

Some Macroeconomic Aspects of Land Ownership

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Key words: land administration, functions, macroeconomics, justification, investments.

SUMMARY

Land administration (*'the process of determining, recording, and disseminating information about ownership, value and use of land when implementing land management policies' according to UN Land Administration Guidelines 1996*) facilitates -inter alia- land tenure security, the land market, land use planning and control, land taxation and management of natural resources. This paper aims at addressing the significance of secure land ownership for society in macroeconomic terms, such as the significance of transactions in land as part of the economic transactions in a society, the significance of mortgages as financial base for economic activities, and the significance of taxation of land as part of the tax base of a country. As a main task of land administration systems is to provide security of land ownership, we assume the macroeconomic effects of land ownership being similar to the macroeconomic effects of good land administration.

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1. RATIONALE FOR THIS PAPER

The rationale for this paper is the macroeconomic justification for investments in land administration systems. Land administration is not an end in itself. 'It contributes to economic development in a number of ways: it provides security to investors and permits real estate to be traded in the market place; it also allows governments to raise taxes on the basis of the value of land and property' (Dale & McLaughlin, 1988). The development and the maintenance of land administration systems cost money. Initial investments are needed in order to introduce and establish such systems. Structural investments are needed in order to keep the system up to standard, as required by a developing society. The question 'who actually is the one to invest' is a question in its own, although it will be most likely the government. Within the scope of this paper it is important to recognise that resources are scarce, and that the science of economics studies the choices to be made by individuals and collectives on the allocation of scarce resources among competing uses to maximise their satisfaction (Dobson & Palfreman, 1999). By consequence the choices regarding the allocation of the scarce resources to the development and the maintenance of land administration systems are an economic question. There are quite a few publications on the justification of such investments.

(Williamson, 1997) investigates the justification for cadastral systems in developing countries. The paper argues that in rural areas security of title is important. In promoting increased investment in agriculture; for more effective husbandry of the land; for improved sustainable development; to support an increase in GNP through an increase in agricultural productivity; and providing significant social and political benefits.. In urban areas it argues that a cadastral system is essential to support an active land market by permitting land to be bought, sold, mortgaged, and leased efficiently, effectively, quickly, and at low costs.

(Munro-Faure, 1999) examines the economic significance of the development of appropriate skills in real estate valuation and of properly functioning of land markets in the context of transitional economies.

(Wessely, 2002) concludes that we need to make aware the government (as the provider of budget funds), the general public (as the users and the fee payers) and the special partners of the benefits of the land administration system in order to secure ongoing – and potentially increasing- funding for further improvement of the land administration system.

(Feder, 1987) reports about the investigation by the World Bank of the land titling project in Thailand. He found that, in most areas studied, titled farmers invest more than untitled farmers, undertake more land improvements, utilise more production inputs, and have significantly higher productivity.

(Feder, 1998) provides a conceptual framework for analysing the economic aspects of land registration and titling. He reviews evidence from around the world showing that land registration has led to better access to formal credit, higher land values, higher investments in land, and higher output/income. He argues that there are prerequisites for land registration to be economically viable, and that there are circumstances where the investments will not be economically viable.

(Worrall, 1994) summarises that formal cost-benefit analysis tend to be an exception rather than the rule. The identification of 'intangibles' either means that the pure cost-benefit model is inapplicable or that inadequate thoughts has been given to identifying robust techniques to quantify these intangibles (either directly or by using proxy measures) to assess potential indirect benefits and to allocate them to a budget owner.

Our personal observation is that many of the existing literature approach the justification of investments in land administration systems from a qualitative perspective, with other words they try to identify the functions of land administration that are useful and beneficial for a society. These are a mix of functions at individual level, such as access to micro credit for farmers, and at societal level, such as providing income for a government through land taxation. This approach is extremely useful to create awareness about the benefits that good land administration might have. Within the framework of this awareness, the question however remains which amounts of investment are reasonable with respect to the functions the land administration has to fulfil. It is often said: 'land administration is expensive', but when the result of the costly exercise fort example is a good functioning land market that generates structurally income for individuals and government, the investment might possibly be considered as quite modest compared with the benefits (although in monetary terms a lot of money might be spent). A good example can be found in the Netherlands, where political parties are critical about the costs of levying land taxation, while the tax revenue based on landowner-ship and land use is about \$ 7000 million. Compared with the costs of the Dutch Cadastre (\$ 200 million, 100% cost recovery) and the municipal costs for valuation and levying (\$100 million) the revenue does not represent a bad return on investment in my opinion. So: why too expensive?

In this paper we attempt to identify the relationship between land administration systems and macroeconomic parameters, and we try to quantify this macroeconomic effects in the case of the Netherlands. The reason to look at the Netherlands is the relatively easy access to statistical data by the author. If however the relationships as identified in the first part of the paper are correct, quantification might be possible also elsewhere.

