

# Why local context matters: *de jure* and *de facto* property rights in colonial South Africa\*

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## Abstract

For economic transactions, including debt transactions, to occur in a market system, property rights are essential. The literature has focussed on finding empirical proof of the effect of property right regimes, noting differences between *de jure* and *de facto* property rights. Yet most of these studies focus on macroeconomic outcomes, like economic growth and public expenditure. We propose, instead, to use individual debt transactions and property ownership available in probate inventories from early colonial South Africa to investigate the effects of property right regimes on economic outcomes at the individual level. At the Cape, *de jure* property rights between freehold and loan farms differed. Historians, however, suggest that *de facto* property rights between these two property types were the same. We exploit the random variation of birth order, specifically being the oldest son, to estimate whether the type of farm, and therefore the type of property rights, matter for economic activity, in our case, debt transactions. Our results suggest that historians were correct: loan farms were as secure in their *de facto* property rights, despite differences in *de jure* property rights. Our results confirm that the local context in which property right regimes are embedded are at least as important as the property right regime itself.

## 1 Introduction

In order for any transaction, including debt transactions, to occur, an economic system, according to Douglas North (1989), needs “well-specified and well-enforced property rights”. Ronald Coase (1960), too, concluded that without the delimitation of initial rights no market transactions can take place.

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Such property right systems evolve, suggested Harold Demsetz (1967), from the “laws, customs and mores of a society”. These authors formed the beginning of a study into property rights as an economic institution and how important they are for economic development.

More recent studies have attempted to find empirical proof to explain the emergence and persistence of property rights systems, and their impact on economic development. Acemoglu, Johnson and Robinson (2001), use settler mortality as an instrument for the initial property rights systems installed by colonial powers and show that this initial system mattered for long-term development. This research has spurred research into how property rights systems developed and mattered in different regions.

Sokoloff and Engermann (2000) compare different New World economies and found that regions where land was acquired with relative ease, are more abundant today. A key to the Sokoloff and Engermann hypothesis is land abundance and the unequal distribution of factor endowments. Fenske (2012) studied land abundance in nineteenth century Nigeria and he found that the land abundance caused weak property rights in land. A weak property right system caused slaves to be used as collateral for market transactions rather than land.

Land abundance is however not the only influence on long-term persistence of land property rights. In India, different land tenure systems were observed under British rule with different long-term outcomes. Banerjee and Iyer (2005) show that the historical districts where large landlords (equated with relatively weak property rights) were in control, less investment and productivity is observed post-independence. Dell (2010) showed that large landowners in Peru had well-defined and secure property rights. However, the large landowners, different from India, had the ability to protect their work force from forced labour and in the long run, more public service provision is observed in these regions. These case studies show how social environment (of laws and norms) in which the property right system develops will have different outcomes in the long run. There was also land abundance at the Cape Colony. Land relative to labour was cheap and easily accessible. Our focus here, shifts from land abundance and its outcome on property rights to the laws which governed land ownership and its effect on property rights. Although not the focus of their study, Dye and La Croix (2014) states the loan farm system at the Cape (explained in more detail below) was a way to quickly integrate the vast lands into production.

The evolution of laws governing land ownership in the United States has been the focus of economic historians too. De Soto (2001) studied how property right laws changed over time in the US and concluded that the property law was successful once it took the social norms of settlers on the frontier into account. Focused on the effect of one particular law, the Homestead Act of 1834, Lamoreaux (2012) showed the allocation of land by the government will be fruitful as long as individuals still believe their underlying rights to the property are secure.

The legal right to use land (or have ownership over it) is however not the only aspect which mattered for property rights and economic development. Hornbeck (2010) demonstrated that it is equally important to have the ability to protect

land, rather than only the legal right to own it. This ability to protect one's land is especially important for frontier settlements due to the continual expansion and movement of boundaries, with new land available for use and ownership.

