,60%	70,90%	79,60%	80,50%
PT_4	55,00%	56,60%	61,10%	60,60%	58,90%	64,30%	61,90%	68,80%	71,00%
PT_2	49,20%	50,80%	55,30%	55,10%	52,90%	55,90%	59,60%	67,60%	69,20%
PT Global	20,60%	21,00%	21,20%	21,50%	20,90%	19,90%	23,40%	26,40%	29,10%

Source: Piffano y D'Amore (2007).

The differences between alternatives of measurement lie in the inclusion or exclusion of three components: VAT Net Liabilities, VAT "Technic Balance" ("Saldo Técnico"), and subsidy to domestic demand, due to reduction in domestic prices derived from tax on exports.[57]

An important aspect of the comparisons is that the calculation of STB differs from the GTB (Global Tax Burden); the former includes the effects of transfers, operating through public policy decisions such as tax expenditures and the trade policy (customs tariffs and tax on exports). At global or consolidated level these effects cancel each other, but not at sectoral level. Hence, the GTB does not match the simple sum of the STB, which would be greater than unity. The aggregation of more sectors to calculate the tax burden cancels these effects, and finally with the inclusion of households, GTB is obtained. In Piffano and D'Amore (2007), the effect "tax on production and subsidy to domestic demand" due

[56] Some results on microsimulations are presented later on in this appendix.
[57] The different treatments are:

PT_1	Extended Calculation: Including VAT net liability, VAT "technic balance" and domestic demand subsidy.
PT_{FPC}	PTFPC Calculation (Porto, et al, 2007): Including VAT "technic balance" and domestic demand subsidy. Net VAT liability is not included.
PT_4	Restricted Calculation 2: Including VAT Net liability and VAT "technic balance". Subsidies to domestic demand are not included.
PT_2	Usual Calculation: only includes VAT "technic balance". VAT net liability are not included, neither subsidies to domestic demand.

to tax on exports, in the case of the intrasectoral implicit subsidies, ie subsidies in inputs used in sector production - the six activities identified as "agriculture sector" - are not computed. Only subsides to final demand (consumers or households) and to intermediate demand of others activities or sectors, are computed. In case of inputs use by the same sector, the commented effect of tax on exports is equivalent to the traditional notion of tax expenditures, ie, a tax and a subsidy unregistered affecting the same individual or activity, hence they should not be computed in estimation of "tax burden".

(ii) The policy changes through compensation to primary production in 2008

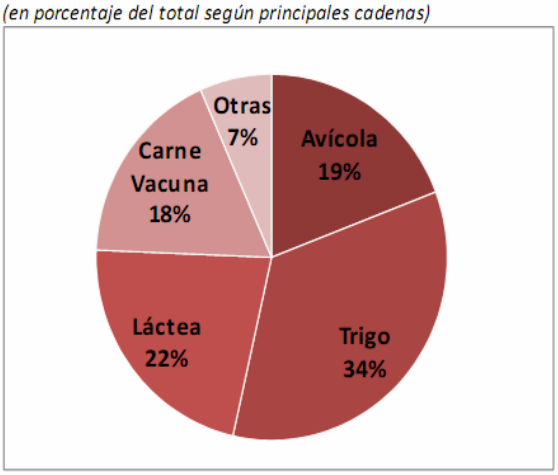
The high tax pressure on the agricultural sector registered by the study of Piffano and D'Amore (2007), described above, was partially but very little offset, by the national government in 2008 after the conflict with the rural sector on March of that year.

The study prepared by AACREA in February 2009 measured the amount and impact of compensation decided by the national government for type of product or activity. The document affirm that during 2008 the compensation paid to agroindustrial sector, which included the food chains of items meat, wheat, milk and chicken, were $ 3,500 million Argentine pesos (near U$S 1,000 millons), while the amount raised by Customs by the tax on exports to agriculture had been $ 22,000 million Argentine pesos (near U$S 6,300 millons). That is, the compensation paid accounted for only 16% of export duties contributed by the food industry to the Government. However, analysing the activities receiving the grant shows that compensation benefited more to industrial activities (mills, dairy plants, slaughterhouses) rather than primary producers of beef, wheat, milk and poultry. Thus, the calculation made by the technicians of CREA Movement, from government data and private data sources, shows that during 2008 the beef producers received on average 0.11 pesos per kilo live weight as compensation; the dairy farmers, meanwhile, received an average of 0.07 pesos per liter of milk produced. The compensations expressed as a percentage of average price of each product were: meat producers 3.6% on the price of beef; the dairy compensation equivalent to 9.7% of milk; the compensation for the wheat 12.9%; and, poultry producers received 15.1% of the

price of chicken. Graphs 1 and 2 presented in summary AACREA the result of the study. Graphs 1 and 2 presented in summary AACREA the result of the study.