2. DIFFERENCE BETWEEN MICRO- AND MACROECONOMICS

Much of this section is based on (Dobson & Palfreman, 1999) and (Haselbeke & de Man, 1999) as these books pretend to provide a good introduction to economics for non-specialists. First of all economists distinguish microeconomics and macroeconomics. The first concerns individual decisions and specific markets, while the second concerns the economy as a whole. Microeconomic focuses on the analysis of individual prices, markets and consumer choices, based on data and information on individual households, businesses, and markets.

Macroeconomics focuses on the picture of total spending in the economy, the total output of the economy, the country's average price increases etc., based on the aggregated data and information. As micro- and macroeconomics have mutual relationship (as the macro level consists of the aggregated micro level), land administration systems by consequence impact on both micro and macro level. The access to micro credit for construction purposes based on land as collateral, belongs to microeconomic considerations as it regards individual households and businesses. The value that construction companies add to the use of resources is represented in the national income or national product, so within the macroeconomic approach. The same applies to income based on mortgage interests for a financial bank. This regards the micro level. The value that is added by the banking sector to the use of resources however is a component for the national income or national product.

Microeconomic effects of land administration are of course very interesting. Households and companies might benefit much from good land administration. Secure tenure provides a stable base for individual investments, in housing, farming, small enterprises (de Soto, 2000). Access to micro-credit facilitates the capacity for income growth and enhancing living standards. Received interests form a substantial income for banks. For example the ABN/AMRO bank (based in the Netherlands) in the year 2002 had a turnover of 18280 million € of which 9845 € consists of consolidated interests (53%!). That a commercial company finances its assets with long-term loans is microeconomics; that all companies in the Netherlands finance their assets with 30% long term loans (CBS, 2003) is part of macroeconomics. If we assume that it is the government that invests in land administration systems on behalf of the society (the 'people'), microeconomic benefits do not suffice as a means for justification, as decisions of the government on allocation of scarce resources should be made using information at the level of the society as a whole. Therefore the impact of land administration on macroeconomic components is of more relevance as a means to justify investments. By consequence we will restrict this paper regarding the economic importance of land administration to the macroeconomic aspects only.

3. WHAT IS LAND ADMINISTRATION?

The definition of 'land administration' as 'the process of determining, recording and disseminating information about ownership, value and use of land, when implementing land management policies' has proven to be a guiding principle in policy documents, research programmes, and education and training (UN/ECE, 1996). Although other definitions are used (e.g. Dale & McLaughlin, 1999), and also the definition is challenged (e.g. Fourie, Groot & van der Molen, 2002), the definition still stands firmly especially when the concepts of 'ownership', 'value', and 'use' are interpreted in a broad sense.

The concept of '*ownership*' should -in our view- be understood as a relationship between people concerning land within any jurisdiction, so the mode in which rights to land are held, and therefore based on *statutory law, common law, and customary traditions*.

'*Value*' should be understood as all the values that could be assigned to land, depending on the purpose of the value, the use of the land, and the method of valuation.

'*Land use*' should be understood as both the use to which the land can be put, depending on the purpose and nature of the land, classification, methodology, and land cover according to defined classification systems (e.g. FAO Land Classification System, 2000).

The concept of '*land*' should be understood as the surface of the earth, the materials beneath the surface, the air above the surface, and everything attached to the surface – i.e. it should be perceived as more than just the 'land' as such.

The definition reveals that land administration is a process, which brings application of process-modelling and related topics (e.g. workflow management, process re-design, and system-support), within the scope of land administration.

Finally, the definition makes very clear that the land administration activity is not an end in itself, but that it facilitates the implementation of land management policies. So, the way land administration should work depends on the requirements defined by the various instruments, which are at the disposal of governments in order to allow appropriate implementation of its land policy.

Unlike many other geographic information systems, which provide information about geographical objects and their attributes, land administration systems reflect in principle the social relationship between people concerning land, as they are recognised by a community or a state. Therefore such a system is in no way just a 'GIS'. Data recorded in a land administration system have a social and legal meaning, and are based on accepted social concepts. That concerns both to owners, rights and land objects. It is not relevant whether these concepts are laid down in the law or in unwritten customs. In both cases the way how rights to land, the right-holders and the land itself is understood by the individual people, determine the content and meaning of the land administration system. These rules, constituting the basic principles for the system and justifying its existence, form the institutional context for land administration. Without rules land administration is not possible, as it will be without a societal and legal meaning. By consequence it will be a meaningless activity, not worth to put any effort in.

Institutional aspects are therefore of paramount importance, The legal framework for land issues, and the mandates and tasks as they are allocated in the public administration to perform the land administration function, determine how the system should function. Other institutional measures also do, although they might be more specific and down to earth, like a requirement to the financial conditions that the government wants to apply on the land administration activity for example that the work should be executed under a cost recovery regime. Rules for investments in the system, the way it should operate, the way the government wants to keep control, all of these can form operational constraints.

