

# Does franchise extension reduce short-run economic growth? Evidence from New South Wales, 1862-1882

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## Abstract

Empirical studies have established that franchise extension has positive effects on long-run growth because democratisation leads to greater equality of access to resources. However, in the short-run franchise may lead to a redistribution of resources away from important sectors of an economy. This paper examines this proposition by considering the case of land reform in the colony of New South Wales between 1862 and 1882. Reform was a direct result of franchise extension in preceding years that attempted to reallocate land away from the wool sector to small agriculturalists. Wool producers tried to avoid redistribution of their holdings by expending resources on evading reform legislation. These were resources that could have been invested in productive activities and therefore, it is expected that franchise reduced short-run growth because of the institutional changes it induced. The results presented here confirm that evasion efforts acted to reduce both pastoral sector and total GDP in the short-run.

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*A policy such as this would be intelligent and perhaps, expedient, if some stringent necessity arose to supplant a condition of lawless commonage or nomadic barbarism by a system of civilised industry and social society, but one may search in vain for a reason justifying its application to lands used in a legal and orderly manner in harmony with recognised industry of the community (Morris and Ranken, Report of Inquiry into the state of Public Lands and the operation of the Land Laws, New South Wales, 1883: 13).*

## **1. Introduction**

Recent empirical work has posited that franchise extension promotes positive long-run growth (Acemoglu and Johnson 2000; Acemoglu, Johnson, and Robinson, 2001). This positive relationship exists because democratisation promotes a redistribution of resources away from elites. In the absence of franchise elites will favour policies that concentrate access to resources, and therefore, wealth on themselves. Typically, elites are a small group of individuals who control *de jure* and *de facto* political power, for example slave owners in the ante-bellum American south. In Australia, one could easily define elites as the pastoral producers that dominated the economic and political sectors during the early to mid nineteenth century.<sup>1</sup> For much of the nineteenth century the pastoral industry was critical to Australian growth. Between 1861 and 1900 the average contribution of the pastoral industry to GDP was over 14% compared with mining and agriculture that contributed 11% and 9% respectively (Haig, 2002). Further, Australian economic success has often been attributed to 'riding on the sheep's back' (Cashin and McDermott, 2002; Schedvin, 1979). However, the introduction of universal male suffrage in the mid-1850s was accompanied by policies to redistribute land away from pastoralists toward small owners. In order to avoid this redistribution pastoralists engaged in several evasion techniques leading to a misallocation of resources away from productive activities.

Using data from the colony of New South Wales (NSW) this paper demonstrates that institutional changes in the form of redistributive policies resulting directly from franchise extension can reduce growth in important sectors of an economy in the short term. The reduction of growth occurs because redistribution promotes a misallocation of resources. Specifically, where extant groups value land more highly, they will spend a proportion of their resources trying to retain these claims. These are resources that might otherwise be invested into productive activities. In turn, while franchise extension has many positive outcomes for long-run growth, the immediate effects can be lower growth in the short-run.

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<sup>1</sup> A number of historians have in fact described the political and economic sectors of Australia during that period as dominated by the 'squattocracy' (for example: Burroughs, 1967; Roberts, 1924, 1935).

Results from the statistical analysis undertaken here confirm the misallocation of resources that accompanied NSW land reform did reduce both pastoral sector growth and total GDP.

By the end of the nineteenth century Australia had one of the highest per capita incomes in the world (McLean, 2007).<sup>2</sup> Much of this success was based on expansion of the wool industry. The wool industry had significant final demand linkages spurring growth of financial services, insurance and, overseas shipping (Cashin and McDermott, 2002). For a land-abundant, labour-scarce economy, wool was the ideal commodity (Davidson, 1990; Schedvin, 1979). From the middle of the 1830s successive government policy permitted graziers' to access land at low cost. By the 1840s, political reforms increased representation in the unicameral parliament while restricting franchise and nomination for election to property owners. Under these reforms, graziers were permitted both to vote and be elected to parliament. As a result, *de jure* political power was concentrated in the hands of wool producers – the wealthy elites. However, in 1861, land reform policies threatened to dispossess NSW pastoralists of their holdings in favour of reallocation to small, agricultural producers. The analysis here shows land reform was the direct result of franchise extension in the years preceding its introduction and the effects were a reduction in both pastoral sector growth and total GDP.

The rest of the paper is set out as follows: section two outlines several hypotheses that can be used to explain the introduction of land reform. This section includes details of what is referred to here as the 'political demand hypothesis' utilising the model in Alston, Harris, and Mueller (2009). The model is the most appropriate to explain the introduction of land reform in NSW. This section will also touch on issues of supply of property rights by government where specification and enforcement are treated as two separate supply decisions. Further, it is assumed that specification has lower costs than enforcement because the former requires relatively simple legislative amendment while the latter requires the allocation of resources from government budgets. Section three provides an overview of Australian land settlement from the 1830s until the introduction of reform in 1861 to illustrate the evolution of land rights in the pastoral industry. Section four details the factors leading to land reform focussing on the move to responsible government and the

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<sup>2</sup> McLean (2007) notes that between 1870 and 1890 Australian per capita incomes were 40% or more above the United States with about half of this gap being attributable to high labour input per capita and the other half to higher labour productivity. These highs were obtained without the correspondingly high levels of capital per worker that is consistent with production methods that are characteristic of two natural resource intensive industries, wool and gold (McLean, 2007).

extension of franchise. This section also presents a statistical analysis to test the main supposition put forward in this paper: land reform brought about by franchise promoted a misallocation of resources and reduced short-run growth of both the NSW pastoral sector and total GDP. Section five offers some concluding remarks.

## **2. Framework**

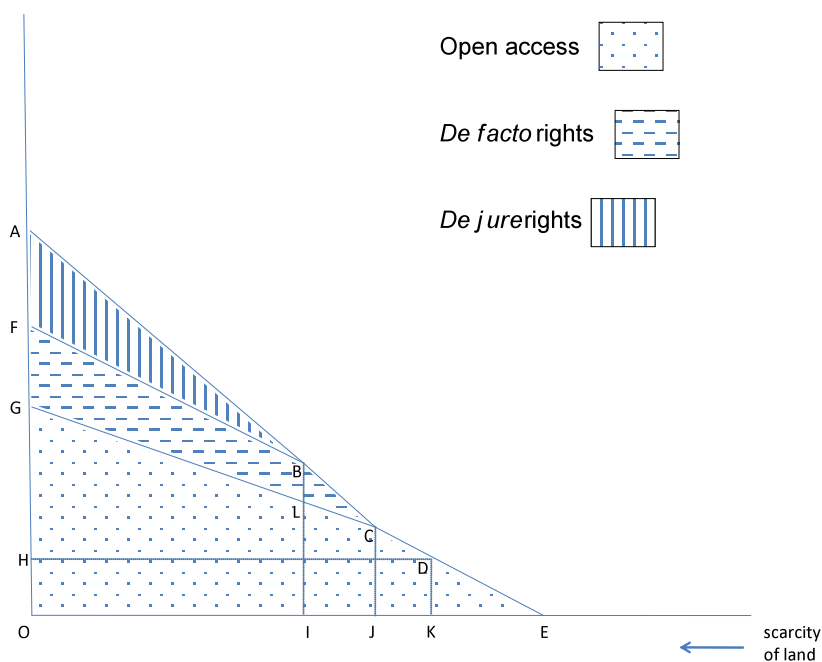
Several hypotheses can be used to explain the introduction of land reform: 1) the migrant attraction hypothesis (Sokoloff and Engerman, 2000; Engerman and Sokoloff, 2003); 2) the state enforcement hypothesis (Allen, 1991) and; 3) the political demand hypothesis (Olson, 1965; Alston, Libecap, and Mueller, 2000; Alston and Mueller, 2003; Alston, Harris, and Mueller, 2009). The migrant attraction hypothesis suggests that where labour is scarce land reform is part of a package of policies thought to be potentially attractive to those contemplating relocation. These policies include political freedoms such as, the removal of wealth and literacy requirements for voting and the introduction of the secret ballot combined with liberal policies toward schooling and land access (Engerman and Sokoloff, 2003).