Gráfico 1. Distribución de las compensaciones en las cadenas agroalimentarias

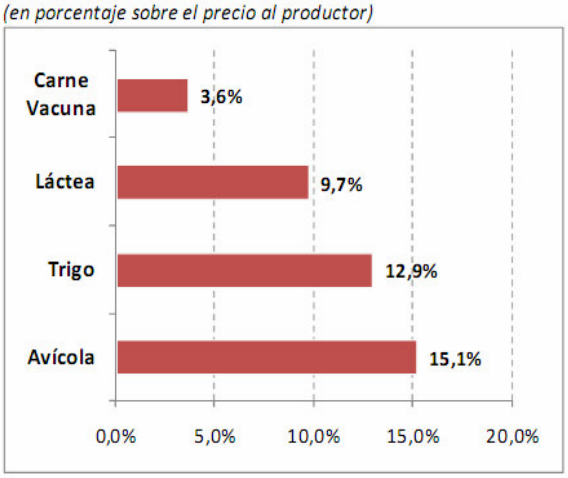
(en porcentaje del total según principales cadenas)



Fuente: Aacrea en base a datos de la Oncca

Gráfico 2. Incidencia de las compensaciones

(en porcentaje sobre el precio al productor)



Fuente: Aacrea en base a distintas fuentes

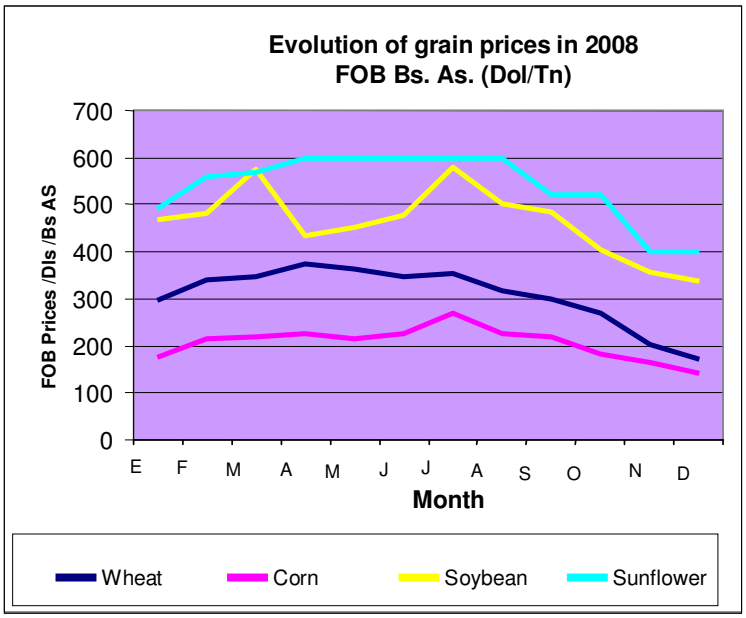
To assess the real impact of the compensations is interesting to note the developments recorded in prices of primary goods sector during 2008. According to official data (SAGPyA), prices of meat and grains suffered significant declines during 2008.

Table 2 and Figure 1 show the variations in the price of wheat, corn, soybean and sunflower during 2008, from January to December, and the monthly changes, measured at the beginning of every month, respectively.

Table 1

F.O.B. Bs.As. (Dol/Tn)	
Grain	Variation DIC 1º 2008 / ENE1º 2008
Wheat	-42%
Corn	-20%
Soybean	-28%
Sunflower	-18%
Source: SAGPyA.	

Figure 1



The fall in international prices was significant during 2008, resulting from the global crisis, where the greatest reduction corresponded precisely to the case of wheat (with a drop of -42%) that was the only grain that received compensation above 12, 9%. The fall of sunflower also felt in late December with a greater reduction than price reduction shown in the table (-39%).

In case of beef, Table 3 shows the history of the average of calf live kilo prices from 2005. During the last 4 years the price of kilo live weight of steers had changed only by 8% in dollars and 16.84% in pesos (taking into account changes in the average exchange

rate of each interval). Actually compensation of 3.6% in 2008 could not offset increases in the price level recorded in the rest of the national economy of around 37% according to the official statistics (INDEC), as shows Table 4.

Table 3

Average calf live kilo prices		Evolution of average exchangte rate	Evolution of Average calf live kilo prices	Variation from Previous Year	Variation 2008/2005
Year	En US dolars	Pesos	Pesos	%	%
2005	0,774	2,923	2,263	-	
2006	0,758	3,074	2,330	2,98%	16,84%
2007	0,850	3,115	2,648	13,65%	
2008	0,836	3,162	2,644	-0,16%	

Source: SAGPyA.

Table 4

Concept	Wholesale Price Index				
	Average				Variation 2008-2005 Interval
	2005	2006	2007	2008	
GENERAL LEVEL	252,56	278,82	306,74	346,19	37%
NACIONAL LEVEL	252,43	279,16	307,16	345,79	37%

Therefore, taking into account the evolution of relative products prices and maintaining the tax structure on the sector - with the temporary expansion of the tax on exports rate that operated through Resolution 125 in 2008 - it is clear that tax burden on primary agricultural sector increased in comparison with the figures found in previous studies. So, figures confirm the conclusions reached on this document about high confiscatory level of tax burden on the rural sector in Argentina.