Land administration serves various functions in a society. Documents like Agenda21, Habitat etc. relate the land issue very much to poverty reduction, sustainable housing, sustainable agriculture and the strengthening of the role of vulnerable groups in society, like women, farmers, indigenous groups. Land administration systems are –as said earlier- not a purpose in them. They are part of such a broader land policy.

Land policy reflects the way governments want to deal with the land issue in sustainable development, or as the Guidelines say 'land policy consist of the whole complex of socio-economic and legal prescriptions that dictate how the land and the benefits from the land are to be allocated'. That of course depends on the culture, history and attitude of a people. It is worthwhile to draw up a picture of the support land administration systems give to the implementation of (the most important) land policy instruments, as there are -at least- (GTZ, 1998):

- improvement of land tenure security
- regulation of the land markets
- implementation of urban and rural land use planning, development and maintenance
- provision of a base for land taxation.

Concerning the *improvement of land tenure security*, the legal framework of land administration systems (related to the registration or recording of rights and interest in land) is determining the nature of the security provided. Within the context of the definition of these rights 'in rem' (as an institutional prerequisite), deed-systems provide a different (in casu: less) security compared with title systems. The combination of a strong notary-system (e.g. *Latin Notary*) and a deed registration might however provide as much security as the combination of non-authentic (underhand) documents with a title registration (strong role of the registrar).

Concerning the regulations for the *land market*, land administration systems provide transfer procedures of a different nature. On one hand there are plain procedures of submission of a transfer document and a recording after a minimum of formalities (e.g. *simple deed registration*). On the other hand there are more complex procedures regarding investigations prior to the approval of the legal impact of the transfer (e.g. *issuing of a title certificate*). Some countries require approval by a chief surveyor, a chief planner or another authority. Advantage is that e.g. a building permit is granted together with the title, while in the first case the procedure for planning- and building permits starts just after the transfer. The process-time necessary for the transfer procedure (for example from the obligatory agreement to the official recording or registration, that is often used as a benchmark) therefore might result in a different 'value' for the applicant.

Concerning *urban and rural land use planning, development and control*, the support of land administration systems lies foremost in the phase of development and control of a given land use. This activity is to be seen as an intervention by the government in private rights to dispose. Without knowledge about who owns what and where (also in *customary areas*) land management will be hardly possible for the government. From the landowner's point of view, intervention by the government specifically limits his private right to dispose on the actual parcel, being the legal object of his private rights. The intervention takes an ultimate form in the execution of pre-emptive rights and expropriation. Regarding protection of third parties in good faith, pre-emptive rights and expropriation decisions should therefore be recorded in the land administration system.

Concerning the support of *land taxation*, the fact is that land tax is an outstanding example of local tax. Without knowledge about taxable persons, taxable objects and land values (all data to be provided by the land administration system), the generated revenue can not be high. Land taxation in many countries is based on land administration systems.

The *management of environmental resources* is of increasing importance. The measures a government can take, are in many cases executed by imposing restrictions on the use of land. A good example is soil sanitation, where governments can impose to owners of land a compulsory soil cleaning, and can give such measures the status of real right, which means that these orders have legal power against third parties (e.g. new owners). Therefore these public encumbrances are eligible for registration.

4. LIMITS OF THIS PAPER

This paper is a first attempt to identify and quantify the factors that play a role in assessing the macroeconomic importance of land administration. As said earlier, literature exists that examines models for the relationship between land titling and agricultural productivity (Feder, 1987, 1998), and between land registration and economic growth (Byamugisha, 1999). This paper will analyse the relationship between land administration and security of tenure, the land market, and land use planning and land taxation. A first step in this paper is the identification of these relationships as such, the second step will be the attempt to quantify the relationships in terms of money. Without statistics this will not be possible. Therefore we have to investigate the availability of relevant data. Normally the source for statistical data is the national bureau of statistics or similar ('Central Statistical Office' in the US, 'Central Bureau of Statistics' in the Netherlands etc.). These offices aim at collecting many relevant economic data in order to quantify the macroeconomic relationships as will be shown in section 5, both for policy - and for scientific reasons. The author considers this paper as a start of an evolutionary process towards a more solid analysis, where the help of macroeconomists is needed.

5. RELEVANT ASPECTS OF MACROECONOMICS

Macroeconomics is the study of the economy as a whole. An important macroeconomic indicator is the *gross national product*, the aggregated unit representing all output by all residents of a country. This output might be produced within a country and abroad, however produced by residents of the country. If we count the production within the country by residents and foreigners, the indicator is called *the gross domestic product*. The circular flow model, which is the base for macroeconomic considerations, reveals the relation between various output and income.

