Cadastre and Economic Development

Erik Stubkjær

Department of Development and Planning, Aalborg University, Denmark

Abstract

Why are some countries economically much more successful than others? In search for empirically founded explanations, recent research investigates institutions in the sense of institutional economics, for example in terms of level of democracy, and of protection of property rights. The role of rights in land is so far only partly understood, due to the multifarious land tenure systems. The chapter provides a review and discussion of recent research on this issue.

Economic development has been supported by the World Bank Group and national aid agencies, among others. Interestingly, in recent years an alternative to this development incentive evolved. This is due to the fact that investors in emerging markets have looked for a market based alternative to government bonds, the security of which depends on the country's ability to collect taxes. An alternative is covered bonds, the security of which is backed by mortgages in title of real property. However, the success of this alternative depends on the availability of a well functioning land registration with cadastre, which motivates the title.

1 Introduction

1.1 A Research Brief on Cadastre and Economic Development

Across cultures, land and natural resources are managed in a variety of ways. The economic success of Western countries motivated the design of

land administration projects, aiming at extending individual property rights in developing countries. However, the limited success of these development projects during the last decades calls for more basic reflections on the causes of economic growth. This section outlines the political and theoretical context of the development projects, as well as selected research, as a backdrop for more comprehensive reporting on research findings in the following sections.

Cadastre is the term applied for 'land record[s] for tax purposes', according to S. Rowton Simpson (1976), who refers to French usage. In the English speaking world, the preferred term is Cadastral Surveys (Dale 1976; Simpson 1976; Bruce 1998). The term apparently reflects ongoing efforts to map and record natural resources. Simpson distinguishes two functions of land registration: In Continental Europe, the state wanted to make 'an inventory of the national land resources for fiscal purposes or in order to ensure proper development' (p 3). In England and in her former colonies, land registration refers to a means 'solely to simplify conveyancing (as the business of creating and transferring rights in land is called)' (p 3). The different focus on state and individual interests, respectively, to be illustrated below in section 3, without doubt contributes to the wide variety of terms for the domain concerned, including land registration, cadastral systems, land information management, land administration, and recently (part of) spatial data infrastructures.

Research within the domain intensified in the 1990s, as '[s]everal studies show a linkage between economic development and cadastral systems' (Frank 1996). Economic development and its driving factors may be conceived in a number of ways. However, the collapse of Soviet Union in 1989 gave wide political legitimacy to the neo-liberal paradigm, which was introduced by President Reagan in the United States and Margaret Thatcher in the United Kingdom. As recorded by FAO staff: 'Almost all the major donors are now supporting land reform programmes in conceptual terms that are compatible with the Washington Consensus on the role of the market, property rights and institutional reform.' (FAO 1998)

The theoretical foundation of much research and development regarding property rights and land registration was New Institutional Economics, which may be applied both to mundane business transactions as well as to centennial change. For example, the concept of 'transaction costs' was applied to the domain of real estate in a European joint research action 'Modeling Real Property Transactions' (Zevenbergen et al. 2007). This effort aimed at modelling and comparing processes regarding real estate, e.g. conveyancing and subdivision (Navratil and Frank 2004, 2007).

Nobel laureate Douglass C North contributed to New Institutional Economics among others through analysis of US land law through the 19th

century in terms of institutional change and path dependency (North 1990). Linking similar basic issues with business transactions, Hernando de Soto in a number of developing countries charted the processes needed to buy a piece of land. For example it would take 111 steps and 4112 days in Haiti to obtain the needed sales contract (De Soto 2000). His question, 'Why Capitalism triumphs in the West and fails everywhere else', very much in line with the Washing Consensus mentioned above, was addressed among others with reference to the fact that '[t]he European and U.S. tradition points to self-help groups that initially organized mutual credit in Savings and Loan Associations, where reliance was not exclusively on the legal rules, but on simple rules laid down by the associations' (Frank 2008, p 275).