(iii) The relative importance of national and provincial taxation in the consolidated tax burden

Figures described before correspond to the notion of "consolidated STB", i.e. including the three levels of government; now, is important to assess the relative weight of each level of government (national, state/provincial and local/municipal). According to Porto, Piffano and Di Gresia (2007), the sharing of the three levels of government in total tax burden on Agroindustrial Chain (AIC), is the one shown by the Table 5. National participation on AIC tax burden is higher than its participation in average tax burden on total GDP (all activities), due to incidence of tax on exports.

Table 5

DETAILS OF LEVEL OF GOVERNMENTS' SHARING IN TAX BURDEN									
TAX BURDEN ON AIC (%)									
Jurisdiction	1997	1998	1999	2000	2001	2002	2003	2004	2005
Nacional Taxes	82,00%	81,50%	81,60%	82,20%	82,60%	83,00%	83,70%	84,70%	85,20%
Provincial and Local Taxes	18,00%	18,50%	18,40%	17,80%	17,40%	17,00%	16,30%	15,30%	14,80%
TAX BURDEN ON TOTAL GDP (%)									
Jurisdicción Jurisdiction	1997	1998	1999	2000	2001	2002	2003	2004	2005
Nacional Taxes	82,20%	78,00%	78,00%	78,70%	77,80%	79,90%	80,70%	81,40%	81,90%
Provincial and Local Taxes	17,80%	22,00%	22,00%	21,30%	22,20%	20,10%	19,30%	18,60%	18,10%
Source: Porto, Piffano y Di Gresia (2007).									

(iv) Tax burden on the primary agricultural sector: the microsimulation approach

Studies on yields, gross and net margins, and estimates of tax burden on the typical activities of the agricultural sector (such as farming - the production of soybeans, corn, wheat, etc. - or livestock) using the method of microsimulations are frequent. This approach is appropriate for addressing economic estimates relating to activities linked to land use, i.e., primary production.

In paragraph (i) of this appendix was explained the reason of why studies on tax burden on rural sector using national accounts data as source, must define the agricultural sector by incorporating industrial activities linked to primary production processing.[58] Therefore, this section intends to measure the sectoral tax burden, refering strictly to the primary activities, using the method of the microsimulation.

The microsimulation methodology consists in building the respective accounts of production, gross margins, taxation - national, provincial and municipal taxes - and the final net result, by type of activity or product. This methodology will allow us to check whether the resulting tax pressures, coincides or not with those found by methodology based on national accounts.

The study Piffano and Sturzenegger (2009) now in progress, using the microsimulation method to measure tax burden on rural sector, makes a calculate of the Sectoral Tax Burden for a set of four alternative agricultural productions, namely: corn, wheat, soybeans and sunflowers, at year 2008. Taxes included are those of the national level of government (tax on exports, tax on banks debits and credits, tax on diesel, income tax, VAT "technical balance", the individual property tax and social charges) and the subnational level: provincial tax on transactions (Ingresos Brutos), tax on seals, and property tax (Real Estate Tax; urban and rural). In local or municipal level, only tax for road conservation. The Table 1 shows the final result after tax for corn production taking into account the technical and economic parameters and fiscal impact at that time. Similar estimates were made for wheat (Table 2), soybean (Table 3) and sunflower (Table 4). In the case of wheat it is included the compensation of 12.9% on the price according to FAS estimates (AACREA, 2009). The data sources used are from publications and advice

[58] It is misleading to make separate estimations on tax burden in linked activities to the agroindustrial chain, using national accounts data, because taxes on exports are of direct incidence on the producer of the primary commodity. In strict economic sense, an exporter is a taxpayer of the tax on exports of a commodity produced using primary products as input, and so he works as a mere tax holding agent of that tax. He adds value to a basic intermediate consumption (grain, meat, milk), valued at international prices net of withholding tax on exports.

provided by several institutions, in particular Márgenes Agropecuarios, and other sources.[59]

Table 1

Tax Burden on Corn		
	75 QQ/ha	*95 QQ/ha*
	Market FAS	*Market FAS*
Final Result (after taxes) (US$/ha)	279,95	428,24
Total taxes (US$/ha)	980,68	1260,22
National taxes (US$/ha)	918,03	1193,04
Subnational taxes (US$/ha)	62,65	67,18
Provincial taxes (US$/ha)	57,40	61,93
Municipal taxes (US$/ha)	5,25	5,25
National taxes / (Total taxes + producer result)	72,82	70,66
Subnational taxes Total taxes + producer result)	4,97	3,98
Provincial taxes / (total taxes + producer result)	4,55	3,67
Municipipal taxes / (total taxes + producer result)	0,42	0,31
Total taxes / (Total taxes + producer result)	77,79	74,64
National Government participation (%)	93,61	94,67
Subnational Gonernments participation (%)	6,39	5,33
Provincial participation (%)	5,85	4,91
Municipal participation (%)	0,54	0,42

Sources: own calculations based on Márgenes Agropecuarios and Bolsa de Cereales de Rosario.