The interaction between legal ownership of land and the ability to protect said land is also the focus of Alston, Harris and Mueller (2012) and Dye and La Croix (2014). Alston et al. develop a model to investigate how *de jure*, *de facto* and enforcement of property rights interact during the early settlement periods. Applying their model to Australia, the United States and Brazil, they show how frontiers settled between *de facto* to *de jure* property rights with interaction between individuals (or groups) and the government. Potential conflict arises when those who specify the claims to land is different from those who enforce rights on the land.

Dye and La Croix (2014) expand the model by applying it to the colonial South African case. They conclude that, instead of following the path from *de jure* to *de facto* rights, a new system developed – the loan farm system. The loan farm system was a response to the declining threat of the Khoesan, the indigenous population present at the Cape when settlers arrived in the seventeenth century. They argue that the loan farm system evolved from a *de facto* to *de jure* system because settlers made *de facto* claims outside the official boundary where they did not have the formal protection of *de jure* claims. The decline in the Khoesan population after a smallpox epidemic in 1713, spurred the VOC to officially establish the new form of loan farms on the frontier and extract revenue from it, giving the *de facto* claims *de jure* rights as well.

This paper builds on Dye and La Croix's model by applying empirical tools to test whether the property right regime matter for economic development. We use a novel dataset with information about two types of land ownership at the Cape – loan farms and freehold farms – and link this to individual's debt levels. In a detailed study on the relationship between property rights and debt, Feder and Feeny (1991) suggest land is only valuable as collateral where uncertainty and asymmetric information is absent with regard to the rights on land. In the Alston et al. model, this would make land valuable for debt transactions where the *de facto* and *de jure* specification and enforcement of property rights are the same. Descriptive evidence we report below suggests that freehold farms, with more secure *de jure* property rights, had more debt. If these two theories are correct, that would imply that freehold farms also had more secure *de facto* property rights.

The main concern with such descriptive evidence is endogeneity. Our contribution is to make use of an instrumental variable to remove reverse causality and to test if the differences in the *de jure* and *de facto* property rights of freehold and loan farms had an impact on economic activity or, in our case, debt transactions. We use being the oldest son as an external and random event to possessing a freehold farm. In the patriarchal society of the Cape, oldest sons were favoured to inherit freehold farms despite the Roman Dutch law for equal inheritance between children. Our results from this instrumental variable approach support the existing historical literature which suggests that, despite large *de jure* difference between the two systems, the property right ensconced

in the loan farms system were viewed similarly to those of the freehold system.

These results contribute to the wider literature on property rights and its impact on economic development. Rather than focussing on macroeconomic variables like GDP growth or public investment, we focus on the microeconomic variable of individual debt and whether it was affected by different property right regimes. The lack of support for a strong correlation between *de jure* rights and debt supports scholars like De Soto (2001) who emphasises social norms and observed property rights rather than *de jure* claims. Our results thus provide more nuance to classic institutional and growth theory which propose that *de jure* property rights are always and everywhere a necessary if not sufficient component of economic growth.

## 2 The Land Policies at the Cape

When the Cape was first settled by Europeans in 1652, the plan was not for it to become a settlement colony. The *Vereenigde Oostindische Companjie* (VOC) wanted the Cape to serve as a refreshment station to passing ships between Europe and Asia. Because of the high demand for fresh produce and an inability to increase supply sufficiently, the company released nine company employees to become freehold farmers around the Liesbeeck River in Cape Town, only five years after arrival.

The vision of Company commander, Jan van Riebeeck, was small scale farming, modelled on the European example. The plan soon failed. The crops brought with the settlers from Europe were unsuited for the soil and weather patterns of the Cape. More territory was needed. Under Governor Simon van der Stel, European settlement expanded toward the fertile mountainous region of Stellenbosch and the surrounding regions. Here, farmers could claim any land cultivated within three years. These initial claims were mostly given to settlers in freehold – the only requirement for settlers to relinquish one tenth of the annual grain produced as a tax to the Company in Cape Town (Duly 1968:14). Many of these freehold farmers became known as the “landed gentry”. They owned large swathes of land and many slaves. The nature and size of these freehold farms made them more tradable and the prices of freehold farms increased throughout the period (Guelke 1989:79).