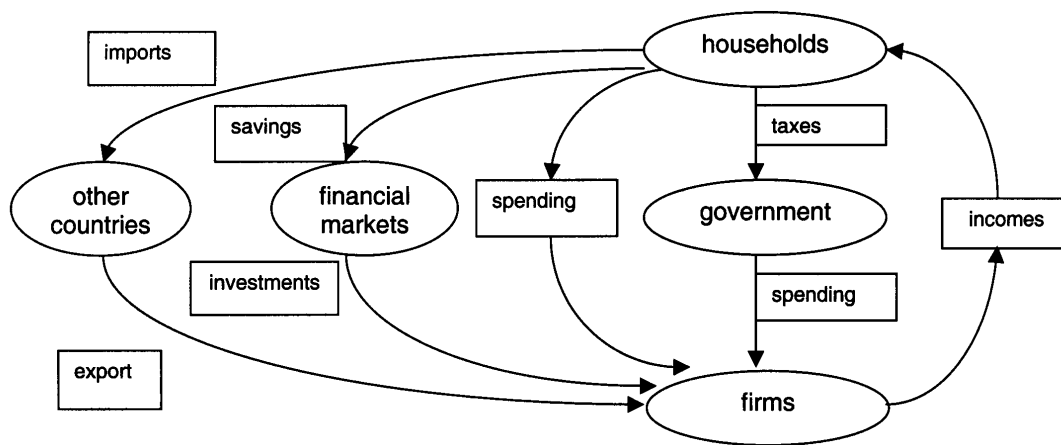


Fig 1: The Circular Flow Model of income and spendings (Dobson & Palfreman, 1999)

The circular flow model is used in macroeconomics to explain the economic processes in society as a whole, and forms the base for the calculation of indicators like national income, gross national product GNP and gross domestic product GDP (Dobson & Palfreman, 1999). The most important indicator is the GDP, as it represents the output of goods and services produced by the economy. GDP is the output produced by the factors of production within a country, whoever owns them (might be foreign ownership). GNP is the output produced by factors of production owned by residents of the country, also outside the country. The national income is the total of incomes earned by the actors in the society when producing goods and services. Of course these three indicators can be defined more precisely. For the scope of this paper it is important to recognise:

$$\text{Gross National Product (GNP)} - \text{depreciation} = \text{Net National Product (NNP)}$$

$$\text{Net National Product (NNP)} - \text{indirect taxes} + \text{subsidies} = \text{National Income (NI)}$$

While NNP is at market prices (because market prices include indirect taxes and subsidies), the NI is at –what is called- factor costs, directly related to the factor of production labour, land rents, capital interests, and entrepreneur-ship earns profits. In macroeconomics three methods are distinguished for the calculation of these indicators, namely output measurement, income measurement of expenditure measurement.

The output method aggregates all output of goods and services produced in the economy. The income method aggregates all the incomes from employees, rents, trading profits, excess of income over expenditures of government agencies, and income from self-employment as is the case with lawyers, accountants, and notaries.

The expenditure method aggregates spending by households (consumption), investments by firms, government spending, net results of exports fewer imports.

The methods relate to the circular flow diagram in fig.1 that shows the equilibrium between income, production, and spending.

In the next section we try to develop a model for the relationships of these indicators with the land administration activity.

6. MODEL FOR DETERMINING MACROECONOMIC EFFECTS OF LAND ADMINISTRATION

First of all we restrict ourselves to four functions of land administration in the society, namely land tenure security, the land market, land use planning and land taxation. Other functions like the management of natural resources, land reform, formalisation of informal properties are neglected in this paper. Considering the four functions as mentioned, already seems to be too much a challenge at this stage.

Security of tenure, as improved by land administration system, generates certainty of ownership that might result in willingness to invest in the property. In this paper we assume that this might lead to incomes for architects, construction companies, furniture suppliers, and garden centres. In general this income might be composed of income from initial investments, and maintenance.

Better functioning of the land market raises income for real estate brokers, notary's public (or alike: solicitors, conveyancers), financial advisors on house financing, insurance companies, and land administration organisations (if they have an independent financial regime), and provisions and interest for mortgage banks.

The land use planning function is a broad one; within the scope of this paper we propose to take into account the income of commercial bureaus for planning and development (landscape architects, planners, developers).

Land taxation will provide income to commercial valuers, and tax profit for the government. This is a difficult part, as in macroeconomic terms it makes a difference whether these taxes are direct taxes or indirect taxes. Direct taxes are a transfer of income between individuals and firms and the government: the total income remains the same. Indirect taxes however have also an influence on the market prices and affect the gross product. Another question is how to value collective goods, that form the output of the government financed by tax incomes. Normally the value of collective goods is considered as equal to the 'turnover' of the government. These questions go beyond the scope of this paper at this stage. However, the transfer tax paid as a stamp duty when transferring land might be considered as an indirect tax, as is the land taxation as such.