Table 2

Tax Burden on Wheat		
	35 QQ/ha	*45 QQ/ha*
	Market FAS	*Market FAS*
Final Result (after taxes) (US$/ha)	91,46	171,28
Total taxes (US$/ha)	482,43	626,53
National taxes (US$/ha)	427,17	568,51
Subnational taxes (US$/ha)	55,27	58,02
Provincial taxes (US$/ha)	50,02	52,77
Municipal taxes (US$/ha)	5,25	5,25
National taxes / (Total taxes + producer result)	74,43	71,26
Subnational taxes Total taxes + producer result)	9,63	7,27
Provincial taxes / (total taxes + producer result)	8,72	6,61
Municipipal taxes / (total taxes + producer result)	0,92	0,66
Total taxes / (Total taxes + producer result)	84,06	78,53
National Government participation (%)	88,54	90,74
Subnational Gonernments participation (%)	11,46	9,26
Provincial participation (%)	10,37	8,42
Municipal participation (%)	1,09	0,84

Note: FAS price includes compensation of 12.9% according to estimates of AACREA (2009).

Sources: own calculations based on Márgenes Agropecuarios and Bolsa de Cereales de Rosario.

[59] The estimates essentially follow methodology of Arbolabe (2008), using as data source Margenes Agropecuarios and Bolsa de Cereales de Rosario.

Table 3

Tax Burden on Soybean		
	34QQ/ha	*20 QQ/ha*
	Market FAS	*Market FAS*
Final Result (after taxes) (US$/ha)	194,15	109,00
Total taxes (US$/ha)	1128,07	692,88
National taxes (US$/ha)	1067,94	638,71
Subnational taxes (US$/ha)	60,13	54,17
Provincial taxes (US$/ha)	54,87	48,91
Municipal taxes (US$/ha)	5,25	5,25
National taxes / (Total taxes + producer result)	80,77	79,65
Subnational taxes Total taxes + producer result)	4,55	6,75
Provincial taxes / (total taxes + producer result)	4,15	6,10
Municipipal taxes / (total taxes + producer result)	0,40	0,65
Total taxes / (Total taxes + producer result)	85,32	86,41
National Government participation (%)	94,67	92,18
Subnational Gonernments participation (%)	5,33	7,82
Provincial participation (%)	4,86	7,06
Municipal participation (%)	0,47	0,76

Sources: own calculations based on Márgenes Agropecuarios and Bolsa de Cereales de Rosario.

Table 4

Tax Burden on Sunflower		
	20 QQ/ha	*25 QQ/ha*
	Market FAS	*Market FAS*
Final Result (after taxes) (US$/ha)	171,51	263,80
Total taxes (US$/ha)	679,05	856,00
National taxes (US$/ha)	624,29	798,95
Subnational taxes (US$/ha)	54,77	57,05
Provincial taxes (US$/ha)	49,52	51,79
Municipal taxes (US$/ha)	5,25	5,25
National taxes / (Total taxes + producer result)	73,40	71,35
Subnational taxes Total taxes + producer result)	6,44	5,09
Provincial taxes / (total taxes + producer result)	5,82	4,63
Municipipal taxes / (total taxes + producer result)	0,62	0,47
Total taxes / (Total taxes + producer result)	79,84	76,44
National Government participation (%)	91,93	93,34
Subnational Gonernments participation (%)	8,07	6,66
Provincial participation (%)	7,29	6,05
Municipal participation (%)	0,77	0,61

Sources: own calculations based on Márgenes Agropecuarios and Bolsa de Cereales de Rosario.

As shown in tables, there are generally no significant differences in the estimated tax burden, both between products and between the two variants simulated for soil productivity levels. Using the simple average values of the simulations carried out by type of crop, were obtained the following results:

- Corn: 76,22
- Wheat: 81,30
- Soybean: 85,86
- Sunflower: 78,14

Consistent with expected results, soybean has the highest tax burden, followed in descending order by wheat, sunflower and then finally the corn. It is interesting to compare these results with those calculated on national accounts basis. The values found and those comented in paragraph (i) confirm the similarity of the size of the estimated tax burden, notwithstanding the absence of any evasion parameter in the microsimulation; recalling: 82.3% in PT1 variant and 80.5 % in PTFPC variant, for the six most important activities of the agribusiness chain, both values for the year 2005 in which the profitability of rural activities - including livestock - was generally higher than that recorded in July 2008.