Although it is unlikely that each farm would have similar soil quality, most had access to a river (Guelke and Shell 1983). Due to the unavailability of suitable soil in the region, the freehold farm system was terminated to new claims in 1717, although settlers did continue to trade and inherit these freehold farms well after 1717 (Newton-King 1999:18). Guelke’s 1987 map of freehold farms show the extent of these freehold farms up to 1750.

The second and, after 1717, most used form of property at the Cape was loan farms. Loan farms were obtained with relative ease: they were simply loaned from the Company for three, six or twelve months at a fixed rate, the size determined by riding half-an-hour on horseback in each direction. Duly (1986:15) notes: “the system was a form of legalized squatting”. The only parts

of loan farms which could legally be sold were the fixed improvements; settlers thus had no *de jure* rights to the land they lived on under the loan farm system.

But, like other colonial land systems, *de facto* rights often evolved into *de jure* rights. Guelke (1976:31) argues that "...[i]n practice there was little distinction between freehold land and *leeningsplaatsen* (loan farms)."<sup>1</sup> In fact, he goes further by saying "...the leases became so secure that the fixed improvements (which could be sold) came to reflect the value of the whole property". Newton-King (1999:99), in the most authoritative contribution to the history of the Cape frontier, submits the loan farms were similarly secure as the freehold farms.

A concern in comparing the *de facto* and *de jure* property rights in an economic context would be the strength of the *de jure* property rights, especially for the loan farms. The Company in *de jure* terms had the rights to reclaim loan farms if the annual rent was not paid, while they could not do the same with the freehold farms. Gie (1963:153) postulates that this rarely happened, and says farms would only be claimed by the Company if they wanted to establish a town in the area. In such a case, the farmer was also fully compensated for the land.

In comparing the two systems, Guelke (1976) concluded that the freehold farms were more valuable because of their relative closeness to Cape Town. The value of these freehold farms spurred settlers to protect their farms as best they could. The Company initially provided ample military protection to freehold farmers, but as the frontier expanded and the threat from the Khoesan ebbed, farms, especially loan farms, enjoyed less protection (Fourie et al. 2012).

The freehold and loan farms were clearly distinct in their *de jure* property rights. The freehold farms *de jure* enjoyed more secure property rights – they were tradable and inheritable – while the loan farms were not. However, some historians suggest that the *de facto* property rights of loan farms were similar to those of the freehold farms. We attempt to empirically test these assumptions here. Our main hypothesis is that the freehold farms enjoyed more secure property rights relative to the loan farms. If the freehold farms were more secure, we would expect them to be more valuable and therefore used more frequently as collateral for credit transactions.

### 3 The freehold and loan farm data

The data we use for our analysis comes from two sources: genealogical records and probate inventories. The genealogical records are familial lists from the first settlers with information on birth, marriage and death dates, as well as

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<sup>1</sup>It should be noted here that the loan farms system at the Cape was similar to the Dutch system of the sixteenth century. De Vries and Van Der Woude (1997:161–162) found the tenants in the Netherlands had strong legal support and it was often difficult for owners to replace tenants. They state "tenants acquired *de facto* permanent possession while the owners held nothing more than an old right to collect a fixed money rental." Mitchell (2008 Chapter 3, p.4) calls the "loan farm system a remnant of Dutch feudal land tenure practice."

occupations<sup>2</sup>. Our main variables of interest from the genealogies are whether someone was the oldest son, the number of children and the age of individuals. The second, the probate inventories, list all the assets and debts of an individual at the time of death. Although not without bias, Schuurman (1980) concluded that they "... enable the study of property according to occupation, age and number of children". Cape colony historians have also used them extensively. Newton-King (1999) used them to study the material life on the frontier. On wealth of the farmers of the Cape, Newton-King (1994) found poor farmers were in the minority and Fourie (2013) found the general wealth levels of settlers were "remarkable".

