# Institutions, the land market and income distribution in New Zealand and Uruguay, 1870-1940

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## Introduction

New Zealand and Uruguay are two countries of new settlement that achieved a relatively high income per capita during the First Globalization era at the end of the Nineteenth Century, based on the high productivity of their agricultural sectors. However, in spite of many similarities (geography, climate, demography, and the insertion in the international economy as suppliers of agricultural goods, mainly to the British market), Uruguay lagged behind New Zealand in terms of income per capita and agrarian productivity since the first decades of the Twentieth Century. This paper discusses why Uruguay and New Zealand (NZ) diverged. It is argued that an institutional approach to the determinants of economic growth, focusing on property rights, land distribution and income distribution, may contribute to shed light on this question.

The interest in comparing Uruguay and New Zealand is not new. By the end of the seventies two Uruguayans historians pointed out that *"Uruguayans have been comparing themselves with New Zealand for at least seventy years"* (Barrán and Nahum, 1978, p. 191). Notwithstanding this long tradition, most comparative studies were produced in the 1960s and 1970s. Two strains of work can then be recognized. The first emerged from studies of the agrarian sector which emphasized the potential for the diffusion in Uruguay of the technology and productive practices that were successful in NZ. The second approach looked at NZ and Uruguay within the context of the countries of new settlement, comprising a more general comparison between the River Plate and the Australasian regions. These were countries characterized by the abundance of natural resources and by scarce population (formed mostly by descendents of European immigrants), which successfully participated in the expanding international economy as exporters of food and raw materials. By the last quarter of the XIXth century NZ and Uruguay had achieved levels of income per capita higher than many leading European countries. However, their

subsequent trajectories were rather different. Although it is true that both countries found increasing difficulties to sustain growth in the second half of XXth century, the case of Uruguay was particularly disappointing, ending this period with an income per capita which was 78% in 1870 and 59 % in 1940 of the income per capita of NZ. Uruguay fell behind, and why this happened is the main concern of this paper.

To address the abovementioned problem, we analyze the role of institutions in shaping the land rent in both economies and how this affected the pattern of specialization and growth. The paper is organized in four sections. Section I presents a model in which the land rental / wage ratio contributes to define international specialization and growth. Section II discusses the evolution of the rental to wages ratio between 1870-1940. This relation is used as a proxy for the evolution of income distribution in the two countries. Section III discusses the institutional framework defining property rights in the agrarian sector and the conditions that regulated access to land. Section IV addresses how total agricultural product was distributed between wages, the land rent and capitalist profits. It is argued that in Uruguay the land rent captured a larger part of the total agriculture product, thereby discouraging economic diversification and technological learning. Section V briefly presents some comparative evidence on structural change in the two economies. Finally, the main conclusions of the paper are briefly summarized.

## I. The Land Rent, Specialization and Economic Growth

### *a) Different approaches to growth and distribution*

There are different forms of approaching the influence of the rental-wage ratio on economic growth. One of them is classical and focuses on how investment in land and the land rent absorb an increasing part of the capitalist surplus, compromising the continuity of investment and capital accumulation. This view, which is based on Ricardo classical analysis of Nineteenth-Century England, has been updated and extended by Kurz and Salvadori (1995) and Foley and Michl (1999, chapter 11) within the context of modern portfolio theory. In a nutshell, in an economy in which a large proportion of total wealth is

in the form of land, total savings can be used either to accumulate capital or to invest in land. When this factor is still relatively abundant, investment in land is aimed at reaping the benefits that would come from increasing land prices. As land prices increase, capitalists consume a larger part of their wealth and this slows down capital accumulation. On the other hand, when land is not abundant and the frontier has already been occupied, rises in the land rent depress the profit rate and boost capitalist consumption up to the point at which capital accumulation virtually stops. In both cases resources are diverted from its alternative destination, namely capital accumulation. To the extent that the latter is the main source of growth and technical change, economies in which the land rent and/or opportunities for land speculation are higher will grow less.