The state enforcement hypothesis proposes that where simultaneous claimants increase the costs of disputes the state uses the least-cost method of enforcing its property rights. Settlers are a substitute for military forces and can act to mitigate the costs of internal conflict or external threats to the state's property rights. The political demand hypothesis asserts that in the presence of insecure tenure there is a greater incentive for rent seeking activities to secure formal rights to valuable assets. Rent seeking can lead to the redistribution of land away from extant users if political institutions have been liberalised in previous periods. Specifically, because the extension of franchise dilutes *de jure* political power of elites it reduces their ability to retain land claims. Further, when a greater number of citizens have parliamentary representation legislatures will be responsive to demands for land reform even if this imposes short-run costs on the economy. This hypothesis best explains NSW land reform in 1861 because the policy was a direct response of parliament to lobby groups agitating for land reallocation. In order to better understand this hypothesis the model developed in Alston et al. (2009) is discussed in more detail.

Initially, frontier land is so remote as measured for example by transport costs, or so abundant that its economic return is zero. This corresponds to point E in figure 1. At this

point, land remains open access and there is an absence of property rights because the costs of specifying and enforcing both informal (*de facto*) and formal (*de jure*) rights are prohibitive. Segment *GLCDE* in figure 1 represents the net present value of land under open access.<sup>3</sup> In figure 1, point *K* represents the economic frontier where it becomes worthwhile for a settler to migrate to the frontier.<sup>4</sup> As the net present value increases, for example because prices for output from the land rise – shown as the upward sloping line segment *CD* moving leftward from *K* in the figure – new users arrive. These users can access the resource without detracting significantly from the use of extant users.

**Figure 1:** Demand for property rights from competing claimants



Source: Alston et al., 2009

At distance *IJ* resource users remain relatively homogenous, but the return from an open access resource - *ILCJ* - is lower than moving to a more limited commons – *IBCJ*, where new entry is restricted. The relatively higher return from a commons arrangement excluding

<sup>3</sup> Dye and La Croix (2010) note that land at the frontier may not be ‘open access’ in the classic sense because governments may make some ownership claim, for example in NSW all land was owned by the Crown by virtue of British settlement. Therefore, open access here is defined in terms of use that is, open access means the land it not being utilised for production. This ignores indigenous populations uses.

<sup>4</sup> Alston et al. (2009) note this distance is the frontier but it could just as easily be the quality of soil. The framework of “rents” determining arrival times on the frontier under open access conditions is an endowments explanation. However for commons arrangements and formal rights to emerge, norms and politics will matter.

outsiders creates the demand for informal property rights. Informal property rights are effective in mitigating dissipation of the rental stream. Further, it is assumed that users are able to overcome the public good problem of collective action and supply property rights because they share norms. As the net present value increases, for example because prices for output from the land rise – shown as the upward sloping line segment  $CD$  moving leftward from  $K$  in the figure – new users arrive. These users can access the resource without detracting significantly from the use of extant users. At distance  $IJ$  resource users remain relatively homogenous, but the return from an open access resource –  $ILCJ$ , is lower than moving to a more limited commons –  $IBCJ$ , where new entry is restricted.

The relatively higher return from a commons arrangement excluding outsiders creates the demand for informal property rights. Informal property rights are effective in mitigating dissipation of the rental stream. For simplicity, it is assumed that the commons arrangements primary objective is to supply defence of members' claims against newcomers. This assumption reflects the reality of pastoral economies where sheep grazing does not require collective activities such as a roundup and, therefore, commons arrangements in these settings are largely for defence purposes.<sup>5</sup> An increase in competition creates incentives to form a group for defence because individual marginal costs rise. Group defence reduces the marginal costs to individuals of supplying this activity alone. Shared norms also reduce the costs of intra-group disputes because social pressure can be used to defuse conflict.<sup>6</sup> Moreover, group members recognise expected returns under cooperative strategies are higher than for confrontation (defection) strategies. At this stage, the absence of *de jure* property rights does not impose significant costs. The wedge  $BLC$  in figure 1 is the marginal return from switching from open access with limited norm specification to collective or commons arrangements for land in region  $IJ$  (Alston et al., 2009).

For land closer to the market centre, the region of  $OI$ , NPVs are higher, and because competition increases, informal institutions are no longer able to ensure continued exclusive rights to occupation by group members. In order to ensure access to the rental stream associated with occupation extant users have to allocate resources to ensure continued

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<sup>5</sup> Over time the group may supply additional goods that have a collective benefit for example, rules regarding travelling stock on private and public lands.

<sup>6</sup> Shared norms can also be thought of as collective choice rules that use familiar forms conforming to participants previously formed expectations such as, majority rule and trail by jury (refer to Zerby and Anderson (2001) for more details).

possession. For simplicity, it is assumed that at this point the group will want specification and enforcement activities to be supplied by government. In order to obtain government supply the group must spend some of its resources on lobbying for property rights formalisation.<sup>7</sup> Lobbying will be more successful when one or more of three conditions hold: 1) groups are economically important; 2) the government wants to expand the tax base or; 3) there is an absence of competing demands for land. For groups to be economically important they must generate a substantive income for the economy as well as create significant linkages to other sectors and external economies.<sup>8</sup> Economic importance allows these groups to generate a high level of *de facto* political power. Moreover, the government recognises that by supplying *de jure* rights they can expand the tax base. The increased revenue can be used both to defray the costs of enforcement as well as to provide public goods for example, transport infrastructure. In the absence of competing demands for land its value in any other activity is low so that *de jure* rights main aim is to regulate competition and prevent wasteful conflict between an increasing numbers of homogenous entrants. The result is a shift from *de facto* to *de jure* property rights with no change in the distribution of land.

The increased value that results from *de jure* property rights is the pie-shaped area *ABF* that represents the increased value of land versus the next best commons arrangement for property rights (Alston et al., 2009). *ABF* is the potential rent that forms the basis for the demand for *de jure* property rights. At this point the movement from a commons arrangement to *de jure* property rights does not entail redistribution so that *de facto* claimants simply have existing rights transformed into *de jure* rights. Once heterogeneous competition for land and franchise extension is introduced redistribution will take place. Redistribution can lead to wasteful resource misallocation where: 1) extant users value land more highly than other groups and therefore, engage in evasion or; 2) reform is premature so that climate, transport constraints and, acreage limitations mean extant users retain a comparative advantage over new claimants leading reform efforts to fail. Reform failure is

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<sup>7</sup> Extant groups lobby for their *de facto* rights to be transformed into *de jure* rights where the costs of specification and enforcement are absorbed by government rather than group members. Formalisation of existing *de facto* rights only occurs in the absence of heterogeneous competition for land. Once competition is introduced there is a greater probability that *de jure* rights will be reallocated away from extant users.

<sup>8</sup> This can be thought of as a case where the group utilising land creates important linkages across their own and other economies. For example, Australian wool producers were critical to both the growth of the domestic banking sector and the British textile industry providing them with significant lobbying power in both the colony and London.

high cost because resources are allocated to administer a government program that is ultimately unable to meet its objectives.