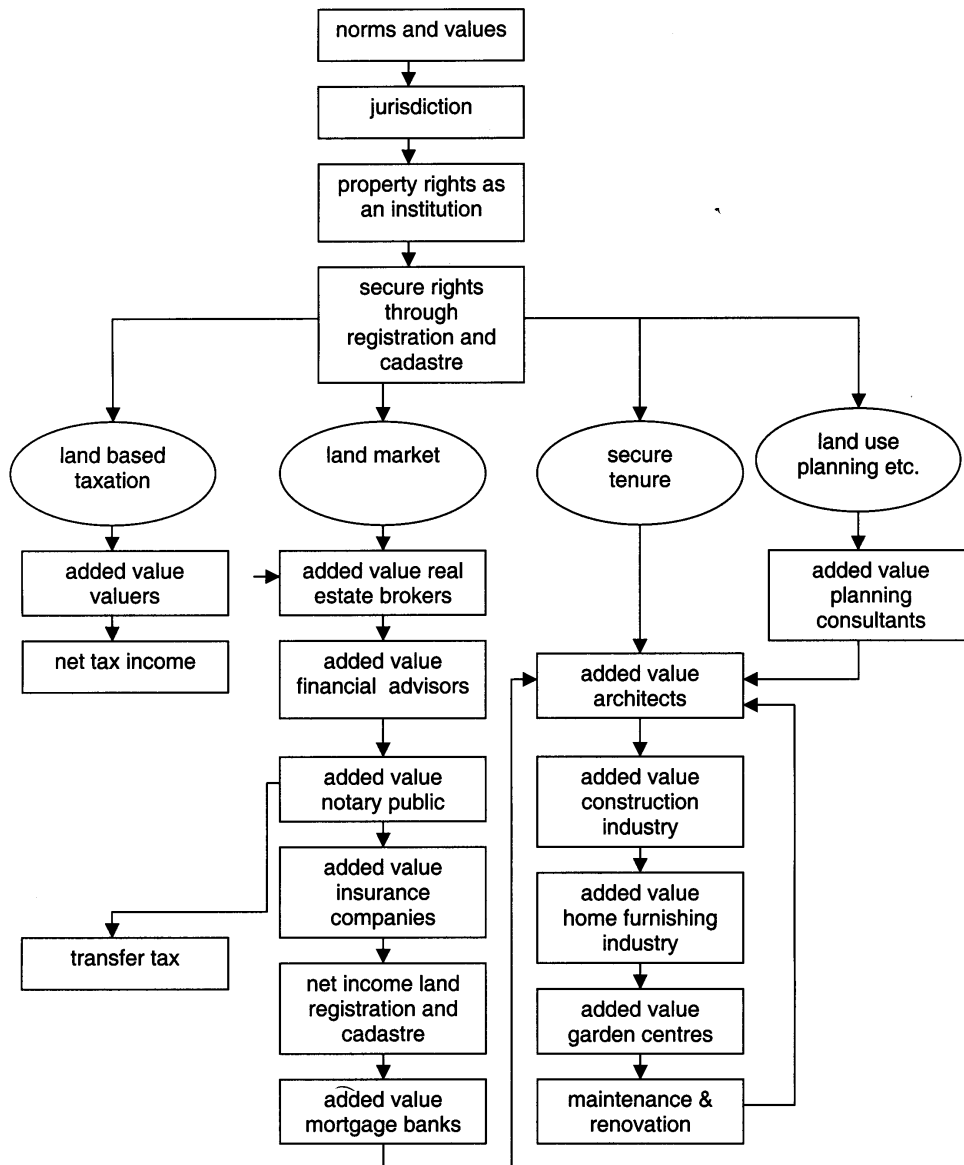


Fig 2 Macroeconomic model of land administration

The model in fig. 2 attempts to visualise the relationships. The model implicitly makes a choice for the income method when calculating macroeconomic effects of land ownership and land administration. Measuring the value of the output of notary's public, garden centres etc. will be much more difficult than calculating the added value of these activities. The income method actually is used in many other cases in the following way (Blanchard, 2002):

Rental income of persons + proprietors income + net interests + corporate profits + wages and salaries + supplements to wages and salaries = National Income

National Income + indirect taxes - depreciation = Net National Product NNP

NNP + consumption of capital = Gross National Product GNP

GNP + payments of factor income to the rest of the world – receipts of factor income from the rest of the world = Gross Domestic Product GDP

As a result, the challenge now of assessing macroeconomics effects of through land administration secured land ownership consists of collecting statistical data regarding added values, income effects, rental margins etc. In the next section we will do this exercise for the Netherlands.

7. EXAMPLE: THE CASE OF THE NETHERLANDS

To calculate the economic effects, countries exploit a central statistical office or alike. In the Netherlands the Central Bureau of Statistics is the official office to collect, analyse and publish data on micro- and macroeconomic aspects of the society. For the exercise in this section, we used the Official Statistical Yearbook published in 2003. This Yearbook comprises hundreds of tables about various aspects. For information in detail, the website (www.cbs.nl) provides for a search option ('Statline'), giving access to even more tables. As not all statistical data are available for the year 2003, we took as a reference for this paper the year 2000. Another topic is that without secure tenure people also will invest in their land, but it is unexplored how less that will be. This might be subject to future research. For the sake of this paper we assume that in relevant economic activities, the effect of insecure tenure will count for 50% of the investments done under secure tenure.