A second approach is based on the idea that as the wage to rental ratio falls, there is a worsening of income distribution and this in turn reduces productivity growth in the long run. There has been a growing interest in the economic literature on the relationship between income distribution and growth. While in the past the literature suggested that there was a trade-off between these two variables, subsequently a new perspective emerged. In this perspective high levels of inequality may produce a political economy and a set of institutions that are inimical to growth. This view (which to a large extent formalizes an intuition already stressed by many development theorists) has encouraged new research in the topic. As part of these efforts, several works have sought to estimate the long run evolution of income distribution in NZ and Uruguay (Galt, 1985; Atkinson and Leigh, 2005; Bértola, 2005; Ardente, Díaz y Rossi, 2004) and have tried to link their empirical findings with the new growth literature.

A third approach, complementary to the previous ones, addresses the problem from yet another perspective, based on the Balance-of-Payments constraint on growth. This approach, which we will develop here, emphasizes the relation between factor prices, the pattern of specialization and economic growth.

*b) A Ricardian multigoods model with two factors*

We assume that the international economy produces a very large number of goods using two factors, land and labor, being the labor factor defined as a combination of human capital and raw labor (labor cum human capital). The model can be seen as a useful metaphor of an economy in its early stages of development, in which the agrarian sector still responds for a large part of total output. We rank goods from $z = 0$ to $z = 1$ as a monotonically increasing function of the labor productivity ($a$) to the land productivity ($b$) ratio ($a/b$) (hence $z = 0$ is the good with the lowest relative labor to land productivity). We also assume that this raking also reflects the technological intensity of the goods produced, which increases with $z$.

Goods will be produced where the cost of production is cheaper. If the international economy is formed by two countries, Home (a small country) and Foreign (the rest of the word), Home will specialize in those goods for which the following inequality holds:

$$(1)\quad \frac{w}{a}+\frac{r}{b}<\frac{w^*}{a^*}+\frac{r^*}{b^*}$$

Stars denote Foreign country variables, $w$ and $w^*$ are nominal wages denominated in the same currency (for simplicity the nominal exchange rate is fixed at the unity), $r$ and $r^*$ are nominal land rents, $a$ and $a^*$ are labor cum human capital productivities (in Home and Foreign, respectively), and $b$ and $b^*$ are land productivities. Equation (1) can be written (after some manipulation) as:

$$(2)\quad w+r\frac{a}{b}<\frac{a}{a^*}\left(w^*+r^*\frac{a^*}{b^*}\right)$$

To save notation, we will define $B\equiv(a/b)$, $B^*\equiv a^*/b^*$ and $A\equiv a/a^*$. Thus the condition for a good to be produced at Home is the following:

$$(3)\quad w+rB<A\left(w^*+r^*B^*\right)$$

Firstly we will discuss the model assuming that both countries are identical except in terms of their factor prices. This exercise aims just at looking in the simplest framework how the institutional variables affecting the land rent also affect the pattern of specialization and the rate of economic growth. Subsequently we will take factor prices as given while allowing for technological differences in the international economy.

*c) Identical technologies, different factor prices*

If labor and land productivities are the same in Home and Foreign (hence $B = B^*$, $A = 1$), equation (1) can be rearranged as follows:

$$(4)\quad \frac{w^*-w}{r-r^*} \geq \frac{a}{b} \equiv B(z)$$

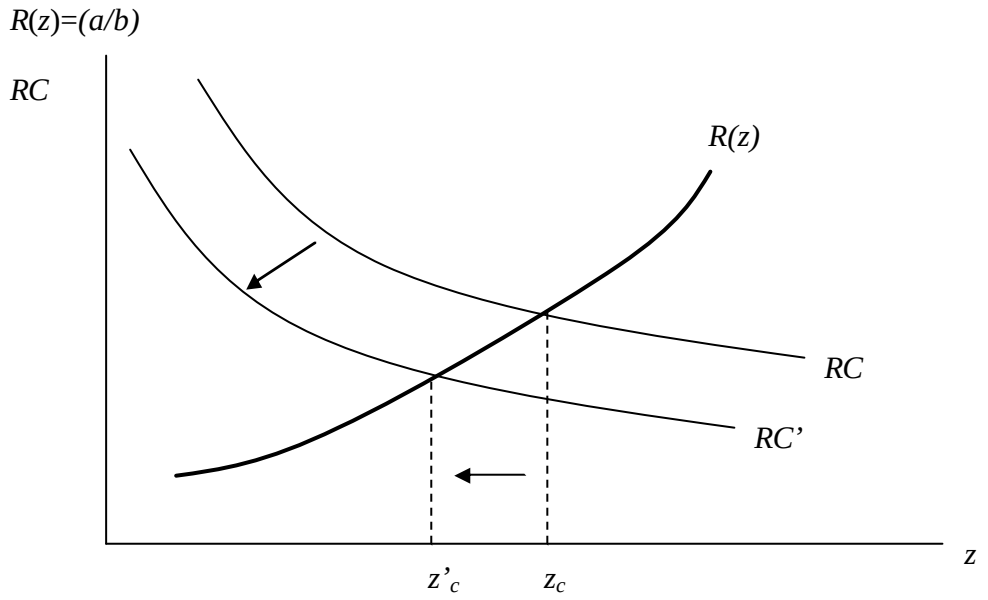
The first term in equation (4) gives the relative costs of labor and land in Foreign with respect to Home. We will call this curve the relative costs schedule, $RC \equiv (w^*-w)/(r-r^*)$. A rise in $RC$ means that either wages in Foreign (Home) has increased (decreased) or the land rent in Foreign (Home) has increased (decreased). Let us assume for the sake of simplicity that wages and the land rent are constants in the Foreign Country. How do $w$ and $r$ evolve? As $z$ increases and Home diversifies its economic structure, relative costs in Home increases ($RC$ falls). If the diversification is towards sectors that demand more labor cum human capital, along with the increase in $RC$ there is an increase in the wage to rental prices.