Despite substantial efforts in terms of land administration development projects during the last decades, the Washington Consensus focus on individual property rights did not pay of in terms of streamlining processes regarding real estate, and especially raising capital through mortgaging of secure title (Mitchell et al. 2008). Reflecting the past experiences, a World Bank Policy Research Report among others admitted more concern to land rentals (Deininger 2003).

This brief survey may suffice to give way to the following introduction of the remainder of the chapter.

1.2 "Why Isn't the Whole World Developed?"

The quotation is taken from a frequently cited Presidential address to the Economic History Association in 1980. Richard A. Easterlin (1981) sets out from the diffusion of new production techniques, but rather than focusing on patterns in trade, he investigates in the spread of knowledge. He contends that the diffusion of knowledge concerning production techniques by different countries has been governed largely by whether their populations have had formal schooling. His approach gave impetus to a number of statistical analyses, seeking to explain the causes of economic growth. One of these analyses regards the different effect of British and French colonial policies. It is reported in some detail, because it reveals that the creditable objective of including all citizens of the realm into the mainland culture is not easily implemented, as we shall see developed in section 2.

So far, the statistical analyses have not conclusively answered the headline question. There is a general agreement that institutions (in the sense of institutional economics) matter as a factor of growth. Therefore, also the institution of property rights is related to growth, although many opinions

wrestle on the identification of adequate institutions and the level of quality of these institutions, cf. section 3.1. One of the well known positions is stated by Hernando de Soto, who as indicated above rephrased Easterlin's question on economic growth and pondered on 'The Mystery of Capital' (2000). In addition to the mentioned careful recording of troublesome processes, he invites to research in the history of evolving institutions, in order to clear up the mystery of diverse development. His research thus points to the fact that economic growth presupposes a recurrent moulding of institutions in order to catch new options and respond to varying risks. This line of investigation has been pursued since the 1990s by a group of researchers, who have studied the origins of development economics in the early modern states of Continental Europe (Jomo and Reinert 2005). Section 3.2 provides an overview of these dynamic, institutional issues.

The development projects of aid agencies and the World Bank Group, mentioned in the introductory section, generally include an effort to strengthen the organisations which identify units of real estate and record rights in land and other attributes. Recently, an impetus to support such development has come from quite another kind of actors, namely the investors who look for the potential of emerging markets. Investors look for an asset portfolio which maximize yield on condition of investment period, risk tolerance, and similar profiles. For investors with long horizons and low risk tolerance, for example pension funds, government bonds are a likely option. However, taking a global perspective, the government bonds of a country with weak public administration and frailty in collection of taxes demands attentive risk assessment.

In recent years, alternative type of bonds have been investigated and recommended, including mortgage or covered bonds. Mortgage bonds are issued by an agency which may be related to government only through statutory law. They are backed by a mortgage deed in a unit of real estate. 'Covered bonds' is the term mostly used in Anglo-American language on European varieties of mortgage bonds, especially the German Pfandbriefe and the Danish Realkredit-obligationer. Section 4 characterizes this variety, quoting recent comparisons. In the above context of investigations into economic growth, the question arises why Continental European institutional variants did not spread to the otherwise leading centres of growth. The question is related to different views on the state as an agent of growth. The review of causes of growth is summarized in the conclusion.

2 Statistical Analyses of the Causes of Economic Growth

Economic performance has varied substantially over time and space, as evidenced by the estimates given in Table 1 (Berger 2007, quoting Maddison 2001). As of the year 1000, the inequalities amounted to about 10 per cent. Around 1910, the per capita gross domestic product of the 'Non-European West' was about ten times that of Africa. Around 2000, 'the West' and Japan scored three times the value of South America, and 4–5 times that of Eastern Europe and former USSR.