- Macroeconomic effects of secure tenure

Literature in section 1 assumes evidence of a positive correlation between secure land ownership and investments in good land use. Where will be the contribution to the national income? Most likely people enjoying secure tenure invest in constructing a house, furnish the house, and construct a garden, both as an initial activity and in maintenance. This is of course a simple way of arguing. Further analysis should result in refinement.

Firstly: the contribution of the architects. To erect a house, one needs the services of an architect. The architect needs the help of technical designers and calculators. The Yearbook reveals that in this category there are 147.000 bureaus with a net result of 618 mln €. The salaries paid concern 48% of the total business costs of 6826 mln €, that is 3076 mln €. Together with the corporate profit the contribution is 3694 mln €. Specification of the turnover shows that 25% respectively 9% of the turnover is generated by activities related to the construction of house, offices and the related works in the ground and soil. So the contribution to the national income will be about 34% of 3694 mln € is 1255 mln €. The

effect of secure tenure through land administration (applying the 50% assumption) might be 50% of the total 1255 mln €, so 627 mln €.

Secondly: the added value of the construction of houses. According to the Yearbook there are 63380 construction companies. The turnover is 54,5 billion €. The Yearbook states that 12,5 billion € is generated by preparation of parcels to be built and the construction activity as such, so $12.5/54.5 = 40\%$. The net result is 10.3% of the turnover, thus 5450 mln €. The salaries paid concern 15672 mln €. The contribution to GDP is $(15672 + 5450 = 21122) \times 40\% = 8488$ mln €. We take into account 50% = 4224 mln €.

Thirdly: the contribution of the home furnishing companies. The Yearbook states that the salaries paid in this industry are 14.3 % of the business costs of 476 mln €, that is 66.6 mln €. The net corporate result is 8.6 % of the turnover of 5100 mln €: that makes 433 mln €. Assume 50% of the total contribution of 499 mln €, results in 250 mln €.

Fourthly: the business result of the 630 garden centres is 6,8 % of a turnover of 700 mln € makes 47 million €. Salaries paid are 16% of the costs of 650 mln €, that is 104 mln €. 50% of the total of 151 mln €, makes 76 mln €.

Fifthly: the turnover of the maintenance industry is difficult to identify. The Yearbook says that the 'fix-it-yourself' stores have a net result of 6,5% of 4,7 billion €, resulting in 305 mln €. Salaries paid are 12.9 % of the total business costs of 4395 mln €: that makes 571 mln €. We take 50% of the total contribution of 876 mln € makes 438 mln €.

– Macroeconomic effects of the land market

The land market (not only 'land' but inclusive of real estate and business properties) generates income and profit for professional in the marketplace, such as real estate brokers (agents), notaries (or solicitors, conveyancers etc.), and financial advisors/insurance agents. Furthermore we can look at the net result (if any) of the land registration and /or cadastre. Financing of houses and offices might be done through a mortgage secured loan, which provides structural income to (mortgage-) banks. The case of the land registration and cadastre office is a special one, as in macroeconomics 'collective goods' provided by the government, are normally valued against the paid salaries (and other factors costs). If –for example- the Cadastre and Land Registry Agency in the Netherlands costs 200 million €, also the value of the collective good is taken as 200 million €. However, if government agencies are granted some financial independence, and are obliged to operate on a cost recovery-base, things seem to differ. Then there could be a profit, or a loss, which as such influences the national income. This mechanism has to be sorted out in the future.

Some of the actors might also have some business in a non-secure tenure situation (e.g. real estate agents), others will have no business at all (noaries). Therefore we take into account a contribution of 50% of real estate agents, 50% of the property insurance businesses, and 100% of the others.

Firstly: the added value of real estate agents. There are about 15250 people working in the sector real estate brokerage, of which are 3400 certified agents (Association NVM) and 750 certified agents (Association VBO). The rest pertains to administrative staff. The number of

offices is about 3400 (NVM-agents) and 750 (VBO agents). The turnover for the NVM-agents in the year 2000 is according to (Risseeuw et al, 2001) 1089 mln €, divided as follows: 635 mln € estate agent's fees, 201 mln € business premises brokerage, and 106 mln € yield real estate management. The average fees are 1,6%. Figures for VBO-agents are not known. As the factor production consists of almost 100% wages, one could roughly estimate that the administrative staff represents a salary item of about $11100 \times 50000 \text{ €} = 555 \text{ mln}$, leaving 534 mln € for the 3400 agents (owners of the real estate agencies). Assume minus 100.000 € office costs (1300 offices) results in 130 million €, leaving 404 mln entrepreneurship-wages for the 3400 agents. Known is that VBO agents (www.VBO.nl) advertise that they are per transaction 590 € cheaper, we estimate (assumption 100 transaction a year per VBO-agent) entrepreneurship-wage ($(750/3400) \times 404 \text{ mln €}$) – 44,2 mln € = 43 mln €. The total earnings for the real estate agents by consequence we estimate at 447 mln € added with the paid salaries of the staff of 555 mln €: makes 1002 mln €. For our calculations we take into account 50% = 501 mln €.