The combination of the relative costs schedule ($RC$) with the curve of relative productivities allows for finding the pattern of specialization in Home. As mentioned, we constructed the $B(z)$ curve in such a way that it increases with $z$ and hence $B_z > 0$, while $RC_z < 0$. Formally, the dynamics of $z$ (the number of goods produced in Home) is given by:

$$(5)\ \hat{z} = l\left(\frac{w^*-w}{r-r^*}-\frac{b}{a}\right)= l\left[RC(z)-B(z)\right], R_z < 0, B_z > 0$$

Equation (3), in which $l$ is a positive adjustment parameter, gives a stable equilibrium when $RC(z_e) = R(z_e)$, as it can be seen in figure 1.

**Figure 1: Relative Costs and Specialization: The Effect of an Increase in the Land Rent in Home**




The Home economy will competitively produce the interval of goods from $z = 0$ to $z = z_c$. The position of the *RC* schedule depends on both the institutions that regulate access to land (affecting the land rent) and the institutions that regulate the process of wage bargaining in the labor market. Our main concern is with the first type of institutions. If they are very restrictive, encouraging land speculation and higher land rents, we expect a lower *RC* schedule for all *z* values. An exogenous increase in *r* (at a given *z*) is represented in figure 1 in the form of a shift to the left of the *RC* schedule, from *RC* to *RC'*, thereby defining a new pattern of specialization in which Home produces solely up to the $z'_c$ good.

The increase in $r$ makes Home to specialize further on the goods in which land productivity is higher. As a result the economy becomes less diversified and part of its productive structure migrates towards Foreign. In addition, the upward shift of the *RC(z)* curve leads to a worsening of income distribution in Home, to the extent that the new equilibrium will be achieved with a lower wage to rental ratio in Home.

*d) Different technologies and rates of learning, and exogenous factor prices*

So far we have assumed that productivities were basically similar in Home and Foreign. We will now ease this assumption and allow for different technologies. We also assume that factor prices are constant and different in each country, defined by institutional variables exogenous to the model. Therefore, a loss of competitiveness in Home will give rise to changes in employment and not to changes in factor prices. It is straightforward that an exogenous increase in $r$ will lead ceteris paribus to a fall in the wage to rental ratio and to a worsening of income distribution in Home.

Differences in relative costs curves now depend on both factor prices and differences between Home and Foreign in technological capabilities. Taking equation (1) as a point of departure, a good $z$ will be produced in Home if:

(6) $w + rB(z) \leq A(z)\left[w^* + r^* B^*(z)\right]$

Where $A = (a/a^*)$, $B = a/b$, $B^* = (a^*/b^*)$, $A_z < 0$, $B_z > 0$ and $B^*_z > 0$. The pattern of specialization varies according with the evolution of relative cost curves in Home (*RCH*) and Foreign (*RCF*) as follows:

(7) $\hat{z} = l\left\{A\left[w^* + r^* B^*(z)\right] - \left[w + rB(z)\right]\right\} \equiv l\left(RCF(z) - RCH(z)\right)$