### 3. NSW land settlement

NSW economic development in the nineteenth century was underpinned by pastoral sector expansion and growth of the wool industry. By the end of the 1830s, Australian wool producers were critical suppliers of the British textile industry; by 1865 total sheep numbers in NSW were 16.5 million and; by the end of the century numbers exceeded 50 million (Davidson in Vamplew, ed., 1987). Wool production relied on access to vast areas of unused colonial land.<sup>9</sup> Access to land and general land disposal policies were determined in Britain by the Colonial Office (BCO) whose agent in Australia, the colonial governor, implemented its directives.<sup>10</sup> Initially, BCO land policy was aimed at concentrating settlement around the original convict settlement at Sydney Cove. In part, this was to restrain the convict element but it was also borne out of Wakefieldian notions of systematic colonisation.<sup>11</sup> Moreover, such a concentration would reduce the costs of law and order for the revenue poor military government.<sup>12</sup> To further this policy in 1827 the governor declared the legal boundaries of settlement, known as the Nineteen Counties. Occupying land beyond this area was illegal and subject to prosecution. However, given the limited number of military in the colony this boundary was more theoretical than practical. Further, even before it's declaration, after successful exploration across the Blue Mountains in 1825, settlers had started to move outside the area. Several factors encouraged the spread of population beyond the

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<sup>9</sup> Nomadic tribes of Aboriginal Australian's utilised land but they were disposed under British claims of terra nullius meaning, 'the territory belonged to no one.' It is worth noting here that an 1837 British Select Committee report noted Aboriginals had "a plain and sacred right" to the land they occupied (quoted in Shaw 2003: 116). However, at no time did this result in a BCO policy to formally acknowledge these rights. In the twentieth century the High Court of Australia recognised the rights of Australian natives to the lands they occupied prior to British settlement (*Mabo v Queensland*, HCA 23, 1992). In that case the judgement states: "Whatever the justification advanced in earlier days for refusing to recognize the rights and interests in land of the indigenous inhabitants...an unjust and discriminatory doctrine of that kind can no longer be accepted" (*42 Mabo v Queensland*, HCA 23, 1992). Here the term 'unused' is employed to suggest no British settler had exploited the land until sheep graziers began their occupation from the mid-1830s.

<sup>10</sup> There is an obvious principal-agent problem here in that the BCO was unable to directly observe the actions of a colonial governor and communication often took several months. This gave a governor wide discretion with regard to BCO directives. For more details refer to Hill (2010).

<sup>11</sup> Wakefield advocated the concentration of settlement within limited geographic areas to constrain supply of land that could be sold at relatively high prices to fund migration. Refer to Roberts, 1924; Crowley, 1980 and; Kociumbas, 1988 for lengthy discussions of Wakefieldian theories and their application in Australia.

<sup>12</sup> The government was also labour poor in that the number of military available was small compared with the number of settlers. By limiting settlement military resources could be concentrated on geographically small areas.



boundaries from the late 1820s: 1) population increases led to land scarcity within the settlement limits (Roberts, 1935);<sup>13</sup> 2) land prices within the Nineteen Counties were high, set at a minimum price of £1 per acre<sup>14</sup> and; 3) growing demand and rising prices for Australian wool in Britain increased the net present value accruing from settlement outside the boundaries (Imlah, 1950; Shergold in Vamplew (ed.) 1987).<sup>15</sup> Settlers illegally occupying land beyond the Nineteen Counties were known as squatters.<sup>16</sup>

Paralleling this movement into the interior from the NSW coast, in the 1830s settlers began moving into the Port Phillip district of NSW (Victoria) from Van Diemen's Land (Tasmania). Increasing land scarcity in Van Diemen's Land was the main incentive for this movement (Shaw, 2003). The first wave of these settlers arrived at Portland approximately 360 kilometres south west of Melbourne, and by the middle of 1834 there were several grazing operations established there. By 1835 more Van Diemen's Land settlers arrived in Port Phillip; however, their occupation did not interfere with the first arrivals because they settled in Melbourne.<sup>17</sup> As a result, while the BCO deemed the continued occupation of Port Phillip illegal, there was no effort to remove the occupiers by the colonial governor. In fact, Governor Bourke advised the Secretary of State at the BCO, "It is not the policy, nor would it be within the power of government to prevent an occupation which produces so profitable a return" (Bourke quoted in Shaw 2003: 40). In figure 1, pastoralists from NSW and Tasmania were both at point K, the economic frontier, where it became worthwhile for them to move

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<sup>13</sup> Of significance is the increase in 'free' population (excluding military and convicts) that is, migrants entering NSW. During this period, free population increased from 12, 846 in 1820 to approximately 50,000 by 1836 (Vamplew, 1987; Roberts, 1935).

<sup>14</sup> Burroughs (1967) argues that £1 per acre was in excess of the productive value of colonial land due to enormous quality variation impacting its suitability for agriculture. During a similar period land on the Great Plains of the United States was also priced above its economic returns at \$1.25/acre (Alston et al., 2010).

<sup>15</sup> Imlah's (1950) wool price index for the United Kingdom uses Spanish, Leonese, Saxon, and Australian price series to construct estimates from 1822 to 1880. Shergold's series (Table PC 106-107) in Vamplew (1987) is for Australian greasy wool 1850-1969.

<sup>16</sup> Initially, the term 'squatter' was used to identify individuals who illegally occupied Crown land within the settlement boundaries. These individuals were a mix of those with land grants who occupied adjacent land to which their grant did not extend; as well as convicts with tickets-of-leave or conditional pardons. Ticket-of-leave convicts had the right to work or live within a given district before their sentence expired or they were granted a conditional pardon; convicts who obtained conditional pardon were released on the condition they never return to England or Ireland.

<sup>17</sup> In order to prevent conflict with the natives, settlers at Melbourne who were members of the Port Phillip Association signed a trinket treaty with local tribes to buy some of their land. The treaty was subsequently voided by the British government because: 1) the Aboriginals did not own the land, it belonged to the Crown, as did the entire continent and; 2) even if the Crown ceded some right of ownership to the Aboriginals, they were incapable of understanding a treaty that contracted for the transfer of land to third parties.

to the frontier. By the end of 1835 the situation was such that net present values were increasing, shown as the upward sloping line segment *CD* moving leftward from *K* in the figure and new users arrived. Nevertheless, these entrants were able to access land without detracting significantly from the rents of extant users because land remained abundant relative to demand.

The inability and unwillingness of the resource constrained NSW governor to prevent or remove squatter occupation resulted in the British parliament enacting legislation to legalise it under the “Squatting Act” (1836).<sup>18</sup> This act introduced annual licences implemented by Commissioners of Crown Lands (CCL) and permitted squatters to occupy as much land as they wanted for £10 per annum. Licences gave squatters occupancy rights that were enforceable against all parties except the Crown.<sup>19</sup> Rather than a response to demand from squatters to obtain some rights to the land they utilised the legalisation of squatting was to prevent claims of adverse possession that could arise if unauthorised occupation continued. Adverse possession had foundation in British common law the entire body of which was formerly adopted in Australia under the “Australian Courts Act” (1828).<sup>20</sup> This common law was founded in the rule of *disseisin* that allowed a trespasser to acquire imperfect possessory rights that could evolve into perfect title if the owner did not act to prevent the trespass. In Australia, the legal owner of all land unless expressly granted as freehold was the Crown. Historically, British common law permitted individuals to take action for adverse possession against the Crown; a rule that today is codified in legislation of Australian states.

The resource constraints of the colonial government limited the supply of specification and enforcement activities under the 1836 act. As a result, both the specification and enforcement of *de jure* rights were extremely vague. Specification was vague because licences permitted individuals to occupy land without defining an exclusive right to any particular parcel (SRNSW: NRS 958, 4/3659-61: Colonial Secretary to CCL Bingham, 20/3/1838; Colonial Secretary to CCL Dulhunty, 20/7/1838; Colonial Secretary to CCL Oakes, 10/12/1839). Further, the governor gave explicit instructions to CCLs that they were to,

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<sup>18</sup> ‘An Act to restrain the unauthorized occupation of Crown Lands’ (7 Wm. IV. No. 4).

<sup>19</sup> However, there continued to be an active market for squatters’ runs. For example, Governor Gipps noted in correspondence with the Secretary of the BCO (Glenelg), “the right of occupation of a station has also become an article of common sale, the sums of which vary from between £100 to £500...” (Watson, 1914: 546).

<sup>20</sup> ‘An act to provide for the better administration of justice in New South Wales and Van Diemen’s Land and for the more effectual government thereof and for other purposes relating thereto’ (9 Geo. IV c.83).