Table 1. Per capita gross domestic product and its interregional spread 1000–1998 (Berger 2007, p 10, source Maddison 2001, p 126)

	1000	1500	1820	1870	1913	1950	1973	1998
Westeuropa	400	774	1232	1974	3473	4594	11534	17921
Westliche Ableger	400	400	1201	2431	5257	9288	16172	26146
Japan	425	500	669	737	1387	1926	11439	20413
Asien (ohne Japan)	450	527	575	543	640	635	1231	2936
Lateinamerika	400	416	665	698	1511	2554	4531	5795
Osteuropa und frühere UDSSR	400	483	667	917	1501	2601	5729	4354
Afrik	416	400	418	444	585	852	1365	1368
Die gesamte Welt	435	565	667	867	1510	2114	4101	5709
Interregionale Spreizung	1.1:1	2:1	3:1	5:1	9:1	15:1	13:1	19:1

2.1 Technology and belief

It seems generally accepted that the prime cause of economic growth has been the sharp acceleration in the rate of technological change in a relatively small number of nations. Moreover, several studies support the view that a common technology diffused from one country to the next. It is evidenced as well by the striking likeness of modern industrial technology among the various high productivity nations themselves (Easterlin 1981, p 3). Easterlin notes that technology diffused together with a belief system, a conception of natural reality as law-like, causally ordered, and manipulable (1981, p 16) and Berger agrees to this, pointing to the impact of an intelligible world view on technological development (2007, pp 17, 21).

2.2 Formal education

The transfer of technology depends on a personal element, namely the comprehension of and training in actual operations. This leads Easterlin to an investigation into the formal schooling of a population, because 'the more schooling of appropriate content that a nation's population had, the easier it was to master the new technological knowledge becoming available.' Also, 'substantial increases in formal schooling tend to be accompanied by significant improvement in the incentive structure.' (Easterlin 1981, p 6). Data for twenty-five of the largest countries of the world during 1830–1975 are analyzed, taking primary school enrolment rate as an indicator of educational development. Within Europe the most advanced nations educationally, those in Northern and Western Europe, were the ones that developed first. Not until the end of the nineteenth century did most of Southern and Eastern Europe start to approach educational levels comparable to the initial levels in the north and west, and it was around this time that these nations began to develop.

With regard to the overseas descendants of Europe the picture is the same: The leader in schooling is the leader in development, the United States. In Asia, Japan's nineteenth-century educational attainment is clearly distinctive, even before the Meiji Restoration from 1870s onwards. Contrary, Turkey, a nation subject in many ways to external economic and political pressures similar to those experienced by Japan, had still by 1940s low educational levels and also failed to show substantial technological modernization (Easterlin 1981, p 7).

The role of education is illustrated also through an investigation into the effect of the identity of the colonial power for the country's subsequent growth and development (Grier 1999). Grier pooled data from 63 ex-colonial states over the period 1961–1990 and found that former British colonies performed significantly better on average than their French and Spanish counterparts. Moreover, the longer the country was held by the mother country, the better it did economically in the postcolonial era. Based on a reduced sample of 24 countries in Africa, the length of colonization is still positively and significantly related to economic growth and former British colonies still outperform their French counterparts. By adding two variables to the regression, representing human and physical capital at the time of independence, Grier found that the newly independent British colonies were significantly more educated than the French ones and that the inclusion of education at independence can explain the development gap between the former British and French colonies and the positive relationship between length of colonization and growth (Grier 1999, p 318).

The specific character of the colonial powers suggests causes explaining these findings. The republican principles of France implied that the republic was one and indivisible: colonies were an intrinsic part of it, and full cultural assimilation should be aimed at. As a consequence, students were required to speak French, and all vernacular languages were forbidden. This resulted in large numbers of the population failing to achieve any kind of literacy. In fact, in the late 1960s, up to 95% of the population in France's former Black African territories were illiterate. Contrary to that, the British were more decentralized in their colonial approach. The British government kept control over constitution and foreign relations, while domestic policies and budgetary matters, were resolved by the colonial legislatures. Local governments were allowed to keep all revenue surpluses. Moreover, British colonial education policies made a conscious effort to avoid alienating the native culture, by teaching in the vernacular languages and training teachers from the indigenous tribes (Grier 1999, pp 319–320).