The main concern for bias in probate inventories is the exclusion of poor individuals, females and the young. Because we are focused on land ownership, the poor are likely excluded, although we do compare the individuals with no farms to those with farms later in the analysis. The Orphan Chamber inventories are also not the wealthiest individuals at the Cape. Fourie (2013) compared the probate records used here to Stellenbosch probate inventories collected by Krzesinski-De Widt (2002). The Stellenbosch inventories are significantly more abundant than the Orphan Chamber inventories, since these were collected specifically for individuals without a will or where heirs were minors. Females are also excluded from the study, because our instrument of choice is being the oldest son and the comparison is between oldest sons and sons born later. Age is not a concern either. Fourie and Swanepoel (2015) have shown that there is very little differences and no correlation between age and debt levels, while we later also show there is no significant differences in the distribution or level of ages between oldest sons and sons born later.

We furthermore match the probate inventories to the genealogies. This may introduce an additional type of selection bias. Fourie and Swanepoel (2015) offer an in-depth discussion on the differences and possible biases between the matched and unmatched sample. Their main conclusion was the matched sample were in the middle of the wealth distribution, excluding both the poorest and richest in society.

The inventories offer information on the real estate owned, the policy under which this real estate was owned and in some cases the value and size of these farms. For example: Trijntjen Hillebrants (MOOC8/1.12) had one farm named Soedewijk situated in Drakensteijn, which was 60 morgen (the standard prescribed size of farms) and valued at 600 gulden (200 rds) when she died in 1695. More detailed descriptions on farms include the policy under which the farm was obtained from the Company. We focus on two policies observed most in the inventories: freehold farms (*eigendom*, *erfgrondbrief* or *transport*) and loan farms (*leeningsplaats*, *in leening*).<sup>3</sup> Some inventories listed both types of farms, like Josua Joubert (MOOC8/21.32) owned one farm Welbedagt, situated

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<sup>2</sup>For detailed information on how the genealogies were compiled and can be used in economic and demographic studies, see Cilliers and Fourie (2014).

<sup>3</sup>Another form was quitrent (*erfpagt*) are observed, but very few are found in the inventories. These were mainly loan farms which were converted to freehold farms. Their tenure were closer to that of the freehold farms and we therefore include them as freehold farms.

in Wagenmakers Vallei in the Stellenbosch District and it was owned in freehold, when he died in 1795. He also owned two loan farms, one Elands Jagt situated next to Molenaars Rivier in du Toits Kloof and another named Varkens Kop situated in the Sneeuberge. Table 1 provide a summary of the information available on land ownership from these inventories.

Almost 54% of the inventories did not list any land. Looking across the other indicators of wealth, we find further evidence of left truncation. Table 2 also provides summary statistics on debt, credit, whether an individual had both credit and debt, the total number of bonds observed in the inventories and other household characteristics, by the type of land owned. The two groups excluded from the analysis below are the individuals with no land listed, and the individuals where farms are listed, but the policies are unknown. The individuals included are either those with loan farms or freehold farms listed.

The individuals with no land listed were by far the poorest, but by no means excluded from debt transactions. They owned on average 1 slave, while the individuals in the other categories owned more than 5 slaves on average. The mean value of debt for these individuals are 368 rds, while the credit value was even higher at 692 rds; 43% of individuals with no land were both creditors and debtors and 12% had debt bonds in the inventory. More than three quarters had spouses listed on the inventories (lower than the other groups) and they had an average of 3.12 children. Because we have no information on their real estate, either because they did not own any or because their land were not recorded in the inventories, we exclude these individuals from the analysis. Although this is a serious concern when we want to analyse the average level of wealth in the Colony, our purpose here is more focused: we only aim to compare those who own freehold versus loan farms. This exclusion therefore does not bias our results.

The second group of individuals excluded from the analysis below are those with some farms, but where we do not observe the policy under which this land was owned. They look similar to those with freehold farms – if not slightly richer. They own more slaves than the loan farm individuals, but less than freehold farmers. They have the highest debt of all the groups, but less credit than the freehold individuals. The proportion of individuals with debt bonds and who were both creditors and debtors are between the loan farms and freehold farms. Although the ideal would have been to include them in the analysis, because of the uncertainty we exclude them from the analysis.