“avoid any action that may be construed into an acknowledgment of any rights beyond mere occupancy” (SRNSW: NRS 958, 4/3659-61: Colonial Secretary to CCL Mayne, 11/10/1838). Enforcement was equally vague because Commissioners, although appointed with powers to determine boundary disputes and cases of trespass had limited mechanisms by which to impose their decisions on squatters. Commissioners could only enforce their decisions in two ways: 1) drive trespassing stock off the disputed parcel (SRNSW: NRS 958, 4/3659-61: Colonial Secretary to CCL Lambie, 14/11/1845)<sup>21</sup> and; 2) refuse to renew licences of squatters proven to have trespassed. However, both activities were relatively high cost for the Commissioner and squatters. Removal of stock imposed costs on Commissioners because they had a very limited number police at their disposal to perform these duties. In addition, their area of authority was typically too large for one person to monitor so a decision and subsequent removal of stock could be subject to lengthy delays. For example, one commissioner noted, “within the last four months 10 new stations have been formed all claiming to be in my district and which extended the limits of it 70 miles beyond its original extent” (SRNSW: NRS 905, 4/2486.1: CCL Perry to Colonial Secretary, 22/5/1840). This problem was compounded by the fact that Commissioners districts were often unbounded on one side (SRNSW: NRS 905, 4/2486.1: CCL (Name illegible) to Colonial Secretary, 4/5/1840).<sup>22</sup> Non-renewal of licences imposed costs on squatters because a Commissioner had to obtain permission from the governor to exercise this option. The governor was located in Sydney and the lands subject to dispute were often hundreds of miles away. As a result, there was some lag before a request for non-renewal would be received and a confirmation given. The squatter complaining of the infringement would lose the disputed area until governor approval for non-renewal was received and the offender’s licence expired.

As squatter settlement expanded, customs evolved to fill the void of undersupplied specification and enforcement of *de jure* rights by government. Specification customs were primarily concerned with defining boundaries between extant users and new entrants. Typically new entrants, whether claiming unoccupied land or purchasing an existing ‘right of

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<sup>21</sup> This can be compared with enforcement powers of Crown Land Commissioners within the Nineteen Counties, appointed in 1833, who were permitted to impound a trespassers stock.

<sup>22</sup> A lack of precision in district boundaries stemmed from information deficiencies regarding the geography of frontier land. This resulted from two factors: 1) an undersupply of surveyors in the colony, a problem that persisted when land reform was introduced in 1861 and; 2) the risks associated with frontier survey including, “a spear from a black, plunder by bushrangers, desertion of [the] men, and the difficulties in obtaining supplies” (both points taken from SRNSW: NRS 905, 4/2486.1, CCL Perry to Colonial Secretary, 22/5/1840).

run' would contract with extant users over the boundaries between properties (PROV, VPRS 95/P0001: Woods to CCL Western Port, 13/3/1843; Name Illegible to CCL Western Port, 15/11/1843; Name Illegible to CCL Western Port, 28/11/1845; PROV, VPRS 94/P0001: Name Illegible to CCL Murray, 12/8/1846; SRNSW: NRS 958, 4/5460: CCL Liverpool Plains to Bolton, 28/5/1846; Roberts, 1924; 1935; Weaver, 1996). Squatters had a clear incentive to contract and avoid unnecessary conflict because this could result in non-renewal of their licence (SRNSW: NRS 958, 4/3659: Colonial Secretary to CCL Dulhunty, 20/7/1838). Moreover, Crown Lands Commissioners had an incentive to enforce squatters contracts because their appointment instructions stated they "should have the knowledge of all that goes on in their district and [are] answerable for everything that is wrong in it", including conflict between settlers that could lead to unrest or appeals to the governor (SRNSW: NRS 958, 4/3659-61: Colonial Secretary to CCL Bingham, 7/4/1845).<sup>23</sup>

Enforcement customs were more elaborate evolving over time to regulate many key squatting activities including: 1) rules relating to abandonment (SRNSW: NRS 958 4/3660: CCL McDonald to Colonial Secretary, 24/8/1844; Weaver, 1996); 2) rules defining how much time was given to stock a run once a licence was granted (SRNSW: NRS 1385 4/6912: CCL Liverpool Plains to Colonial Secretary, 21/8/1846; PROV, VPRS 94/P0001: Name Illegible to CCL Murray, 9/8/1844); 3) rules for travelling stock and; 4) rules for arbitration to settle boundary disputes (Adeney, 1845-47; Port Phillip Association, Wedge to Batman, 3/9/1835; SRNSW: NRS 958 4/3659: CCL New Britain to Colonial Secretary 1/12/1839; SRNSW: NRS 905 4/2485: CCL Mayne to Colonial Secretary, 6/10/1840; Colonial Secretary to CCL Mayne, 11/10/1838). Generally, the absence of sheep on a run constituted abandonment but district rules also defined periods of non-use that would not amount to abandonment. Implicitly, non-use periods recognised both the seasonal nature of grazing and the distance from markets that required stock to travel for certain periods. Rules for travelling stock on private land owned by a third party required drovers to give an owner 12 hours notice of entry to the property and the flock of sheep had to enter within 48 hours. Sheep were required to be moved a minimum distance of six miles in 24 hours (Johnson, 1994). On common stock routes in order to protect adjacent land holders sheep were not permitted to stray more than 0.5 miles on either side of the recognised route (Cameron and Spooner,

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<sup>23</sup> In an earlier letter to Commissioner Bingham the Colonial Secretary notes the governor was anxious to support the government officers but would only do so when they acted strictly according to the laws and regulations laid down for their guidance (SRNSW: NRS 958 4/3659: Colonial Secretary to CCL Bingham, 4/10/35).

2010). Further, travelling stock were limited to a maximum 520 sheep because it was believed that larger flocks would waste the pasture over which they travelled and stronger sheep would consume the bulk of the grass (Alston, et al., 2009; Roberts, 1935).<sup>24</sup> Arbitration for dispute settlement was underpinned by norms of neighbourliness and good fellowship. These norms were critical to underpinning the evolution of specification and enforcement rules (Port Phillip Association, Wedge to Batman, 3/9/1835; SRNSW: NRS 905 4/2485: CCL New Britain, Boyd v Forbes, 15/11/1839; SRNSW: NRS 958 4/3660: CCL Mayne to Colonial Secretary, 6/10/1840; PROV, VPRS 95/P0001: Patterson to Davidson, 8/4/1847).

The critical role of custom in supplying specification and enforcement of property rights at the frontier was recognised by government in 1838. In that year land legislation was revised to include a section (10) directing Commissioners to act “*according to the established usages and customs of the Colony*” (emphasis added).<sup>25</sup> Further, any departure from custom established by usage required government sanction (SRNSW: NRS 958 4/3660: Colonial Secretary to CCL Lambie, 29/11/1843; Colonial Secretary to CCL Wellington, 27/8/1844). This suggests that when *de jure* rights are under supplied or incomplete shared norms can fill these gaps and create a basis for cooperation to establish a stable set of property rights. In turn, property rights stability limits conflict and promotes expansion of productive activities even in the absence of explicit economic incentives for cooperation.

During the 1840s competition for frontier land continued to expand moving into region *OI* of figure 1. This reduced the durability of custom based specification of *de jure* rights (PROV, VPRS 94/P0001: Name Illegible to CCL Murray 3/11/1845; Goodwin to CCL Murray 11/12/1845). Paralleling this, the policy of occupation without formal reference to a particular parcel of land was imposing ex post costs on Commissioners who allocated the same area to several different claimants (SRNSW: NRS 1385 4/5460 CCL to Colonial Secretary, 19/10/1846; 30/11/1846; 21/7/1847; CCL Bligh to Colonial Secretary, 27/10/1849). These errors increased specification costs to extant squatters leading them to demand that government supply greater levels of specification. This progression toward

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<sup>24</sup> The same rule was applied to the number of sheep any one shepherd was to be responsible for. Curr (2001) argues this number limitation evolved because localities in which sheep first grazed in NSW were scrubby, creating the potential for large losses due to the inability of one shepherd to manage a larger flock. Nevertheless, this size limitation may have also resulted from the fact that early shepherds were convicts who had little incentive to prevent sheep losses (Alston, et al., 2009).