While the British trade policy is also mentioned to explain why her former colonies performed significantly better in the post colonial period, the main message of Grier's investigation is the impact of general education on economic development: the British left a more educated populace than the French in Africa and there is empirical support for the claim that the amount of human capital has significant and permanent effect on subsequent growth and development.

2.3 The spread of news

Trade routes constituted channels for spread of news before the age of the telegraph, radio transmissions, and the Internet. Grier describes how the Seville merchants, as the most powerful guild in Spain, controlled all incoming and outgoing trade with the Indies. Similar, in Mexico, Veracruz was the only legal port for international trade. Moreover, Spain secured its trade monopoly with the colonies through a monopoly convoy system where fleets were sent periodically throughout the year from Seville or Cadiz to established colonial ports (1999, p 320). Although the convoy system was the easiest way for Spain to protect the trading ships from possible seizure by the English or Dutch, the monopoly system restricted the spread of news. The British trade with her colonies was restricted, too, at the outset, but in 1846, the colonies were no longer forced to give British goods preferential treatment.

The importance of access to news appears from an investigation into measures of the 'social capability' of a country. Data on 41 social, political, and economic indicators were collected for 74 developing countries,

generally for the period 1957–1962. The study established a strong correlation between growth and the extent of mass communications and newspaper circulation in 1960 (Temple and Johnson 1998). The effect of mass communications is particularly strong. Combined with initial income, these two variables explain about 30 percent of the variation in growth rates. If three influential outliers are omitted (Ghana, Japan, and Syria) then this figure rises to 40 percent (Temple and Johnson 1998, p 979).

The above-mentioned index of socioeconomic development was in fact constructed in the early 1960s by the development economists Irma Adelman and Cynthia Taft Morris and data were collected and published in 1967. Temple and Johnson state that if observers in the early 1960s had given more emphasis to these indexes of social capability, they might have been rather more successful in predicting the fast growth of East Asia, and the underperformance of sub-Saharan Africa (1998, p 987).

2.4 Limits to statistical analyses of causes of economic growth

Statistical analyses of the causes of economic growth include also the impact of the protection of personal and property rights. The review of these analyses is deferred to next section for two reasons. First, the above mentioned analysis combined initial income with mass communication to explain the growth rate. This raises concern, whether growth depends on independent factors or more or less depends on (level of) growth (rates) also.

Paldam and Gundelach contrast two alternatives: one assuming that institutions are chosen, while the growth rate is an outcome. According to this view, dubbed ‘the Primacy of Institutions’ view, cross-country data will not necessarily reveal a systematic pattern of development since the selection of certain institutions will not be ubiquitous and will not follow a deterministic ordering. The alternative view, ‘Grand Transition’, assumes a lucky spark to set development into motion, but then things gradually change in much the same way and a steady economic growth causes transitions of all institutions. This view would interpret cross-country data as representing an underlying systematic pattern overlaid with country heterogeneity and noise. Investigating degree of democracy and degree of corruption for typically 100 to 170 countries, their conclusion is that ‘that both views tell some important part of the complex story of the great process of development’. Through arguments and analyses, too complex to address here, they warn that ‘the dynamics of research may have taken prevailing opinions a bit too far toward the ‘Primacy of Institutions’ view’ (2008).

The other reason for not trying to further identify causes of economic growth is the present ambiguity of the notion of 'quality of institutions'. As we shall see, the understanding of growth-related institutions varies among investigations and the effect of various configurations of institutions and their functional components are not spelled out. When descriptive measures such as absence or presence of a particular type or component of an institution are not stated, the quality or performance of that institution hardly can be assessed in a reliable way (cf. Sengupta 2003). The development process needs a dynamic and complex societal response to the changing options and threats of a country. We shall explore this aspect in section 3.2.

3 The Quality of Institutions and the Role of the State

The establishment of secure and stable property rights has been a key element in the rise of the West and the onset of modern economic growth, as argued by North and Thomas (1973), North and Weingast (1989), and North (1990). This has lead to a number of investigations which explore the impact of property rights and other institutions on economic growth, including Knack and Keefer (1995, 1997), Classens and Laeven (2003), and the International Monetary Fund (IMF 2003). The review below provides an initial survey over available indices with bearing on land tenure, especially measures of the perceived strength of property rights.