In short, summary statistics clearly show that the freehold farmers are wealthier than their loan farm counterparts.<sup>4</sup> They have on average more land, slaves, debt, extended more credit and had a higher proportion of bonds. Differences are less pronounced when we consider the portion who have spouses listed and the average number of children. Because our analysis is focused on debt, Figure 1 shows the different natural logarithm distributions of debt for these two groups.<sup>5</sup> These distributions support the historical narrative that claims the

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<sup>4</sup>If individuals owned both freehold and loan farms, we add them to individuals with freehold farms. Our results are robust whether we include these observations or not.

<sup>5</sup>Zero debt is replaced with  $1 \times 10 \times e^{-10}$  for positive logarithm values, this caused the

freehold farmers were wealthier than the loan farmers. The correlation between land ownership and debt is the focus of the next section.

## 4 Correlations between land ownership and debt

The descriptive statistics from the probate inventories suggest freehold farms were owned by the more affluent individuals of the Cape. Before we test the hypothesis that freehold farms (with more secure property rights) had more debt, we first focus on simple correlations between land ownership and debt. We study the correlation between the number of farms and debt, and then compare the debt levels of individuals with at least one freehold farms and those with at least one loan farms. We would like to compare the number of farms and the individuals without farms to those with farms to establish if there are any correlations between land ownership and debt at the Cape, because of the general occurrence of debt described in Fourie and Swanepoel (2015). At this time, the Cape colony had almost no towns outside the fledging community in Cape Town and farms were therefore a more important measure of real estate. Because of this, we do not distinguish between real estate within towns and farms and refer only to land ownership.

We also include controls for other wealth variables – the number of slaves owned, the number of debt bonds, if an individual was both a debtor and creditor and also if a spouse was listed on an inventory. We do not control for gender and only focus on males, because of the instrumental variable we use later. Fourie and Swanepoel (2015) found a strong correlation between slave ownership and debt, and it remains an important alternative wealth indicator to the number of farms owned. We divide the number of slaves owned into groups as follows: 0 slaves, between 1 and 4 slaves, between 5 and 10 slaves and more than 10 slaves. We include the number of debt bonds, because bonds are highly correlated with incurring debt to purchase land. Bonds were more formal loan contracts witnessed by an independent third individual. Individuals with both credit and debt were more likely to have collateral (either land or slaves) and their debt levels are expected to be higher. If a spouse was listed on the inventory, debt was also likely to be higher as it was the accumulated debt by both husband and wife before death and not just a single individual. Individuals with more children were more prosperous, and as new evidence from Cilliers (2015) shows, South Africa’s fertility decline only happened with the mineral revolution of the late nineteenth century.

The first regression (table 3) shows a strong correlation between the number of farms listed on the inventory and the debt level of the inventory. One additional property is associated with a 58.1% increase in debt. Our other wealth variables, slaves, number of debt bonds and whether the individual was both a debtor and creditor are also strongly correlated with the individual’s debt level. Having a spouse listed on the inventory is also correlated with the debt levels. One consideration here is that if the spouse was also listed on the inventory, they

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spike to the left of the distributions.



may have passed shortly after one another. This would have made them riskier borrowers, because we do not know about probability of repayment. However, considering the generality of debt at the Cape, it is unlikely that both spouses death would have influenced the ability to obtain debt. The number of children does not have a significant correlation with debt levels.

Table 4 shows the differences in debt for individuals with freehold farms to loan farms. This is the first evidence that support the hypothesis that the individuals with freehold farms were wealthier, had better protected property rights and more debt. The individuals with freehold farms have on average more debt than individuals with loan farms. Slave ownership continue to matter for debt of freehold farmers, while being both a creditor and a debtor is correlated with more debt and inventories with spouses listed also have more debt. When comparing these two groups, individuals with more children have less debt.

These OLS correlations point to different outcomes for freehold and loan farms and debt, suggesting there was at least some role for property rights to play in determining value for debt transactions. On first glance, the individuals with freehold farms were more prosperous and had more debt – supporting the hypothesis that they had better protected property rights. One concern with these correlations is reverse causality. Individuals with freehold farms have more debt because they had more collateral due to better property rights relative to individuals with loan farms. But the reverse is also true: Individuals with freehold farms may have had more debt because they used debt to purchase these farms in the first place.