Secondly: the added value of financial advisors. The purchase of real estate normally is financed through a loan, secured by a mortgage. Buyers seek advice to obtain a loan under the most favourable conditions (e.g. interest rate), and to contract the best insurance's (property insurance's). There are 12120 independent advisors delivering such services. Statistical figures are unknown. If we estimate a personal yearly wage of 25.000 €, this results in income of 606 mln €. Assuming that only 50% is due to real property insurance's the income effect will be 303 mln €. We take into account 50% for our calculation, so we estimate the contribution at 152 mln €.

Thirdly: the added value of the notary public. The notary public is a free professional person appointed by the Queen with the competence to draw up authentic deeds. Notarial deeds are compulsory to realise a legal transfer of real estate. Also for other transactions (establishment limited companies and foundations, last wills, transfer of shares etc.) a notarial deed is required. We estimate the share of property transfers to be 75%. The Netherlands knows 777 notary offices, with 1234 notaries and about 10000 administrative staff. The gross result is 236 mln €, which can be considered as entrepreneurship earnings. This is to be added by salaries paid to 10000 staff estimated at 250 mln €, makes 486 mln €. 75% of that results in income effects to the national income of 364 mln €.

Fourthly: the added value of insurance companies. The Yearbook says that in the year 2000 the property insurance companies had a net result of 167 mln €, which are the remainder of 14987 mln € receipts of premiums, and 13311 mln € of damage compensations. Salaries paid for are 4157 mln € ('administration costs'). Similar to the calculations regarding the financial advisors, we take into account 50% of both (= 4324 mln €) thus 2162 mln € of which we take into account 50%, which is 1081 mln €.

Fifthly: the profit of land registration and cadastre. The Netherlands Cadastre and Land Registry Agency (in short 'the Cadastre') is obliged to recover its costs. Although deviations are allowed (van der Molen, 2001), the average profit is (and should be) nil (zero). However salaries paid count for the national income, so about 100 mln €.

Sixthly: the added value of mortgage banks. Receipts of interests form a substantial and structural income for mortgage banks. In the year 2000 a number of 106577 new mortgages were registered, representing an amount of 557 billions of €. Registration is compulsory because a mortgage is considered as a real right. Statistics of the Cadastre reveal that mortgages are renewed every ten years. Therefore we assume that interests are paid for 1 million mortgages representing an amount of 5570 billion €. An average interest rate is 7%, so the interest income will be 389 billion €. Paid salaries amount for 12646 mln €. Not all of this is generated by people involved in mortgages. As the Yearbook reveals that about 40% of the activities of banks regard to mortgaging, we assume that also 40% of the salaries paid are generated by the mortgage activity, so 5058 mln €. This also applies to the corporate result of 18567 mln € x 40% = 7426 mln €. Together: 12484 mln €.

- Macroeconomic effects of land based taxation

According to the theory (section 6) we only can take into account indirect taxes, as they contribute to the GDP. Although land based taxation is applied to direct taxes as well (e.g. rental value as part of the income tax), there are at least three taxes that might be considered as indirect taxes. Namely the transfer tax levied when registering a deed of transfer, the land tax and the Waterboard tax.

Without secure tenure we assume there will be no registration, so we take into account 100% of the revenue of transfer tax. Land taxation might be levied also in a non-secure tenure situation, so we assume to involve 50% of these taxes, as we intend to do with the Waterboard taxes and the value assessment.

Firstly: the added value of valuers. Every 4 years licensed valuers assess the value for the municipal land taxation. These valuers might be either civil servant within a municipality, or in private practice. Statistical data are not available. However we know that norm-costs for a value-assessment, are fixed by the government at 23 € per assessment. The valuation regards all built properties. The Yearbook says that there are 6649000 houses in the Netherlands. So the norm costs per year are $23/4 \times 6649000 = 38$ mln €. That could be considered as the turnover for valuers. Assuming that the business result is similar to architects and consultants (9.4%), the entrepreneurship income is 3,5 mln €. Apart from valuation for taxation, mortgage banks require a valuation assessment as part of a mortgage application. In the year 2000 106624 new mortgages were registered. Assume that the price for a valuation assessment report drawn up by a licensed valuer is (average) 1000 €, the turnover will be 106.6 mln €. Further assuming a result of 10% as entrepreneurship income, the income effect is 10.6 mln €. Salaries paid to staff is unknown. However we estimate that about 1000 people are employed, with average wage of 25000 €, results in income effects of 25 mln €. The total contribution will be $25+10.6+3.5 = 39.1$ €. We will take into account 50% so 19.6 mln €.

Secondly: the transfer tax. Statistics of the Cadastre reveal that in the year 2001 298326 transfers took place to private individuals representing a value of 51578 mln €, and 32191 to commercial parties representing a value of 26424 mln €. The Yearbook says that the transfer tax that was levied (in the year 2000) was 2804 mln €. If we assume costs of 20% (rough estimate), the net benefit is 2243 mln €.