3.1 Available indices of the protection of property rights

Knack and Keefer have constructed an index using data from the International Country Risk Guide (ICRG). This index measures a country's property rights in a broad sense and includes five measures: quality of the bureaucracy, corruption in government, rule of law, expropriation risk, and repudiation of contracts by the government (on a scale from 0 to 10). The index equals the average rating between 1982 and 1995 (1995, as reported by Classens and Laeven 2003). The ICRG is updated by The PRS Group, Inc., East Syracuse, NY, and available on a commercial basis.

Classens and Laeven empirically explore the role of property rights in influencing the allocation of investable resources. 'At the firm level, our idea of property rights is the degree of protection of the return on assets against powerful competitors. This notion of property rights is different from what is common in the literature where it is typically regarded as the protection of assets against actions by government. By focusing on the as-

set side of a firm's balance sheet, we instead use the term property rights as referring to the protection of entrepreneurial and other investment in firm assets against actions of other firms. We argue that a firm operating in a market with weaker property rights may be led to invest more in fixed assets relative to intangible assets because it finds it relatively more difficult to secure returns from intangible assets than from fixed assets.' (Classens and Laeven 2003, 2403)

Moreover, the authors argue that property rights matter more for securing returns from intangible assets than from tangible assets and then relate strength of property protection to the firm's investment allocation and hence to firm growth. They use two property indexes in addition to the one by Knack and Keefer, namely the rating of protection of property rights from the Index of Economic Freedom constructed by the Heritage Foundation. Property rights are rated in each country on a scale from 1 to 5. The score is based, broadly, on the degree of legal protection of private property, the probability that the government will expropriate private property, and the country's legal protection of private property. The index equals the median rating for the period 1995 to 1999. The third index of property rights is taken from the Global Competitiveness Report of the World Economic Forum. It provides an index of property rights on a scale from 1 to 7 in 2001. These indices are rendered in an Appendix for each of about 35 countries. The conclusion includes the finding that the effect of insecure property rights on the asset mix of firms is economically as important as the lack of access to external financing, because it impedes the growth of firms to the same quantitative magnitude.

Also the International Monetary Fond, IMF, offers an empirical analysis of the relation between institutional quality and development. The analysis uses three measures of institutions. These indicate, first, the quality of governance, including the degree of corruption, political rights, public sector efficiency, and regulatory burdens; second, the extent of legal protection of private property and how well such laws are enforced; and third, the level of institutional and other limits placed on political leaders (2003). The source of quality of governance is (Kaufmann et al. 1999, cf. 2002). As for the protection of property, the source is the Heritage Foundation mentioned above.

As mentioned at the outset, the above listing of available data may provide for an initial ranking of countries according to protection of property rights, but due to the present incomplete understanding of institutions, such ranking is deferred. However, the conception of protection of property rights by Classens and Laeven triggers a note. They state that 'property rights is the degree of protection of the return on assets against powerful competitors' (2003, 2403). This conception calls to mind an intervention

by Danish governmental officials during the 1780s, in order to enforce the economic rights of tenants relative to their landlords (Stubkjær 2008, p 247). Most of the investigations mentioned above seem to adopt the point of view of foreign direct investors and the likely agent of abuse of power is the target country government, rather than peers. Broadening the scope of agents of abuse, a measure of the quality of economic institutions could be the availability of an impartial and skilful third party, who would monitor asset transactions in a cost-effective way and thereby reduce abuse of power. Moreover, a measure of the quality of political institutions could be the concern for including economic actors at the edge of the present market (e.g. the Danish tenants) into the market.