Our key assumption is that the productivity of the labor cum human capital factor increases at higher rates in Foreign than in Home and hence $A_z < 0$, while $B_z$ an $B_z$ are both positive (the labor to land productivity ratio increases with $z$, as already suggested). The relative

cost curve in Home (*RCH(z)*) has an unambiguously positive slope, which depends on both the land rent and $B_z$. On the other hand we do not know the slope of *RCF(z)*, which is given by the following equation:

$$(8)\quad \frac{d[RCF(z)]}{dz} = A_z[w^* + r^* B(z)] + r^* A(z) B_z$$

This slope will be negative if:

$$(9)\quad A_z w^* + r^*[A_z B^*(z) + B^*_z A(z)] < 0$$

A sufficient condition for a negative slope is the second term of the left hand side of equation (9) to be negative (since $A_z < 0$).[1] Such a condition can be stated as:

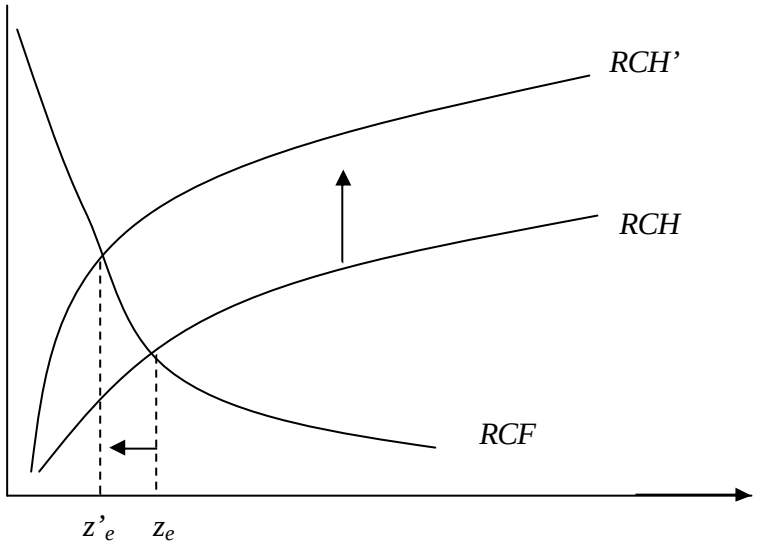
$$(10)\quad \frac{A_z}{A} + \frac{B_z}{B} < 0$$

Equation (10) requires that labor productivity in Home increases with $z$ at a lower rate than land productivity in Foreign. In other words, Foreign achieves higher rates of learning than Home in both factors as $z$ rises. Under this additional assumption the relative costs curves are drawn in figure 2.

As in the case of identical technologies, the pattern of specialization will be affected by changes in the institutional framework that defines wages and the land rent in both economies. Ceteris paribus, a higher land rent in Home raises the slope of the *RCH(z)* curve (as represented by the *RCH* and the *RCH'* curves in figure 2) and reduces the number $z_c$ of goods Home can competitively produce. We will argue in sections II-IV that the second case (*RCH'*) may be seen as representing the case of Uruguay, while the first one (*RCH*) represents the case of New Zealand.

[1] It is not necessary that equation (10) holds for having a meaningful equilibrium in the model. Certain combinatins of the structural parameters produce a nonlinear curve which nevertheless gives rise to a unique stable equilibrium.

**Figure 2: Relative Costs and Specialization: Different Technologies and Rates of Learning**




*e) Specialization and Growth*

How is the pattern of specialization related to economic growth? We initially take the case in which the representative consumer spends an equal and constant share of her total income in each good *z*. Consumers in Foreign therefore spend $Y^*z_c$ in goods produced in Home, while consumers in Home spend $Y(1-z_c)$ in goods produced in Foreign, where $Y$ and $Y^*$ are total nominal income in Home and Foreign, respectively. Current account equilibrium requires:

$$(11)\quad Y = \frac{z_e}{1-z_e} Y^*$$

Taking derivatives with respect to time, we get the relative rates of growth in Home and Foreign:

$$(12)\quad \hat{Y} - \hat{Y}^* = \frac{\hat{z}_e}{1 - z_e}$$

Hats on the variables represent proportional rates of growth. Equation (12) suggests that during the transitional dynamics, as $r$ increases and $z$ falls, Home will grow less than Foreign. On the other hand, from equation (11) it is clear that an increase in the land rent in Home implies in equilibrium a lower relative income in Home, but equal rates of economic growth in both countries.