<sup>25</sup> ‘An Act to continue and amend and Act intituled “An Act to restrain the unauthorised occupation of Crown Lands”’ (2 Vic., No. 19 1838).

further *de jure* specification and enforcement is consistent with the political demand hypothesis outlined in section two.

Lobbying was successful because two of the three conditions noted above prevailed: 1) squatters were economically important to NSW and a number of industries in Britain including finance, shipping, and textiles and; 2) there was an absence of competing uses for land. Squatters' economic importance both in Australia and Britain led to them having a high level of political connectedness and they exploited this power to add strength to their lobbying activities in London.<sup>26</sup> Moreover, an absence of competing uses for land meant squatters' demands for more secure tenure did not have to be weighed up against valuable alternatives. Specifically, the opportunity cost of acquiescing to squatters' claims for more explicit private rights was low. The main aim of legislative change in this case was simply to regulate competition between homogenous users.<sup>27</sup> By 1847 squatters secured greater government specification with the introduction of leases for the land they occupied.<sup>28</sup> Leases provided security of tenure to a specific parcel of land that was absent under the 1836 license system. At the frontier (unsettled districts) leases were granted for 14 years so that all leases issued in 1847 would expire in 1861. This limited tenure was to play a critical role in the success of land reform lobbyists during the late 1850s. Under the lease system land rentals were set at a minimum of £10 for the first 4,000 sheep and £2 10s for every 1,000 sheep thereafter. For the duration of the lease, land could only be sold to the occupier (Alston et al., 2009). Squatters were also granted rights of pre-emption permitting them to buy 640 acres for every 16000 acres of leased land at £1/acre. Squatters land rights remained relatively stable for the next decade however, by the late 1850s an exogenous shock, the gold rushes, resulted in changes to the political system that led directly to land reform in 1861.

#### **4. Land reform**

Before discussing the direct influence of franchise extension on the path of land reform an outline of political decision-making power before responsible government (1855) is warranted. This is not a substantive discussion regarding the politics behind the changes

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<sup>26</sup> Refer to Burroughs (1967: 315-319) for a detailed discussion of squatters' lobbying activities in London during this period.

<sup>27</sup> Franchise had not yet been extended in NSW so the government in the colony did not have to contend with opposing public interests.

<sup>28</sup> Leases were granted under 'An Act to amend an Act for regulating the Sale of Waste Land belonging to the Crown in the *Australian* colonies, and to make further Provision for the management thereof' (9 & 10 Vic. Cap. 104 1846).

made to governance of the NSW colony by Britain rather, it is included to provide some background for the democratic changes ushered in post-1850. Further, this will highlight how the introduction of land reform, referred to as selection, is consistent with the political demand hypothesis outlined in section two. In this case, it was the insecure tenure of squatters that resulted in greater rent seeking activities by other groups to secure formal rights to land. As noted, on establishment of penal settlement in 1788 the agent of the Crown in Australia was the governor, a military officer. The governor's power was absolute, in other words NSW was subject to autocratic rule. It is perhaps unnecessary to note that autocratic military control of a penal settlement was an obvious necessity. In 1824 autocratic rule was diluted somewhat by the creation of a Legislative Council that is, a unicameral parliament.<sup>29</sup>

The Council was comprised of between five and seven members appointed by the Crown. Its role was to advise the governor on proposed policy measures but it had no input into the formulation of policy. This remained at the sole discretion of the governor. Over time, the Council was expanded in size and by the early 1830s there were 15 appointed members. In 1835, wealthy, landed colonists formed the Australian Patriotic Association to lobby the British parliament for "bona fide representative government" (Australian Patriotic Association, 1835: 6). The Association appointed a sitting member of the British Assembly to act on their behalf and contributed £1,200 per year toward defrayment of costs associated with its activities. By 1842 the NSW European population numbered 130,000 of which only 30% were convicts (Price in Vamplew (ed.), 1987). This change in population composition combined with the pressure of wealthy colonists reduced the necessity of continuing the political arrangements in place. An alternative interpretation examined by Hill (2010) is that cessation to residual claimants, that is the move to greater political representation, reduced the principal-agent problem facing the Crown in its administration of the Empire. A detailed analysis examining the reasons for greater representation is outside the scope of this paper the important fact is that a degree of representative government was granted. In the same year the British parliament passed the first "NSW Constitution Act."<sup>30</sup> The act maintained the unicameral parliament system but expanded the size of the Council to 36 members, of which 24 were elected. Both electors and elected had to meet certain property

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<sup>29</sup> The title of the act that paved the way for the Council's creation was: 'An act for the better administration of justice in New South Wales and Van Diemen's Land and for the effectual government thereof' (4 Geo. IV c. 96). It is commonly referred to as "The New South Wales Act."

<sup>30</sup> 'An Act for the better Government of New South Wales and Van Diemen's Land' (5 & 6 Vic. c.76).

requirements limiting eligibility to vote and those who could be nominated for election. Squatters licences were sufficient to qualify them both to vote and become members of the parliament. As a result, they were able to secure significant *de jure* political power in the colony. The governor retained considerable powers in that if he did not approve of the Council's action he could dissolve the parliament, forcing another election. This was the state of colonial politics on the eve of the gold rush.

#### 4.1 *The politics of land reform*

Gold was discovered in NSW in the late 1840s but the official 'rush' is dated from 1851 when the findings were officially proclaimed by the government.<sup>31</sup> A huge influx of migration followed with NSW population doubling by 1860 (Caldwell in Vamplew, (ed.) 1987). Paralleling this, three important changes took place: 1) in 1850 the British parliament passed the "Australian Colonies Government Act"<sup>32</sup>; 2) from 1840 convicts were no longer sent to NSW with transportation officially abolished in 1851 and; 3) in 1850 and 1859 respectively the Port Phillip and the Moreton Bay (Queensland) districts were excised from NSW, becoming independent colonies. The "Australian Colonies Government Act" granted the colonies responsible government. This conferred rights to draft their constitutions, powers over colonial revenue, and determine all domestic policy, including land policy. The NSW constitution came into effect in 1855, establishing a bicameral parliament with a fully elected Legislative Assembly (lower house).<sup>33</sup> Franchise was limited to individuals owning a freehold estate valued at £100 or a leasehold estate valued at £10. The effect was to make the majority of the population ineligible to vote. Nevertheless, it reduced the political power of conservative interests (squatters) that had dominated the unicameral parliament. In turn, more radical liberals, supported by wealthy urban constituents were elected to the Assembly. The Legislative Council (upper house) was comprised entirely of governor nominated representatives serving five-year terms. A number of these nominees were wealthy squatters (Hawker, 1971).<sup>34</sup>

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<sup>31</sup> For details on why governments delay sharing information about the discovery of gold refer to Allen (2007).

<sup>32</sup> 'An Act for the better government of Her Majesty's Australian colonies' (13 & 14. Vic. c.59).

<sup>33</sup> The title of the Constitution act was: 'An Act to enable Her Majesty to assent to a Bill as amended, of the legislature of New South Wales to confer a constitution on New South Wales and to grant a civil list to Her Majesty' (19 Vic. No. 183 1855).

<sup>34</sup> Responsible government had reduced the governor's powers and while he still retained the right to reserve acts for the Royal Assent as well as to dissolve a parliament the role became greatly diluted (Clune and Griffith, 2006). Moreover, while the governor remained responsible to the British Secretary of State, he acted primarily on advice from the Executive Council thereby being subject to the whims of parliamentary majorities.