The participations of national and subnational levels of government - with the predominant participation of national level of government - are also confirmed by simulations, as is shown in Table 5. The high participation of national level of government in tax burden on agriculture activity is naturally magnified in primary activity (ie, ignoring industrial activities linked to the processing of primary production) basicaly as a result of the incidence of tax on exports. The participation of each level of government - national and subnational levels - is the following:

Tabel 5

Crop	National Level	Subnational level (provinces + municipalities)
Corn (PT: 76,22)	94,14% (PT: 71,75)	5,86% (PT: 4,47)
Wheat (PT: 81,30)	89,64% (PT: 72,88)	10,36% (PT: 8,42)
Soybean (PT: 85,86)	93,43% (PT: 80,22)	6,57% (PT: 5,64)
Sunflower (PT: 78,14)	92,64% (PT: 72,39)	7,36% (PT: 5,75)

Source: own calculations.

On the other hand, the weight of Provincial level within Subnational governments is predominant. The Municipal taxation is very limited (only the tax for roads conservation). Actually, the province represents over 90% of the taxes at the subnational level for the four crops considered.

Tabel 6

	Corn	Wheat	Soybean	Sunflower
Subnational participation (%)	5,86	10,36	6,57	7,36
Provincial participation (%)	5,38 (91,90%)	9,39 (90,70%)	5,96 (90,69%)	6,67 (90,58%)
Municipal participation (%)	0,48 (8,10%)	0,96 (9,30%)	0,61 (9,31%)	0,69 (9,42%)

Source: own calculations.

Comparing the results with estimates of AACREA

In February 2005, AACREA presented a paper on taxation in rural activities and its impact on economic performance of rural sector. The paper uses the microsimulation model for mixed farms - agricultural and livestock – and three geographic areas of the country. One of the simulations corresponds to a mixed farm sited in the nortwest of Province of Buenos Aires (Model 2). In each model were estimated two results: after-tax result for the mode "own land exploitation" and the after-tax result for the the mode "leased land".

The authors conclude that the Argentine agricultural sector at that time was strongly affected by the consolidated tax burden carried by the three levels of government. Results shown in Table 7 and 8 show that the total tax burden varies for the different models or modes between 58% and 103% of income before taxes.

In case of Model 2 the result is a tax burden of 75% in own land exploitation and 103% in leased land, ie for this latter, the net result after tax was negative (-3).

Tabel 7

Modelo 2 (Oeste de Buenos Aires)
Caso 1: Sin arrendamiento (100% Campo Propio)

	Oeste de Buenos Aires		
	Total	**% RFSI**	**$/ha**
Facturación Libre de Retenciones	$ 2.771.644		$ 1847,8
Gastos Directos [1]	$ 1.609.877		$ 1073,3
Gastos Indirectos	$ 78.006		$ 52,0
Amortizaciones	$ 111.510		$ 74,3
Resultado Final sin Impuestos (RFSI)	**$ 972.252**	**100%**	**$ 648,2**
Derechos de Exportación	$ 408.942	42%	$ 272,6
Otros impuestos			
Tasas e Impuestos Comerciales	$ 11.451	1%	$ 7,6
Aportes del Empleador	$ 34.369	4%	$ 22,9
Impuesto Inmobiliario y Tasa Vial	$ 32.672	3%	$ 21,8
Impuesto Ingresos Brutos	$ 23.627	2%	$ 15,8
Tasa de Inspección y Justicia	$ 2.500	0%	$ 1,7
Impuesto a los Créditos y Débitos	$ 28.352	3%	$ 18,9
Impuesto al gasoil	$ 18.906	2%	$ 12,6
Impuesto a las Ganancias [2]	$ 131.166	13%	$ 87,4
Bienes personales y autónomos	$ 35.414	4%	$ 23,6
Total Carga Impositiva	**$ 727.399**	**75%**	**$ 484,9**
Resultado Final Después de Impuestos	**$ 244.853**	**25%**	**$ 163,2**

Tabel 8

Caso 2: Con arrendamiento (100% campo alquilado)

Alquiler: 8 qq/ha

	Oeste de Buenos Aires		
	Total	**% RFSI**	**$/ha**
Facturación libre de retenciones	$ 2.771.644		$ 1847,8
Gastos Directos [1]	$ 1.598.986		$ 1066,0
Gastos indirectos	$ 57.612		$ 38,4
Alquiler	$ 513.336		$ 342,2
Amortizaciones	$ 80.923		$ 53,9
Resultado Final sin Impuestos (RFSI)	**$ 520.787**	**100%**	**$ 347,2**
Derechos de Exportación	$ 408.942	79%	$ 272,6
Otros impuestos			
Tasas e impuestos comerciales	$ 11.451	2%	$ 7,6
Aportes empleador	$ 34.369	7%	$ 22,9
Impuesto Ingresos Brutos	$ 23.627	5%	$ 15,8
Tasa inspección justicia	$ 2.500	0,5%	$ 1,7
Impuesto a los Créditos y Débitos	$ 28.352	5%	$ 18,9
Impuesto al gasoil	$ 18.906	4%	$ 12,6
Impuesto a las Ganancias [2]	$ 0	0%	$ 0
Bienes personales y autónomos	$ 6.899	1%	
Total Carga Impositiva	**$ 535.047**	**103%**	**$ 356,7**
Resultado Final Después de Impuestos	**$ -14.260**	**-3%**	**$ -9,5**