Another possible channel for freehold farms to have more debt is an income and revenue channel. The freehold farms may have been more profitable (and therefore have more access to credit) simply because they did not pay the rent the loan farmers were obliged to pay. We do not think this was the case for two reasons. First, the rents on the loan farms were often not collected. Second, the ratio between debt and the annual rent is too high to believe the rents were an obstacle to the credit market. The annual rent of 24 rds dwarfs in comparison with average debts of 2 318 rds (Table 1). Next, we turn to address the reverse causality between debt and land ownership with the use of an instrumental variable.

## **5 An instrumental variable approach: Oldest sons, debt and freehold farms**

Due to possibility of reverse causality and endogeneity in estimating the effect of property right regimes on debt levels, we use an instrumental variable approach here to estimate the effect of owning a freehold farm on an individual's debt level. Our instrument of choice is being the first born son in a household relative to second, third or sons born later. Many studies have used the random variation of birth order to study different economic outcomes. These economic outcomes include schooling or returns to education (Black et al. 2005b), income

(Kantarevic and Mechoulan 2006), labour market outcomes like employment (Black et al. 2005a) and the decision to migrate (Abramitzky et al. 2012). As far as we are aware, there have not been studies done using first born sons and property rights.

To use an instrumental variable, we estimate a two stage least square regression where the first regression is focused on the probability of a first born son owning a freehold farm, and the second regression focuses on the relationship between owning a freehold farm and the natural logarithm of individual debt. We also control for a vector of individual characteristics, which include our wealth measurements: slave ownership, whether an individual was both a creditor and debtor and the number of bonds owned by the individual. It further includes whether the oldest son had a spouse listed on his inventory and his number of children. Although we would have liked to control for additional variables, like the land ownership of the father, we are restricted to the information captured in the probate inventories and genealogies

For our instrument to estimate the local average treatment effects (LATE), it should comply with the following four assumptions: independence (exogeneity), exclusion restriction, first stage (relevance) and monotonicity assumptions (Angrist and Pischke 2009:153). The independence assumption requires that the instrument is randomly assigned. This means first born sons should not have an innate higher ability (which cannot be observed) which makes them more likely to own a freehold farm. Although not directly testable, we do not think there is any reason to believe the oldest sons would be systematically better and more able to own freehold farms. The randomness of birth order, we believe, is sufficient to pass the independence assumption.

The exclusion restriction requires that birth order does not have a direct causal effect on the level of debt. Debt was a general occurrence at the Cape (Fourie and Swanepoel 2015). The best way to support the exclusion restriction is to look at the debt distribution of the oldest sons versus sons born after. Figure 2 shows these distributions. Table 6 provide the t-test for the size of debts, there is no significant difference between the size of oldest sons and sons born later. Since there is no significant difference in either distribution or size of debt for oldest sons to other sons, we assume there is no direct relationship between being the oldest son and his debt level. We would argue that being the oldest son satisfies the exclusion restriction.

Two other channels through which the instrument may have an effect on individual debt are longevity and occupation. We observe both these variables from the genealogical records<sup>6</sup> and matched it to individuals in the probate inventories. For occupation, higher skilled occupations may present less risky borrowing and therefore the ability to obtain more debt. First born sons may also have more opportunities to join these higher skilled occupations. The occupations we observe are divided into different skill levels: unskilled or low skills, farmers, medium skilled, highly skilled and professional. We run an ordered logit

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<sup>6</sup>For more information on these records, see Cilliers (2015). She further provides information on which occupations are divided into which skill category.

to test if there is a preference for oldest sons in higher skills categories (Table 7). The older sons do not have a significantly larger share in more professional skills relative to sons born later.