By 1858 the Assembly's liberal majority succeeded in passing electoral reform legislation that extended suffrage to all males over 21 and introduced the secret ballot.<sup>35</sup> Paralleling democratic reform, the supply of alluvial gold was nearly exhausted causing a fall in the opportunity cost of former miners moving to the frontier. As a result, universal suffrage was accompanied by the demand for land reform led by the NSW Land League. In the presence of squatters' insecure tenure limited to leases for a maximum of 14 years, the League's lobbying was consistent with the rent seeking activities predicted by the political demand hypothesis.

The League held widely publicised meetings in Sydney during 1857 demanding free selection of all colonial lands not alienated by free hold with deferred payment plans. In the same year a land reform bill was introduced in the Legislative Assembly but was ultimately defeated by the squatter dominated Legislative Council. McMichael (1980) argues the power of land reform ideology was decisive in attracting the recently enfranchised working class, including miners, once alluvial gold was gone, to the liberal cause. In turn, the issue of land reform became the key policy determining election outcomes and thereby, control of the colonial parliament.<sup>36</sup> Powell (2006: 19) referred to the 1860 NSW election as the "election for selection." A year later, the terms of all Council members expired and the liberal reformists who had formed a majority in the Assembly thereby controlling government requested the governor, who was backed by the BCO, to swamp the Council with members supporting land reform. Of the event the governor wrote:

The choice, if choice it can be called...was either to accept the advice of the ministers or break with them backed as they are by sixth-sevenths of the Assembly and by the people in a cry which was all powerful in the hustings...(Governor Young quoted in Powell, 1978: 19).

The result was the passing of the "Crown Lands Alienation Act" (1861) introducing free selection before survey and government sanctioned competition for a large proportion of

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<sup>35</sup> There were qualifications to suffrage in that an individual had to be a British subject residing in the colony for three years. Those disqualified from voting included individuals deemed of unsound mind and those convicted of felonies.

<sup>36</sup> In the bicameral parliamentary system government is formed by any coalition that can create a majority in the Assembly. During the nineteenth century these coalitions were notoriously unstable because of the absence of formal political parties making alliances extremely volatile. For example, between 1856 and 1901 29 governments controlled the Assembly meaning the average government was in power for 18 months (Clune and Griffith, 2006). This can be compared with the current, more stable, two party dominated system where governments usually retain power for three or four years after being elected. For details on the instability of governments in the nineteenth century, refer to Clune and Griffith (2006) and Hawker (1971).

squatters' pastoral holdings.<sup>37</sup> In the same year all squatter leases on frontier land expired paving the way for a change in *de jure* rights of pastoralists. This change took place via the "Crown Lands Occupation Act" (1861).<sup>38</sup>

The timing of franchise extension and land reform suggests the political demand hypothesis is better able to explain changes in *de jure* land rights in NSW than the migration attraction or state enforcement hypothesis outlined in section two. Specifically, while NSW was labour scarce before the discovery of gold, the migration attraction hypothesis presupposes a package of policies is used to attract migrants. Engerman and Sokoloff (2003) do not make any claims as to the timing of these changes but it is clear that if migrant attraction were the main driver of franchise extension and land reform, these would have to occur *before* the wave of migrants entered. The timing of reform in NSW is not consistent with this expected pattern. Migrants were attracted to NSW in large numbers only after the discovery of gold in the absence of an electoral system that gave them franchise and with a land policy supporting large pastoral owners. Specifically, between 1846 and 1855 close to 69,000 migrants entered NSW compared with 49,000 from 1856 to 1865 (Price in Vamplew, (ed.) 1987). As a result, the migrant attraction hypothesis cannot be used to explain land reform in NSW.

The state enforcement hypothesis does not fit the NSW experience for two reasons: 1) there was no internal threat to the state's property rights to land and; 2) there was no external threat post-1826. An internal threat by Aboriginals was nonexistent as numbers dropped dramatically post-European settlement (Butlin, 1993). Butlin's (1993) estimates of Aboriginal numbers pre and post-European arrival suggest three main factors contributed to population decline among indigenous tribes: smallpox, resource loss, and venereal disease.<sup>39</sup> The absence of an external threat post-1826 was due to the relocation of French ships that had been sighted off the coast of Port Phillip in the early 1800s. In 1803 and 1826 the NSW governor was directed to establish a settlement at Port Phillip because it was feared the French would lay claim the unoccupied territory (Shaw, 2003). These early settlement efforts can be understood using the state enforcement hypothesis however, both attempts were failures and the settlements were abandoned.

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<sup>37</sup> 'An Act for regulating the Alienation of Crown Land' (23 Vic. No. 4 1861).

<sup>38</sup> 'An Act for regulating the Occupation of Crown Lands' (25 Vic. No. 2 1861).

<sup>39</sup> Based on his estimates, Butlin (1993) argues any plausible rate of killing of Aboriginals by colonists was largely irrelevant to the depopulation process.

Selection opened all lands in the colony not owned by freehold for conditional purchase. Claims were limited to a maximum of 320 acres with payment deferred for three years so that on application individuals only paid a 25% deposit of £1/acre. Full payments were due at the end of three years from the claim date. Selectors were required to reside on the land for one year and make investments to improve the land such as, erecting fences and buildings valued at £1/acre. Squatters' retained leases for a maximum of 14 years at the frontier and pre-emptive rights to purchase 640 acres for every 16000 acres of leased land at £1/640 acres. If they exercised pre-emptive rights, they could lease three times this area for a maximum of 14 years with rentals determined by stock carrying capacity. Further, squatters could also undertake conditional purchase in accordance with the Alienation Act. In other words, the maximum area of a squatter's *de jure* rights was 4,080 acres, plus 320 acres if they filed for selection. This was less than 15% of the average 34,000 acres an individual squatter occupied in the 1840s (Roberts, 1935). As a result of the extensive curtailment of pastoral land occupation, selection posed a significant risk to short-run growth in the pastoral industry as squatters' redirected resources to evade redistribution attempts.

#### 4.2 Evasion

Squatters' employed several evasion methods to prevent reallocation: dummying, peacocking and, forcing an auction. Dummying involved squatters contracting with agents to select land, usually employees and often under false names, and then sell it back to the squatter for a fee. Legislation permitted land to be transferred to another individual after one year. Morris and Ranken (1883) estimate approximately 60% of original claimants sold their land. Evidence suggests a large proportion of these transfers were from dummy selectors because once legislative amendment in 1880 prevented transfer before the expiration of three years residence, transfer numbers dropped from an average of 59% to less than 1% (Morris and Ranken, 1883). Numerous parliamentary enquiries suggest dummying was widespread employed extensively by squatters.<sup>40</sup> Peacocking was a practice employed by dummies to select vantage points from squatting properties to render intervening land useless (Roberts, 1924). This practice was helped by the information advantages held squatters and their employees regarding the quality of land available for selection. There are no statistical estimates available on the extent of peacocking, but

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<sup>40</sup> For anecdotal evidence refer to: Cunneen, Creed, Macleay and, Stewart (1872/3) and Cunneen, Creed, Macleay and, Stewart (1873/4).

Morris and Ranken (1883) note that by the 1880s on average, only 27% of selectors remained on the land. Peacocking may have contributed to the failure of *bona fide* selectors because it allowed squatters access to higher quality land and water supplies.

Squatters could force an auction for a particular parcel of land by using dummy or fictitious selectors to apply for multiple parcels and then forfeiting claims. An 1873 parliamentary committee report noted clearly: “the squatter makes it his business on land days to be about the land office all day long, so as to be ready to put in fictitious applications to clash with those of the selector” (Cunneen, et al., 1873/74: 937). Between 1862 and 1882, on average, 12% of selections were forfeited (Morris and Ranken, 1883). Once forfeited, legislation required land be put up for auction with a minimum upset price of £1/acre. Squatters had a distinct wealth advantage over *bona fide* selectors at auction for two reasons: 1) their approximately 25 years of uncontested occupation had made them relatively wealthy and; 2) legislation permitted them to raise capital by putting liens on their wool and using stock as security for mortgages.<sup>41</sup> As a result, at auctions, squatters had the capital needed to reach (and surpass) the minimum upset price, outbidding other claimants. However, in some cases auctions were not even contested for example, a parliamentary inquiry noted: “There is no lowest or highest bidder. There is only one bidder, the squatter. The pretence of competition is a mere sham” (Cunneen, et al., 1873/74: 956). Combined, the use of these three evasion methods suggests squatters allocated a proportion of their resources into non-productive pursuits. This would not only have reduced pastoral sector growth but, given the importance of the sector to NSW, there would be some negative effect on total GDP.