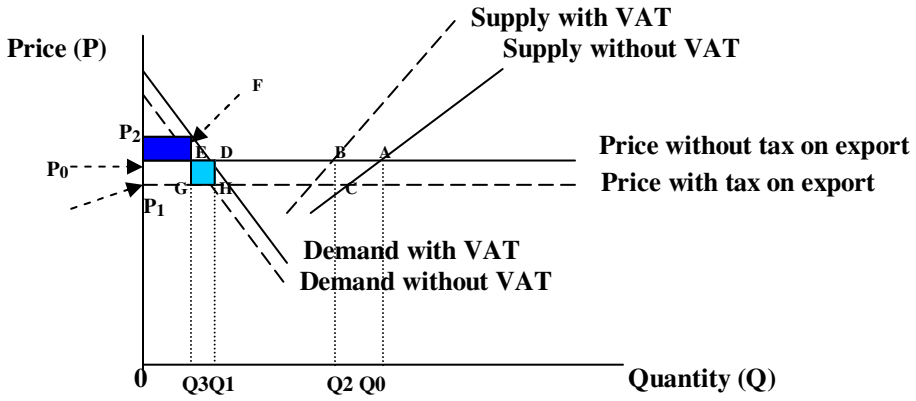
[1] Incluyen gastos de comercialización y de compras de hacienda y todo el personal
[2] Descontando ITC e ITF

The tax burden estimated by AACREA (75%) - corresponding to mode of "own exploitation" of land - is therefore comparable with that obtained by the simulations for farms of similar type (Corn: 74.56%, Wheat: 80.19%, Soybeans: 87.07%; Sunflower: 76.84%), though that tax values and relative prices used in each study were refered to two different years (2005 vs. 2008). However, unlike the microsimulations, AACREA do not includes the "VAT technician balance" in the tax burden estimations, under the idea that

VAT has neutral incidence at the producer level. Also, the criterion of no include the “net VAT” is very common in tax burden estimations due to assumption of "forward shifting", ie, the alleged final compensation between debits and credits tax at the producer level. The forward shifting is the economic consequence of tax incidence in the “long-term” of VAT “Destination”.

Figure 10 illustrates this effect in case of a rural commodity intended partly for export.

Figure 10



Before VAT the price which rural sector faces is $\mathbf{P_0}$, which provides incentives to produce the quantity $\mathbf{Q_0}$. Domestic demand absorbs $\mathbf{Q_1}$, leaving an exportable surplus of $\mathbf{Q_1Q_0}$. After VAT, without border adjustment, the industry should bear the entire burden - $\mathbf{P_0BCP_1}$ area - and the excess burden **ABC**. Now, with border adjustment, ie, with refund of the total collected by the quantity exported - **DBCH** area - the price for exports goes back to level $\mathbf{P_0}$. The quantity sold to domestic consumption - $\mathbf{P_0DHP_1}$ – has no refund of VAT, but the rural sector will not bear the tax burden, because any price higher than $\mathbf{P_1}$ will induce to shift sales towards overseas. The price ($\mathbf{P_0 > P_1}$) changes quantity $\mathbf{GH = Q_3Q_1}$ of domestic demand toward exports. This reduction in domestic supply will cause the domestic price rises to $\mathbf{P_2}$, which indicates the maximum price that domestic demand is willing to pay for a lesser quantity ($\mathbf{Q_3 < Q_1}$). The new VAT on domestic consumption is reduced to the area $\mathbf{P_2FEP_0 = P_0EGP_1 < P_0DHP_1}$, which means a VAT revenue reduction of **EDHG**.

The possibility that consumers do not bear the tax burden would be that the Government does not tax with the VAT the rural commodity imports. In that case, the external demand curve (net of deductions by the tax on exports) would play the role simultaneous of infinitely price elastic demand and of infinitely price elastic supply, implying the impossibility of forward and/or backward shifting of domestic VAT burden, because sales are facing $\mathbf{P_0}$. But in this case, the agricultural sector would export the entire production (thus avoiding paying VAT) and domestic demand would import the entire consumption (also avoiding paying the VAT). The Government would collect anything of VAT. Actually, it would be similar to extend the treatment of "zero rate" to all rural commodity sales.

On the other hand, the computation of tax burden including “net VAT”, however, is justified on the grounds that usually tax burden calculations using the national accounts data, follows the direct impact criterion of the tax ("percussion" of the tax), which is the only way to identify who pays the tax, and not on whom finally falls the tax burden (incidence), that depends on market circumstances, in time and space (elasticities of supply and demand) in the "short term".[60]

[60] For extensions of this analysis see Piffano (2007).