Still, changes in $r$ may have permanent effect on growth rates if we consider the possibility that the income elasticities of the demand for exports and imports depend on $z$. In this case, demand functions are not homotetic. Balance-of-Payments-constrained growth models point out that relative rates of growth in the international economy depend on the ratio between the income elasticity of the demand for exports ($e$) and the income elasticity of the demand for imports ($p$) (see Rodríguez, 1977, Thirlwall, 1979and McCombie and Thirwall, 1994). If this ratio increases with the number of goods produced in Home, relative rates of growth will be given by:

$$(4)\quad \hat{Y} - \hat{Y}^* = \frac{e}{p} = CC(z)$$

Several empirical studies support the idea that a more diversified economic structure displays a higher elasticity of the demand for exports as compared to the elasticity of the demand for imports (see Cimoli, Porcile and Rovira, 2006; Bertola and Porcile, 2005; Hausman et al, 2005). The main argument is that sectors which are more intensive in technology (represented in the model by sectors with higher $z$) tend to have higher demand growth and higher rates of productivity growth. This in turn gives rise to increasing returns based on different types of learning (such as learning by doing, learning by exporting and learning by investing), reinforcing international competitiveness and economic growth.

*In sum*, since Ricardo the literature has emphasized the negative influence o the land rent on the incentives to invest in capital accumulation and learning. In this section we presented a model which includes a complementary dimension, namely how the land rent affects the capacity of the economy to diversify its economic structure. It is shown that different factor prices and technology lead to different patterns of specialization, productivity and economic growth. In particular, increases in the land rent compromise the degree of diversification of the economy, reducing the participation of sectors with higher labor cum human capital productivity and higher rates of demand growth. Moreover, we assumed that the level of land rent depends on the institutions that hinder or foster access to land. In the next section we discuss these institutional variables in the case of Uruguay and New Zealand and duscuss the evolution of income distribution in the agrarian sector.

## II. The Rental / Wage ratio in New Zealand and Uruguay: Comparing Long Run Trends

As noted by Williamson (2002) it is not surprising that the First Globalization era (1879-1914) brought about strong effects on income distribution in open economies integrated to world trade. The accelerated growth of the European population, migration from rural areas and the urbanization process, fostered a massive emigration of Europeans to many regions of the globe. The substantial increase in transports productivity in the last quarter of the XIXth century allowed for a dramatic fall in transportation costs. This fostered the integration to world markets of new regions supplying food and raw materials. Kenwood and Loughheed (1990) has pointed out that between 1824 and 1924 about 43.6 million of people emigrated from Europe to the temperate regions of new settlement, mainly America and Australasia. In the context of the First Globalization of capitalism, characterized by a substantial international mobility of factors, New Zealand (NZ) and Uruguay experienced accelerated population growth.

Between 1870 and 1940 the population of NZ increased from 291.000 to 1.633.645 inhabitants, to which immigration contributed with 413.847 people. In the same period Uruguay increased its population from 420.000 to 1.980.000 inhabitants, being the

contribution of immigration as about 297.185 people. Thus, the contribution of European immigration to total population represented on average in this period 14 % in Uruguay and 24.2 % in NZ (Álvarez, 2006). Rapid demographic growth had different effects on the occupation of land in NZ and Uruguay. NZ had not yet reached its frontiers in 1870, and thus migration allowed this country to expand the occupation of land between 1890 and 1911, from 8 to 17 millions of hectares, fostered by an intense process of distribution of land and subdivision of large properties. On the other hand, by 1870 Uruguay had no free land where to settle immigrants. Its 17 million of hectares were already in (largely) private and public hands, and this amount of land would remain constant thereafter.