The second concern for the channel of our instrument may be longevity – individuals who were older when they died had a longer time over which debt and real estate could have been accumulated. First born sons may also have longer longevity because of resources reverted to the oldest son rather than sons born later. However, we find no significant difference in the ages of oldest sons relative to sons born later. Oldest sons' expected age for the period (conditional on reaching 16 years) was 49.83 years, while sons born later lived an average of 48.69 years. Figure 3 shows the age distribution of oldest and non-oldest sons, while table 6 also show the t-test for average ages between these two groups. Both these measures show no significant difference for the oldest sons and sons born later, the strongest evidence that being the first born son is an appropriate instrument.

For the first stage assumption, the oldest sons need to have a higher probability of owning a freehold farm. The system of inheritance at the Cape was one of partible inheritance derived from Roman-Dutch law. This meant the individual's estate was divided half to the spouse and the equally among the children. Most often the estate was sold in its entirety at auction and the proceeds distributed between the heirs. Despite this, anecdotal evidence have been provided by Newton-King (1994) and Dooling (2005; 2007) that the oldest sons were favoured when it came to the inheritance of property and freehold farms. Newton-King (1994) suggested that older sons inherited the freehold farms, while sons born later inherited loan farms. Dooling (2005) and Dooling (2007) referred to how in this patriarchal society sons were inevitably favoured before daughters when it came to inheritance. With this anecdotal evidence at hand, we tested the likelihood of older sons owning more freehold farms and indeed found a higher probability among oldest sons of owning freehold farms, at 48%, while of sons born later, only 18% owned freehold farms (also in Table 6).

Finally, monotonicity requires that the instrument affects all the treated in the same direction, that is, being the oldest son will always make you more likely to own a freehold farm rather than less likely. The historical evidence presented above not only supports the first stage assumption, but also the monotonicity assumption. Oldest sons were always more likely to own farms relative to their brothers born later and not the reverse, across time and districts.

Being the first born son appears to be a valid instrument for the probability of having a freehold farms relative to sons who were born later. Table 7 (Panel A) presents the regression results for the instrumental variable estimation. The result supports the hypothesis that the oldest son had a 23% higher probability to have a freehold farm relative to sons born later, significant at the 1% level. Individuals with more slaves were also more likely to own freehold farms. Having a spouse listed on the inventory is also associated with higher probability of owning a freehold farm, but none of the other characteristics are associated with a higher probability of owning a freehold farm.

The second stage regression, however, reveals that, given the instrumental variable of a being the oldest son, owning a freehold farm does not matter for the individual's debt level. The coefficient of owning a freehold farm is negative – individuals with freehold farms have less debt – and the coefficient is insignificant. As a robustness check, we include the farms with no known policies as loan farms (Table 7 Panel B). The results remain negative, insignificant and the instrument becomes weak which giving more confidence to the first regression.

Two reasons exist to explain the negative and insignificant coefficient: measurement error in the instrument or the increase in the number of loan farms over time. We find evidence for the latter, rather than measurement error. The birth order in the genealogical records were recorded from the birth and baptism dates of the children. Unless the children were baptised on the same day and the birth order was recorded incorrectly that day, there is no reason to suspect measurement error in the instrument. However, the number of loan farms (and therefore debt of individuals living on loan farms) increased over time. Figure 4 shows the relationship between debt of freehold farms and loan farms over time. The fitted values of the loan farms show a marked increase in debt, while the freehold farms increases with a flatter slope. This suggest around the turn of the century, the loan farms overtook the freehold farms in debt values and explains the negative coefficient in the regression.

In the property right framework sketched in section 2, the debt market at the Cape considered the *de facto* property rights of land more important for transactions. This supports the historiography of the Cape in which authors like Guelke (1989) and Newton-King (1999) have provided evidence that the property rights of freehold farms were similar to the loan farms. It also advances the international literature, by focussing on microeconomic information and the recent literature which suggest social norms and *de facto* rights are important when *de jure* rights are established.