3.2 The management of institutional change for growth

To stay in the market, an economic agent needs to react skilfully to options and threats, and the same apply when the economic agent is a country. The present inequality in economic development is partly the result of conscious action, as evidenced by economic history. For example, the English Tudor plan succeeded during 1485–1603 in building a wool manufacturing sector through enlightened policy, as tariff protection was combined with the intention and the factual establishment of new and competitive industries (Jomo and Reinert 2005, p 16). England gradually established itself as the workshop of the world. By importing raw materials and exporting manufactured goods, it experienced the most dramatic increase in wealth the world had yet seen. When the colonies wanted to establish their own manufactures, most were prevented from implementing this, despite the acclaimed benefits of the free market (Jomo and Reinert 2005, pp 11, 102, with reference also to Chang 2002). Only the United States were strong enough to set up, when they got independence from Britain, a protection scheme of tariffs and bans on imports to allow 'infant industries' to become internationally competitive. In the 19th century American tariffs were among the highest in the world. It is remarkable that it was only after World War II that the US significantly liberalized its trade and took up the cause of free trade. (Jomo and Reinert 2005, p 102)

The Continental European countries, who could not benefit from gold mines like Spain, initiated during 18th century surveys of their assets in the context of bringing about reforms to promote the common weal of the country: development of agriculture and manufactures, increase of population and development of their skills in terms of professions and inventions, regulation of foreign trade to obtain a balance of payment, and in addition provided institutional inventions like fire insurance and later a mortgage

scheme. Such 'Cameralist' measures were widely discussed and lectured at several, mostly German universities (Jomo and Reinert 2005, pp 53–59). The national ambition of 'keeping up with the neighbours' provides motivation, both for the early general education, reported on in section 2, but also for the establishment of cadastres as a base for quasi-rational development, besides the taxing purpose.

Above, the well educated populace in former British colonies in Africa was related to the fact that restrictions in the British trade with her colonies were lifted in 1846, providing the colonies freedom in trade. However, freedom in trade may well co-exist with the restrictions in production mentioned by Reinert. Overall, this brief and perhaps incomplete exercise in economic history may give an impression of the complex societal interactions needed to climb the ladder of economic growth. The configuration of political institutions needed to mould a country's economic institutions to achieve growth seems only partly identified and the configuration is likely to vary across cultures.

4 Creating Capital with Covered Bonds

In recent years, investors in emerging markets have looked for alternatives to government bonds, creating an interest in covered bonds, or financial products comparable to the US mortgage-backed securities (Chiquier 2004). 'Covered bonds' is the term mostly used in Anglo-American language on European varieties of mortgage bonds, especially the German Pfandbriefe and the Danish Realkreditobligationer. To illustrate the amount of capital created, in 2003 the total volume of outstanding mortgage loans amounted to 101% of GDP in Denmark and 81% in the USA (Frankel 2004, p 97). German, Danish, and US mortgage systems were compared in a study, issued by the UN Economic Commission for Europe. Among others, differences in gross borrowing costs were estimated and the European versions found notable cheaper (UNECE 2005, p 46).

The Danish mortgage bonds and the related practise of securing the bonds through a mortgage deed, recorded in the land registry, developed from the Cameralist tradition of 18th century and were implemented through an act on mortgage credit associations from 1850. 'The Danish market has a long and very well-documented history and no bankruptcy or liquidation [of mortgage credit institutions]… has ever taken place.' (Moody 2002, p 7). Thus, this lending practice had and still has a number of benefits (cf. Nyboe Andersen 2003):

- It introduces the mortgage associations, now mortgage-credit institutes, as a third party between the borrower and the investor, thereby eliminating undue influence. Moreover,
- the mortgage-credit product gives even small borrowers the opportunity to finance homes and businesses on financial-market terms.
- The so-called 'balance principle', instituted by the Mortgage Credit Act, requires a high degree of accordance between the terms of lending and the issued bonds and thereby practically eliminates bankruptcy. The balance principle is fundamentally a very simple way of managing risk.

Likely as a consequence, Danish mortgage practises have attracted international interest and presently a Danish mortgage system is being introduced in Mexico (VP Securities 2005; Lozano 2008).