References

AACREA (2005): "*Impuestos en el Sector Agropecuario. Efectos sobre los resultados económicos*", AACREA Área de Economía. http://www.aacrea.org.ar/.

AACREA (2008): "*Campo y Comunidad. Aportes para la comprensión de la realidad del campo argentino*", AACREA Área de Economía. http://www.aacrea.org.ar/.

AACREA (2009): "*Distribución de las compensaciones en la cadena agroalimentaria*", AACREA Área de Economía, (febrero, 2009). http://www.aacrea.org.ar/.

Arbolave, M. (2008): "Los impuestos que paga la soja 04/08", *Revista Márgenes Agropecuarios*, Julio 2008.

Arceo, E. y Basualdo, E. (1997): "El impuesto inmobiliario rural en la Provincia de Buenos Aires: del Modelo Agroexportador a la valorización financiera", *Revista Realidad Económica 149*, Buenos Aires.

Barlowe, R. (1958): "*Economía de la utilización del suelo*", Editorial Herrero, México.

Bour, E. (2008, 2009): "*Lecturas de Metodología Económica y Derecho*", Facultad de Derecho y Ciencias Sociales, Universidad de Buenos Aires.
http://www.ebour.com.ar/index.php?option=com_content&task=view&id=156&Itemid=71

Buchanan, J. (2001): "*Mi peregrinaje intelectual"*, Cato Institute, Dr. James M. Buchanan Conference at the Universidad Francisco Marroquín. Translated to Spanish by Carroll Ríos de Rodríguez.

Buchanan, J. y Tullock, G. (1962): "*The calculus of consent*", University of Michigan Press.

Colbert, Jean-Baptiste (1661; 1665): Citation of the reference and background of his biography as Intendant of Finance of France in 1661 and General Supervisor of the Administration of Finance of France in 1665:

http://www.dico-citations.com/l-art-de-l-imposition-consiste-plumer-l-oie-pour-obtenir-le-plus-possible-de-plumes-avant-d-obteni-colbert-jean-baptiste/

http://es.wikipedia.org/wiki/Jean-Baptiste_Colbert

Courtuois, S. (Director) (1997): "*El libro negro del comunismo, crímenes, terror y represión*", Édit. Robert Laffont, Paris. Translated to Spanish by: Espasa-Calpe, Madrid (1998).

El País (2009)*: "En Cuba no sobra nada, sólo problemas",* Publish in newspaper El País /France), on Monday 27, 2009. Madrid.

http://www.elpais.com/articulo/internacional/Cuba/sobra/nada/solo/problemas/elpepuint/20090727elpepiint_2/Tes

Friedman, D. D. (1986, 1990)*: "Price Theory: An Intermediate Text",* South-Western Publishing Co.

http://www.daviddfriedman.com/Academic/Price_Theory/PThy_ToC.html

George, H. (1879): "*Progress and Poverty: An Inquiry into the Cause of Industrial Depressions and of Increase of Want with Increase of Wealth",* Garden City, NY: Doubleday, Page & Co.

Hardin (1968): "The Tragedy of the Commons", *Science*.

http://dieoff.org/page95.htm

Hong Kong Government (1998): "*Hong Kong: A New Era*", Hong Kong Government Printer.

Krause, M. (2009): *"Índice de Calidad Institucional 2009",* Centro de Investigaciones de Instituciones y Mercados de Argentina (CIIMA), Escuela Superior de Economía y Administración de Empresas (ESEADE). © 2009 International Policy Network.

http://www.policynetwork.net/main/publication.php?pubtype_id=1

http://works.bepress.com/martin_krause/37/

La Nación (2009): *"Raúl Castro anunció un nuevo ajuste en Cuba",* Publish in newspaper La Nación on Monday 27, 2009. Buenos Aires.

http://www.lanacion.com.ar/nota.asp?nota_id=1155299

Magness, P. (2009): "Constitutional tariffs, incidental protection, and the Laffer relationship in the early United States", *Constitutional Political Economy*, Vol. 20 Nº 2, pág. 177-192.

Margariti, A (2008): "La expoliación del campo, objetivo stalinista", *La Nación*, 05/06/2008.

Mochon, F. y Beker, V. (1997): "*Economía, principios y aplicaciones*", Second edition, Madrid. Ed. Mc Graw - Hill.

Musgrave, R. y Musgrave, P. (1992): "*Hacienda Pública. Teórica y Aplicada*", Mc Graw Hill / Interamericana de España S.A., 5º Edition, Madrid.

Nuñez Miñana, H. (1994): "*Finanzas Públicas*", Ed. Macchi, ASAP, Buenos Aires.

Ohlin, B. (1933): "Interregional and International Trade". *Monograph.* Stockholm School of Economics (SSE).