For our other variables of interest, only the highest group of slave ownership has a significant effect on debt, suggesting the combination of slaves and land ownership mattered for debt. Individuals who were both creditors and debtors had more debt than individuals with only debt and additional bonds caused higher debt. And the spouse still remains significant for debt levels. This suggests it was individuals with any collateral – those who owned land, slaves, bonds, or who were both creditors and debtors – who had debt. If the individual had a spouse listed it meant additional resources which the creditors could use to assess riskiness and additional collateral from the combined estate. This is more support for the recent literature on early credit markets which suggest credit and debt was not used more by poor as suggested before, but by those with the greatest assets (see, for example, Muldrew (2012) and Ogilvie et al.(2012)).

A Hausmann test between the instrumental variable regression and the OLS regression rejects the null hypothesis (Chi-2= 253.3, p=0.0000) that the estimators are similar in favour of the instrumental variable analysis. The specification tests are also presented in the Table 7. The Cragg-Donald Wald statistic (22.392) is larger than the critical value of 16.38 and the instrument passes the

weak instrument test. This suggests being the oldest son in the family is highly correlated with owning a freehold farm. Because we only have one endogenous regressor and one instrument, the specification is just identified. All these tests together make the instrument a valid instrument.

By measuring the effect of property rights on a micro-level, we add to the literature on property rights and economic transactions. The freehold and loan farms had distinct formal processes for claims and legal specifications differed. Despite the differences in *de jure* and *de facto* property rights, the economic outcomes for the two systems do not show big differences. This supports the historiography's view that settlers relied on *de facto* property rights for decision-making. It also means, like De Soto and Lamoreaux's findings, the local conditions under which the property right regime is observed matters. In this case, the settlers' view was that the loan farms were as secure in their property rights as the freehold farms.

## 6 Conclusion

Property rights remain important for economic growth and development, but more recent research have started to show that it is more complex – the local conditions also matter. We gave another example, here, of how local conditions and how these rights are perceived matters as well. Besley (1995) said "... formal (*de jure*) rights might have very little to do with the ability to exercise these rights (*de facto*).” If the answer of institutional economics is to give *de jure* property rights in land to individuals, without taking into account the local *de facto* conditions, property rights might not lead to the expected gains in economic growth. Schlager and Ostrom (1992) already called for investigation into “how various types of institutional arrangements perform comparatively when confronted with similarly difficult environments”. In line with the literature, we attempt to show the perception of property rights at the Cape, or the *de facto* mattered more than *de jure* property rights delineated by laws.

Economists suspect that property right regimes are rooted in the history of the region, but it has been difficult to proof the effect of this on economic development empirically. We do this by investigating property rights' role in the debt market of the Cape colony. The Cape offers an alternative to the development of *de jure* and *de facto* property rights. At the Cape, property rights of loan farms were developed from *de facto* property rights to *de jure* property rights, while other case studies like the United States, Australia and Brazil developed from *de jure* property rights to *de facto* property rights. The two land tenure systems, freehold and loan farms, of the Cape enabled us to study individuals with the different types of property and to compare them one another. The contribution of this research has been to focus on a microeconomic outcome, individual debt levels, rather than macroeconomic outcomes.

Economic theory would suggest land is only valuable for debt transactions if there is no asymmetry and uncertainty regarding land rights. Historians of the Cape have suggested the *de facto* property rights of the loan farms were the

same and as secure as the freehold farms, even though the *de jure* rights between the systems differed. Our hypothesis was that individuals with freehold farms had more secure *de jure* property rights and freehold farms should therefore be more valuable for debt transactions. On this basis, individuals with freehold farms should have more debt. The descriptive statistics certainly supported this hypothesis; individuals with freehold farms had higher correlations with debt relative to individuals with loan farms or individuals with no farms. However, after accounting for endogeneity concerns regarding the relationship between debt and land rights, the significance of owning a freehold for debt transactions disappears. We tested the assumption by using an instrument of the oldest son, who had a higher probability of owning a freehold farm. These results support the historiography which suggested that property rights between freehold and loan farms were similar in *de facto* regimes, and also that individuals in a society would rather rely on these *de facto* rights when considering economic transactions. Our results provide empirical evidence for what historians have suspected: that the institution of property right depends on the society in which it is embedded. Instead of formal *de jure* rights, how rights are perceived and used by individuals (*de facto*) is likely to have a bigger influence on economic transactions.

## 7 References

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