The above mentioned reports on European and US practices reveal a remarkable difference: The US / Washington Consensus point of view is the investor and the context is the market. The point of view in Danish tradition is the tenant, the owner, or the borrower, and the context is the state. This is not to say that markets in Denmark are not operating or are ignored, rather: they are regulated. The lucky invention was the introduction of the not-for-profit mortgage credit institutions as a skilful, impartial mediator between borrower and investor (Stubkjær 2008, p 256). However, before mortgage institutions can be transplanted to other societies, research is needed to identify quality measures for the organisations which 1) identify units of real estate, 2) record rights in land, and 3) perform the foreclosure process in case of default, because the mortgage system depend on these.

5 Conclusion

The essay set out to investigate the causes of economic growth, considering the wide variation across countries. The use and development of technology to increase productivity is generally considered the basic cause of growth, together with the extent of a formal schooling, which includes technology and reason. Moreover, two mechanisms emerged which contribute to explaining the spatial variation: The channels for dissemination of news and the quality of institutions, respectively. The channels materialize in terms of international trade routes and the volume of news media. The news spread more freely through the English speaking channels of commerce. The amount of news media and the level of education indicate the capacity for absorbing news and to rephrase the news to fit the local context.

The quality of institutions seems best described in the terms of institutional economics, but the relevant institutional variables have not yet been empirically sorted out. Moreover, economic growth presupposes a recurrent moulding of institutions in order to catch new options and respond to varying risks. The scattered evidence provided spans the dominating position of neo-liberalism during the last decades and an alternative, development economics position, which allows for a more active and appreciated role of the state. This may revive interest in the 18th century 'Cameralist' institutions, including cadastre and mortgaging schemes.

As an alternative to the Washington Consensus focus on individual ownership and the market as instruments of growth, the presented evidence points to the beneficial effect of regulating the market through skilful, impartial mediators. This evidence is not only of Danish origin, as the contribution by Claessens and Laeven (2003) remind us of 'powerful competitors'.

Acknowledgements

Dr. Johannes Luef, president and CEO of VP Securities Services, Copenhagen, kindly supported a proposal to investigate relations between cadastre, mortgage, and poverty alleviation.

References

Berger J (2007) Warum sind einige Länder so viel reicher als andere? Zur institutionellen Erklärung von Entwicklungs-unterschieden. Zeitschrift für Soziologie 36(1): 5–24

Bruce JW (1998) Review of tenure terminology, Tenure Brief, Nr. 1, July 1998. Land Tenure Center, University of Wisconsin, Madison. http://digital.library.wisc.edu/1793/22013

Chang H-J (2002) Kicking Away the Ladder: Development Strategy in Historical Perspective, Anthem Press, London

Chiquier L, Hassler O, Lea M (2004) Mortgage Securities in Emerging Markets. World Bank Policy Research, Working Paper No. 3370

Claessens S, Laeven L (2003) Financial Development, Property Rights, and Growth. The Journal of Finance LVIII(6): 2401-2436

Dale PF (1976) Cadastral Surreys within the Commonwealth, H.M.S.O. London

Deininger K (2003) Land Policies for Growth and Poverty Reduction, World Bank Policy Research Report, Oxford University Press, New York cf. http://go.worldbank.org/A9HSAOTB60

De Soto H (2000) The Mystery of Capital: Why Capitalism Triumphs in the West and Fails Everywhere Else, Basic Books

Easterlin RA (1981) Why Isn't the Whole World Developed? The Journal of Economic History 41(1 (Special Issue: The Tasks of Economic History)): 1–19

FAO (1998) Contemporary thinking on Land Reforms, A paper prepared by the staff of the Land Tenure Service in Rural Development Division, Rome, 1998. http://www.landcoalition.org/docs/odfaomon1.htm

Frank AU (1996) An object-oriented, formal approach to the design of cadastral systems. In: Kraak MJ, Molenaar M (eds) Proceedings of 7th International Symposium on Spatial Data Handling, SDH '96, Advances in GIS Research II, Delft, The Netherlands (August 12-16, 1996), IGU, Vol. 1, pp 5A.19–5A.35