The statistical analysis aims to test these propositions by using data for 1862 to 1882 compiled from three sources: Morris and Ranken (1883), NSW Statistical Register (1862 to 1882) and, Haig (2002). Morris and Ranken (1883) record the number of selections, the number transferred and the number forfeited from 1862 to 1882. In line with anecdotal evidence from parliamentary inquiries it is assumed the bulk of selections transferred over this period were from dummies to squatters so this is a proxy measure of the extent of resources misallocated toward evasion in the form of dummifying. A further assumption employed here is that much of the land forfeited was done so by dummy (including fictitious) selectors to force an auction and this statistic is used as a proxy measure for the

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<sup>41</sup> ‘An Act to give a preferable Lien on Wool from season to season and make Mortgages of Sheep Cattle and Horses valid without delivery to the Mortgagee’ (7 Vic. No. 3 1843).

extent of resources misallocated toward this evasion method. For the analysis, the data for transferred and forfeited was converted into a percentage of the number of selections and then natural logs were calculated. These variables were labelled PERCTRANS and PERCFORF respectively. Using the natural log of percentages better reflects the intensity of these activities over the time period. It is expected that both of these variables will be negatively correlated with both pastoral sector growth and total GDP. The NSW Statistical Register provides data on the area of land in acres held under pastoral lease over the period and this variable was also converted to natural logs, labelled PL. A greater acreage of land devoted to pastoral uses will be positively related to pastoral sector growth and overall GDP. Haig (2002) provides estimates of pastoral sector growth (in £m) from 1862 to 1882 and NSW GDP growth over the same period and these were also converted to natural logs. These variables are the models dependent variables, labelled GPAST and GDP respectively. Further, it is assumed that the reallocation of resources toward evading land redistribution via dummyming and forfeiture will have a lagged effect on growth and this is reflected in the models. Using ordinary least squares regressions the following two models are estimated:

$$Gpast_t = \beta_1 perctransf_{t-1} + \beta_2 percforf_{t-1} + \beta_3 pl_{t-1} + \varepsilon \quad (1)$$

$$GDP_t = \beta_1 perctransf_{t-1} + \beta_2 percforf_{t-1} + \beta_3 pl_{t-1} + \varepsilon \quad (2)$$

The first model estimates the impact of evasion on pastoral sector growth while the second estimates the effects on total GDP. The results are presented in tables one and two respectively.<sup>42</sup> Table one confirms that the percentage of selections forfeited has the expected negative sign and is significant at the 1% level. The area of land held under pastoral lease has the expected sign and is significant at the 1% level. The percentage of selections transferred exerts a positive effect on pastoral sector growth and is significant at the 5% level. This is a surprising result given the assumption that the bulk of selections were transferred from dummies to squatters.

Table 1: Impacts of selection on pastoral sector growth

Variable	Coefficient	p-value	Predicted sign
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<sup>42</sup> The residuals of these regressions are stationary suggesting there is a long run cointegrating relationship.

PERCTRANS	0.188	0.0431**	-
PERCFORF	-0.404	0.0003***	-
PL	1.902	0.0000***	+
Adj. R <sup>2</sup>	0.83		
Augmented Dicky-Fuller	-3.19 (p-value: 0.0032) <sup>a</sup>		

\*\*\* Significant at the 1% level \*\* Significant at the 5% level \* Significant at the 10% level

<sup>a</sup> At the 99% level the null hypothesis that GDPpast has a unit root is rejected.

Nevertheless, this outcome may be because a greater number of transfers were from selectors to squatters. In turn, land moved back into pastoral production thereby increasing growth in that sector. Evidence suggests this is a plausible explanation because selectors faced several constraints on successful agricultural production on frontier lands including temporal and spatial rainfall variations, lack of transport and, acreage limitations. These factors, explained in more detail below, probably contributed to selectors being unable to generate positive returns that led them to transfer land back to squatters. Moreover, as noted, by the 1880s on average only 27% of selectors remained on the land suggesting this line of argument is reasonable given the regression results. The results therefore indicate squatters may have relied more heavily on forfeiture to force an auction rather than transfers.

On first consideration, forcing an auction could be considered higher cost than utilising a transfer from dummy selectors. However, by relying on this tactic squatters gained two advantages: 1) they could retain the more valuable parts of their land for example, blocks with water access, in the short run and; 2) they avoided the costs of contracting with a dummy. Uncertainty, brought about by the principal-agent problem, made the costs of contracting with a dummy selector high. The principal-agent problem was two-fold: 1) a dummy selector might have refused to transfer the land back to the squatter or; 2) a dummy may engage in hold-up by increasing the price they were willing to accept to undertake the land transfer. Coase (1960) himself notes that in the case of bargaining between two parties, what payment is made depends on the shrewdness of the bargainers themselves. Further, because dummifying was illegal a squatter had few legitimate means by which to enforce the original contracted price.<sup>43</sup> In turn, if squatters were attempting to avoid the uncertainty of dummifying forcing an auction was the least costly option. In fact, an 1873

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<sup>43</sup> The principal-agent problem may have been mitigated somewhat if an employee was the dummy selector. In this case, if the employee tried to engage in hold-up they risked forgoing future income by forfeiting their employment. However, this cost may have been outweighed by the possibility of selling the parcel to a third party who was willing to pay the increased price.

parliamentary Select Committee investigating the administration of selection itself noted squatters objective in filing for selection was “that the land may be declared forfeited, and the lessees will then buy up the land, although they are put to a total expense of 25 s[hillings] per acre instead of 20 s[hillings]” (Cunneen, et al., 1873/74: 927).<sup>44</sup>

Table 2: Impacts of selection on NSW GDP

Variable	Coefficient	p-value	Predicted sign
PERCTRANS	0.059	0.2198	-
PERCFORF	-0.208	0.0005***	-
PL	1.024	0.0000***	+
Adj. R <sup>2</sup>	0.85		
Augmented Dicky-Fuller	-2.48 (p-value: 0.0163) <sup>a</sup>		

\*\*\* Significant at the 1% level \*\* Significant at the 5% level \* Significant at the 10% level

<sup>a</sup> At the 95% level the null hypothesis that GDP has a unit root is rejected.

Table two illustrates that percentage of selections forfeited has the expected negative effect on GDP growth and is significant at the 1% level. In this specification of the model, the area of land held under pastoral lease retains the expected sign and is significant at the 1% level. The percentage of selections transferred remains positive for reasons explained above, but it is not significant in this model. The results of both models confirm that selection resulted in a misallocation of resources toward unproductive activities reducing both pastoral sector growth and overall GDP. The main cause of this reduction was the expenditure on forfeiture to force an auction. Franchise extension was the catalyst for the reform program as *de jure* political power was reallocated away from squatters. The dilution of squatters’ political power meant they were unable to prevent the introduction of selection. Squatters’ substantial wealth accrued over approximately 25 years of uncontested occupation of frontier lands allowed them to evade redistribution attempts (Alston, et al., 2009). Moreover, selection failed to reallocate colonial lands because it ignored the climatic realities of frontier land subject to long periods of drought and a lack of transport infrastructure to move agricultural output to market. Acreage restrictions simply added to these problems by preventing claims large enough to graze sheep, a drought tolerant animal.