Thirdly: the land and Waterboard tax. Land tax is levied as a municipal tax, both to users of real estate, and owners. In the year 2000 the Yearbook reports revenue of 1943 mln € for owners and 615 mln € for users (renters), so total 2558 mln €. We assume costs of 20%, so the net revenue is 2246 mln €. If we take into account 50% of these revenues, the total added value is 1123 mln €.

Waterboards are functional decentralised bodies of the government, mandated to manage the quantity and quality of water, related to the government's policy of protection against water (dikes!), and good and fresh water. The Waterboards have power to levy their own tax, based on land value and surface areas. The Yearbook says that in the year 2000 the Waterboards levied 430 mln € on Waterboard taxes. Assume the costs are 20%, so the net revenue then is 340 mln €, from which we take into account 50%, is 170 mln €.

So the total tax contribution is $1123 + 170 = 1293$ mln €.

- Macroeconomic effects of land use planning, development and control

Land use planning, development and control are a broad government activity aimed at a coordinated allocation of functions to land and a controlled use of land. The rationale for government policy is the land being a scarce resource. Information on ownership plays an important role, especially in the stage of development and control, as the government then interferes in private property rights. The ultimate form of that intervention is the expropriation procedure, when ownership is transferred to the government by force. So good land administration is very helpful for the government to reach its policy objectives. On the other hand it provides landowners with secure tenure. The government is only allowed to interfere if it has been legitimised by its mandate. For the sake of the macroeconomic effects, the whole complex of planning, development and control is too broad to capture here within the scope of this paper. We propose to take into account the added value of professional urban planners who are contracted by the government. The Yearbook says that in the year 2000 there were 1235 bureaus offering these services. They employed 7500 experts and technical/administrative staff. The net turnover of the consultancy bureaus is 7242 mln €, of which 9.4 % is generated by activities in the field of urban planning, so 610 mln €. Their corporate result is 578 mln € so 46 mln € for urban planning activities. Salaries paid concern 9.4 % of 3286.4 is 295 mln €. If we take into account 50% of the total of 341 mln €, this results in a contribution of 170 mln €.

8. CALCULATIONS

Calculation of macroeconomic effects is build upon many assumptions: assumptions about relationships between through land administration secured land ownership and other activities in society, assumptions concerning the interpretation of statistical data, assumptions on estimated figures when no data are available. The most risky assumption concerns the scope and width of the relationships with respect to what relates which what sort of security of tenure and what level of security. For example: agriculture also exists when tenure is not secure, but security of tenure provides a good base for investments. To which extent is the added value of the Netherlands agriculture of 6,607 billion € due to the level of security of tenure? In this paper we ignore these effects, as they are at this stage too complicated to

handle. Where we have to make a choice, we take into account 50% of the total contribution of an activity, assuming that the other 50% also would have been delivered without a secure tenure situation. Also we are aware of the simplicity of the model given in section 6. By consequence the outcome of this exercise should basically be mistrusted. However, we did not encounter macroeconomic studies on the effects of ‘through land administration secured land ownership’. Meanwhile we got an impression about the broadness of the subject matter. In figure 3 hereafter we try to summarize the results. The figures represent million €.

Category	Economic activity	Incomes	Factor	Effect on GDP
secure tenure	architects	1255	50%	627
	construction industry	8448	50%	4224
	home furnishing industry	499	50%	250
	garden centres	151	50%	76
	maintenance/renovation	876	50%	438
land market	estate agents	1002	50%	501
	financial advisors	303	50%	152
	notary	486	50%	364
	insurance companies	2162	50%	1081
	land registry	100	100%	100
land based taxes	mortgage banks	12484	100%	12484
	valuers	39,1	50%	19,6
	land + waterboard tax	2586	50%	1293
	transfer tax	2243	100%	2243
land use planning	planning consultants	341	50%	170
total		32975,1		24022,6

Fig 3: Macroeconomic effects of secure land ownership (for the year 2000 and in millions of €)

9. CONCLUSIONS

In the previous section we calculated the total contribution of various economic activities at 32,975.1 mln €. Within this figure, we assumed that secure tenure generated 24,022.6 mln €. The difference (8,902.5 mln €) would also be spend in nonsecure tenure situation.

The GDP for the year 2000 is 402,599 mln €. The total contribution represents 8.1 % of the GDP. Of this a percentage of 2.2% would also be contributed in situations without secure tenure. Security of tenure adds 5.9% to the figure.

As said earlier we took into account the economic activities as mentioned in the model of section 6 only. Definitely there are more, such as the added value of agriculture etc.

Therefore the percentages represented here, are the absolute minimum.

In the simple approach taken in this paper, the presence of good land administration is responsible for a growth of 5.9% of the GDP (value 24,022.6 mln €). This is important information when dicisions on investments in land administration systems are to be made.

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BIOGRAPHICAL NOTES

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