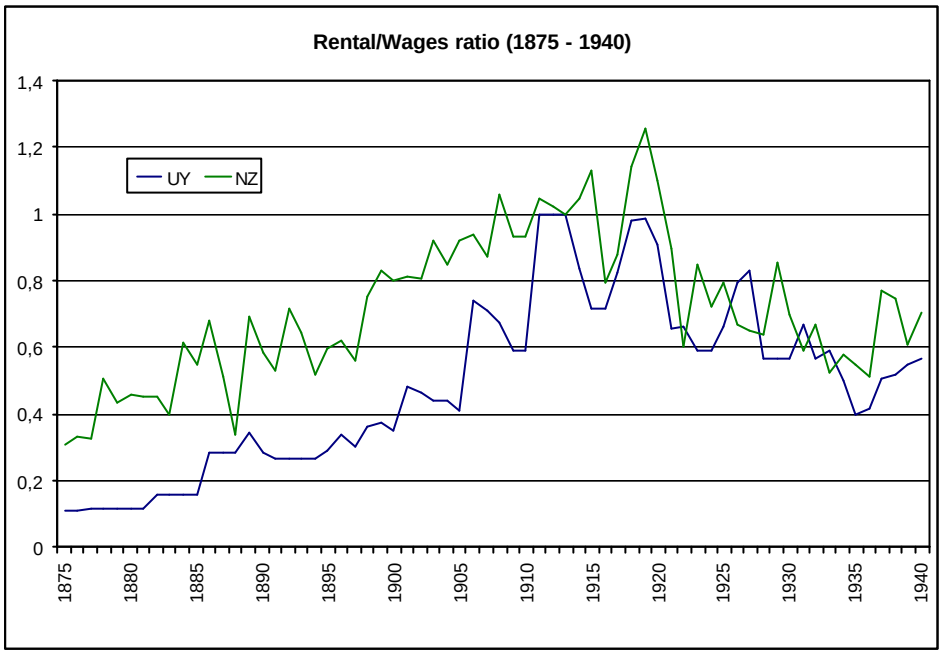
The statistical information for the XIXth century and the first decades of the XXth century requires to approaching the measurement of income distribution using proxies like the price of land to real wages ratio. Time series are available for wages and land prices both in NZ (estimated by Greasley and Oxley, 2004) and for Uruguay (wage estimates provided by Bértola et al, 1996, and land prices by the PHES Data Bank). This allows for a comparison of the evolution of the rental / wage ratio in both countries between 1875 and1945.

Graph 1 shows that the rental / wage ratio in NZ and Uruguay followed a fairly similar trend: it increased until the first decades of the XXth century and then declined since 1915. This trend probably expresses the impact of the higher prices for foodstuffs and raw materials in the international economy until 1915, which in turn affected land prices in the exporting countries. On the other hand, one should have expected a less marked deterioration of income distribution in NZ than in Uruguay, to the extent that the supply of land was more elastic in the former country. But the increase in the supply of land in NZ was compensated by the much higher inflow of migrants, who settled mainly in the rural areas.

Thus, trends in income distribution (approached by the evolution of the rental / wage ratio) do not point out significant differences between NZ and Uruguay. But looking solely at trends miss significant level differences in the distribution of the agriculture product and in the opportunities of having access to land by the population. This access had less barriers

and land was much less concentrated in NZ than in Uruguay. Therefore the evolution of the rental / wage ratio has different meanings in terms of income distribution in each country. The intense process of agrarian colonization in NZ reflected very different policies and institutions organizing the access to land as compared to Uruguay. This is the subject of the next section.

**Graph 1**




**Sources:**
New Zealand - Real Wages and Real Land Prices :Greasley and Oxley (2004: 27, 28);
Uruguay - Índice del precio real de la tierra estimado en base a índice nominal del precio de la tierra del Banco de Datos PHES e IPC de Bertola, Calicchio, Camou, Porcile (1996). Salario real, estimado en base a Bértola, Calicchio, Camou, Porcile (1998).

## III. Institutions, Property Rights and the Access to Land in NZ and Uruguay

A key tenet of the institutionalist approach is that institutions shape the structure of incentives that regulate the behavior of economic agents. Property rights are a key institution in this respect. The definition and enforcement of property rights are the necessary foundations for the processes of production, exchange and capital accumulation.

Institutions depend on a stable political-juridical system and on the capacity of the sate to enforce its norms. The distribution of political power interacts with institutions, determining the process of political and economic change and explaining the outcomes of social conflict. In this section we discuss how properties rights on land were defined, the evolution of the land and labor markets, and how institutions may have affected income distribution and investment decisions in NZ and Uruguay.

*New Zealand*

The NZ historiography has emphasized that the process of land distribution in this country was highly idiosyncratic, representing a factor that contributed to the emergence of an agrarian society with high welfare levels and democratic values. The distribution of land constituted a political and economic resource that the state used widely in the XIXth century with a view to securing the efficient use of land.