#### 4.3 Climate, transport and, acreage limits

The mobility of sheep was a critical aspect of the pastoral industry because it provided some degree of insulation from the unpredictable climate. Further, squatters scattered their land

<sup>44</sup> Twenty shillings equals £1.

claims over large areas, averaging 34,000 acres, including summer and winter properties, to better protect themselves against drought by using alternative grazing locations as substitutes. For squatters to take advantage of sheep mobility they had to not only be able to move flocks at relatively low cost but also access water in alternate locations on their properties. There was some cost of moving sheep between places because travelling could decrease the quality of wool as well as cause the death of weaker animals. However, if faced with extensive drought in one location these costs were significantly smaller than if the entire flock died. In the case of severe, widespread drought slaughtering could be used to reduce animal numbers and therefore, competition for scarce resources. In the following periods natural increases in stock numbers could be relied upon to replenish a flock.

Access to water at alternative locations would only be possible if one or more of three conditions prevailed: 1) substantive groundwater was accessible; 2) large non-seasonal rivers were available or; 3) rainfall varied across holdings (Harris, 2010). Vast groundwater did exist in NSW, much of which is covered by the Great Artesian Basin with an estimated 65 billion megalitres of water (Australian Natural Resource Atlas, 2003). Nevertheless, until the 1880s pastoralists limited their use of this resource because it was a high cost, high risk investment (Butlin, 1964; Lloyd, 1988; Jarvis, 1952). Greater investment in locating potable groundwater was undertaken from the 1880s but anecdotal evidence suggests graziers found locating supplies suffered from significant uncertainty. An 1885 government report summed up the situation:

There are localities in which the existence of underground water has been discovered and turned to account by means of wells; but it has happened in many cases that, of two wells sunk within a few yards of each other, one, and the deeper of the two, has been perfectly dry, while the other has passed into a water-bearing drift...but in the absence of anything like determinate surface indications, the sinking of wells has been found to be a very costly, and for many an almost ruinous undertaking (Lyne, 1885: 29).

As a result, groundwater offered little in the way of a viable, low cost substitute for surface water. Moreover, no non-seasonal large rivers exist and Australian rivers are typically characterised by low flows and high variability (Harris, 2010). The coefficient variation of annual flow (CVR) is used to estimate flow variability in river systems (Australian Bureau of Statistics, 2003). Australia's CVR is an estimated 1.12 compared with a world average of 0.33 (Finlayson and McMahon, 1988). In turn, squatters did not have access to large, non-seasonal rivers.



Rainfall in Australia is spatially and temporally variable and therefore, rainfall patterns over squatters' holdings would have varied to some degree. The average correlation coefficient calculated using rainfall data for seven pairs of rainfall stations in NSW between 1878 and 1910 was estimated at 0.77 (Harris, 2010).<sup>45</sup> Despite the fact that the average correlation coefficient is high because it is less than one the assumption that rainfall did vary over squatter holdings is valid. This allowed them to take advantage of sheep mobility in order to combat drought. Rules regarding temporary occupation of a third-party's travelling stock on private claims supports the assertion that pastoralists made use of flock mobility as part of a climate risk management strategy. White (1992) notes mobility became the mechanism of drought risk management for squatters who routinely shifted stock to less affected areas. Further, Raby (cited in White, 1992: 71) argues the response to drought during the squatting period was "intermittent transhumant pastoralism."<sup>46</sup> A study by Anderson (1970: 90) supports these claims, concluding: "The situation of some establishments in a chain enjoying favourable seasons whilst others are subject to poor or disastrous...thus [provides] the scope for stock movements between establishments." Sheep mobility combined with large holdings where rainfall varied between locations made wool production a drought tolerant activity eminently suited to the vagaries of NSW frontier land in the nineteenth century. Conversely, permanent agriculture, with none of these mobility advantages and in the absence of artificial irrigation was high risk. Selection was aimed at settling small agricultural producers on much of the land claimed by pastoralists that was simply unsuited to this type of industry. In the absence of large non-seasonal rivers to substitute for lack of rainfall or artificial irrigation selectors, who were not farmers, could not adequately protect themselves against drought.

Even if the NSW climate had been more suitable to permanent agriculture when reform was introduced, transport infrastructure at the frontier was completely absent. Railways to the interior were being constructed from the 1860s but these took many years to be fully operational. The absence of transport services led to high costs of getting agricultural goods

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<sup>45</sup> Harris (2010) determined appropriate pairings given the extent of squatters' holdings by calculating a distance range in square kilometres (km<sup>2</sup>) using historical evidence. The lower bound was 64km<sup>2</sup>, equivalent to 25m<sup>2</sup>, the limitation imposed on squatters by the Occupation Act (1861). The upper bound, 138km<sup>2</sup>, was based on the average claim size as calculated by Roberts (1935). Rainfall stations that had complete records from the late nineteenth century were then obtained from the Australian Bureau of Meteorology ([www.bom.gov.au/climate/data](http://www.bom.gov.au/climate/data)) and paired if they fell within this distance range.

<sup>46</sup> Transhumance refers to the movement of stock between pastures that permits the maintenance of a larger population of livestock (Halstead, 1987).

to market for those at the frontier. For example, it cost four times as much to cart wheat from Goulburn to Sydney as it did to ship it from South America (Baker, 1958). Sheep could be walked to market and wool had a high value-to-weight ratio as well as the advantage of being able to be stored for long periods without rotting. Agricultural products had none of these benefits so that without low cost transport to market it could not be profitable.

Acreage limitations made it impossible for selectors to graze sufficient sheep to earn a positive return.<sup>47</sup> Nevertheless, even if 320 acres was adequate for wool production to be profitable, drought risk management strategies that squatters with vast holdings employed could not have been used unless a selector claimed multiple, linked parcels. In theory, this was possible because, like squatters, selectors had the opportunity to exploit legislative loopholes. Further, if a selector produced wool rather than agricultural crops they could also raise capital at lower interest rates by taking advantage of legislation permitting stock to be used as security.<sup>48</sup> However, the number of sheep on 320 acres would be much smaller than the average squatter with a run of 34,000 acres so that the capital able to be raised in the former case would also be less. The reality of the capital constrained selector meant this strategy was unable to be pursued effectively. Acreage limitations therefore, prevented selectors from undertaking successful wool production. Combined with the climatic vagaries of frontier lands and lack of transport land reform could not have been successful. As a result, the general outcome of the reform period was simply a reduction in short-run growth in the pastoral sector and total GDP as squatters engaged in non-productive evasion activities to avoid redistribution of their highly valued grazing land.

## **5. Conclusion**

Wool production was a critical sector for Australia's economic success in the nineteenth century. Grazing required large land claims in order to mitigate risk associated with spatial and temporal variations in rainfall that characterise much of the country. In NSW from the 1830s to 1861 squatters enjoyed sanctioned occupation of Crown lands at very low cost. However, once franchise was extended in 1858 agitation for land reform brought about by squatters insecure tenure led the colonial government to reallocate land away from squatters to small holders for the production of agricultural goods. The timeline of land reform introduction is best explained by the political demand hypothesis. The contention of

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<sup>47</sup> On average one sheep requires 3 acres of grazing land.

<sup>48</sup> Baker (1958) notes using stock as security for loans meant squatters could access capital at interest rates of 8 to 10% compared with farmers who had to pay anything up to 50% for a cash advance.

this paper was that this period of land reform led directly to a reduction in both short-run pastoral sector growth as well as total GDP because squatters engaged in non-productive evasion activities to retain their land holdings. The statistical analysis presented here confirms both sectoral and overall growth were negatively affected by the misallocation of resources resulting from evasion. Combined, climate risks, the lack of transport infrastructure and, acreage restrictions meant permanent agriculture on frontier lands could not be successful. As a result, wool production retained a comparative advantage over other forms of land use that was not recognised by those introducing reforms. In turn, not only was selection unsuccessful at settling the small holder on the land, it also resulted in a misallocation of resources away from productive activities. Reform was the direct result of franchise extension in the years preceding its introduction and, as has been demonstrated, it was that event and the subsequent land redistribution efforts that contributed directly to a reduction in both short-run pastoral sector growth and total GDP.

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