Frank AU (2008) A Case for Simple Laws. In: Smith B, Mark D, Ehrlich I (eds) The Mystery of Capital and the Construction of Social Reality, Open Court, ISBN: 978-0812696158

Frankel A, Gyntelberg J, Kjeldsen K, Persson M (2004) The Danish mortgage market - As housing finance evolves, are there reasons to follow the Danish model? BIS Quarterly Review, March 2004, pp 95–109

Grier RM (1999) Colonial legacies and economic growth. Public Choice 98: 317–335

IMF (2003) World Economic Outlook: Growth and Institutions, A Survey by the Staff of the International Monetary Fund, April 2003, http://www.imf.org/External/Pubs/FT/weo/2003/01/

Jomo KS, Reinert ES (eds) (2005) The Origins of Development Economics: How Schools of Economic Thought Have Addressed Development, Zed Books, London New York

Kaufmann D, Kraay A, Zoido-Lobatón P (1999) Aggregating Governance Indicators, World Bank Policy Research Working Paper No. 2195 World Bank, Washington, see WPs No. 2196 and 2772, the latter with an update for 2000–2001

Knack S, Keefer P (1995) Institutions and economic performance: cross-country tests using alternative institutional measures. Economics and Politics 7(3): 207–227

Knack S, Keefer P (1997) Does social capital have an economic payoff? A cross-country investigation. Quarterly Journal of Economics 112(4): 1251–1288

Lozano L (2008) Mexican structured finance rides out the global credit storm, Euromoney, March, 2008 (Latin America)

Maddison A (2001) The World Economy: A Millenial Perspective, OECD, Paris

Mitchell D, Clarke M, Baxter J (2008) Evaluating land administration projects in developing countries. Land Use Policy 25(4): 464–473

Moody (2002) Danish mortgage bonds: Highly secure financial instruments, Moody's Investor Service, Special Comment, May 2002

Navratil G, Frank AU (2004) Processes in a Cadastre. International Journal on Computers, Environment and Urban Systems 28(5): 471–486

Navratil G, Frank AU (2007) Hierarchies in Subdivision Processes. In: Zevenbergen J, Frank AU, Stubkjær E (eds) Real Property Transactions, IOS Press, Amsterdam, pp 221–240

North DC (1990) Institutions, Institutional Change and Economic Performance, Cambridge University Press, Cambridge, UK

Nyboe Andersen B (2003) Speech at the Annual Meeting of the Association of Danish Mortgage Banks, 30. April 2003

Paldam M, Gundlach E (2008) Two Views on Institutions and Development: The Grand Transition vs the Primacy of Institutions. Kyklos 61(1): 65–100

Sengupta, R (2003) The World Economic Outlook, April 2003: A Review of the IMF's Assessment on Relation between Economic Growth and Institutions http://www.ideaswebsite.org/themes/world/may2003/print/prnt090503_World_Economic_Outlook.htm

Simpson SR (1976) Land Law and Registration. Cambridge University Press, London

Stubkjær E (2008) The Institutionalization of Real Property Rights: The Case of Denmark. In: Smith B, Mark D, Ehrlich I (eds) The Mystery of Capital and the Construction of Social Reality, Chicago, USA, Open Court Publishing Company, pp 229–259

Temple J, Johnson PA (1998) Social Capability and Economic Growth. Quarterly Journal of Economics 113(3): 965–990

UNECE (2005) Housing Finance Systems for Countries in Transition - Principles and Examples, United Nations, Economic Commission for Europe, Geneva. http://www.unece.org/hlm/prgm/hmm/hsg_finance/housingfinance.pdf

VP Securities (2005) VP Securities Services to set up mortgage credit system in Mexico http://www.uk.vp.dk/C1256CF300390A8E/0/75FAEF723F8917C6C1257075002A6A03

Zevenbergen J, Frank AU, Stubkjær E (eds) (2007) Real Property Transactions - Procedures, Transaction Costs and Models, IOS Press, Amsterdam, Netherlands, ISBN: 978-1-58603-581-5