Pasinelli, L. (2002): "*Crecimiento económico y distribución de la renta*", Ensayos de Teoría Económica. Alianza Editorial.
http://www.agro.uba.ar/carreras/leaa/materias/costos/renta.pdf

Piffano, H. (2004a): "La redistribución de ingresos tributarios entre regiones o la racionalidad de las transferencias de nivelación", *XXXIX Annual Meeting of the Argentine Political Economy Association (AAEP)*, U.C.A. Buenos Aires. (www.aaep.org)

Piffano, H. (2004b): *"Notas sobre Federalismo Fiscal. Enfoques Positivos y Normativos"*, *e-book* edicted by PreBi/SeDiCI, Universidad Nacional de La Plata, La Plata.
http://sedici.unlp.edu.ar/search/request.php?id_document=ARG-UNLP-EBook-0000000001&request=request

Piffano, H. (2007): "La Incidencia del IVA, las Retenciones y las Mediciones de la Presión Tributaria en el Sector de Exportables: El Caso del Sector Agropecuario", Departamento de Economía, Universidad Nacional de La Plata, *Documento de Trabajo* Nº 70 (Spanish version and English version), La Plata. http://www.depeco.econo.unlp.edu.ar/public02.htm
Reduced version in *Annals of the 40as. "Public Finance International Conference*"

(*Jornadas Internacionales de Finanzas Públicas)*, Facultad de Ciencias Económicas, Universidad Nacional de Córdoba, Córdoba, 2007.
http://www.eco.unc.edu.ar/jifp/cd/40_jornadas_cd_interactivo.zip (bajar pdf 30).

Piffano, H. y Dudiuk, P. (1981): "Un estudio acerca de la incidencia a corto plazo de la imposición sobre productos agrícolas", *Cuaderno N° 37*, Instituto de Investigaciones Económicas, Universidad Nacional de La Plata. La Plata.

Piffano, H. y Dudiuk, P. (1982a): "La Imposición al Sector Agropecuario en la Provincia de Buenos Aires", (Fourteen volumes), *Consejo Federal de Inversiones*, Buenos Aires.

Piffano, H. y Dudiuk, P. (1982b): "Presión Tributaria al Sector Agropecuario de la Provincia de Buenos Aires", Facultad de Ciencias Económicas, UNC, *Annals of the XV "Public Finance International Conference"* (*Jornadas Internacionales de Finanzas Públicas)*, Córdoba.

Piffano, H. y D'Amore, M. (2007): "*Las Mediciones de la Presión Tributaria en el Sector de Exportables: el IVA, las Retenciones y el caso del Sector Agropecuario*", Fundación Unidad, Bahía Blanca (www.fundaciónunidad.org.ar). Also in AAEP 2007. (www.aaep.org.ar).

Piffano, H. y Sturzenegger, A. (2009): "*El Impuesto Inmobiliario Rural*". (*In progress*). Convenio Agencia de Recaudación de la Provincia de Buenos Aires (ARBA) y Facultad de Ciencias Económicas de la UNLP. La Plata.

Porto, A., Piffano, H. y Di Gresia. L. (2007): "*El Aporte Tributario de la Cadena Agroindustrial (CAI)*", Fundación Producir Conservando. Buenos Aires.
http://www.producirconservando.org.ar/docs/servicios/framset_servicios.htm

Reca, L. (2008): "El conflicto por el régimen de retenciones y el fututo de la agricultura argentina"*, Annals of the AAEP*, Córdoba.

Ricardo, D. (1817): "*Principios de Economía Política y Tributación*", Ed.: Fondo Cultura (México, 1994).

Samuelson, P. A. (1948): "International Trade and Equalization of Factor Prices", *Economic Journal* (June).

Smith, A. (1776): "*Inquiry into the Nature and Causes of the Wealth of Nations"*, London. Ed. by Sálvio M. Soares. MetaLibri (2007).

Stiglitz, J. E. (1987): "Some theoretical aspects of agricultural policies", *World Bank Res Obs* (*WBRO*).
http://wbro.oxfordjournals.org/cgi/content/abstract/2/1/43
http://wbro.oxfordjournals.org/cgi/reprint/2/1/43

Sturzenegger, A. C. (1990): "Trade, Exchange Rate and Agricultural Pricing Policies in Argentina*", World Bank Comparative Studies*, Washington DC, World Bank.

Sturzenegger, A. C. (2007): "Discriminación al Agro en Argentina, 1960-2005"*, Annals of the AAEP*, Bahía Blanca. (www.aaep.org).

Teijeiro, G. O. y Ballone, M. (2009): "The Argentine Supreme Court Decision in re Candy SA", *Practical Latin American, Volume 12, Number 6*, June, World Trade Executive, Inc.

Vanek, J. (1968): "*The Factor Proportions Theory: The n-factor Case*", Ed. Kyklos.