In Article II of the Waitangi Treaty of 1840 the UK acknowledged the individual and collective rights of the native maories over their territories. The Waitangi Treaty was a turning point in NZ economic history, as it represented the moment in which the maories ceded the sovereignty of their territory in exchange for autonomy and property rights. In general terms, the Treaty was systematically disrespected, giving rise to a massive transference of land to European colonizers.

Land distribution among the colonizers followed the British tradition of making explicit the Royal origin of property titles. Colonizers could not negotiate directly with the natives, but the intermediation of the Crown was required. The Colonial authorities and the representatives of the autonomous government created a juridical framework that regulated the expropriation of land from the maories and the granting of property titles to the European colonizers. Between 1840 and 1860 the process of land distribution accompanied the arrival of new immigrants, providing for the effective occupation and exploration of the allotments of land. The sate controlled land distribution rigorously in order to allow an ample sector of the population to have access to this critical asset. Public land was sold or

leased by the state for long periods under certain conditions, which included the effective exploration of the allotments, measures for soil conservation as well as the improvement of eroded lands (Prichard, 1970; Hawkes, 1985, 1999).

In the 1870s, in the context of the political and administrative reform that eliminated the provincial system and centralized the structure of the state, it was established the Torrens system that highly simplified the registration of property, facilitating the formation of a market for land. The extending of the territorial frontier since 1890, the active role of the state in distributing land and the positive effects of refrigeration (that encouraged the division of the large estates with a view to adopting more capita-intensive techniques), highly contributed to the transformation of the structure of land property in NZ.

The 1891 Land and Income Tax established a progressive tax on land property for three categories of tax-payers. Keall (2001) suggests that income from this tax represented in 1922 about 10 % of the total income of the state. The Lands for Settlement Act (1892, 1894) were key juridical pieces in the regulation of land distribution between 1892 and 1912. The first established the abolition of the system of selling land in installments and incorporated the leasing of public lands (including a purchase option up top a maximum of 8.000 hectares). The initial period of leasing was 10 years with a purchase option, but the leasing could be renovated for a maximum of 25 years, after which the land was occupied in perpetuity (900 years). By means of this mechanism the producer, as a matter of fact, was the owner of the land, while the state kept for itself the right to demand a rent, the effective occupation of the land and the improvement of the allotment.

The same Law granted to the government a budget of 50.000 sterling pounds per year to expropriate land and promote the division of the latifundia, increasing this amount to 250.000 sterling pounds in 1894. The estimation of the income received by the state out of the renting of public lands between 1982 and 1894 was high enough so as to pay for the costs of the expropriation of the large states in this period (as shown in Álvarez, 2005). The state bought and distributed lands, thereby contributing to the division of the latifundia, particularly in the Northern Island. The extension of latifundia fell from 3.2 million of

hectares in 1891 to 1.4 million in 1910, as a result of the influence of the public policy and of the advantages a more capital-intensive type of exploitation. In 1907 the National Endowment Act provided for an extension of the amount of public lands for leasing, with a view to financing the system of public education and supporting the old-age pension system adopted in 1894.

In sum, the NZ state was able to clearly establish property rights in the rural sector at the initial stages of colonization. It secured the extension of this property rights for the new waves of white colonizers, while at the same time kept a tight control over the destination and uses of public land. By doing so, it facilitated the access to land to significant parts of the population, effectively preventing the control of land by oligarchic groups. As it will be seen as follows, a rather different pattern characterized the institutions that emerged in the Uruguayan rural sector.

*Uruguay*

In 1830, when Uruguay adopted its first Constitution, public lands represented 80 % of the territory, the national frontiers had already been occupied and the population of the country only reached 70.000 inhabitants. The access of the population to land was a highly conflictive process that the state could not organize properly, being unable to resist the pressure of large landowners, the financial demands produced by frequent fiscal crises, and the military and political power of the *caudillos*, of paramount influence among the rural population that had neither formal property titles nor leasing contracts protecting their interests. The occupation of public land was such a chaotic process that at the beginning of the XXth Century, when the Batlle y Ordoñez administration sought to implement new policies for encouraging agricultural production, the amount of public lands was still unknown. It is likely that these lands did not represent at that time more than 15 % of the national territory, and the state received no income from them.

A clearly defined policy as regards public lands was absent in the nineteenth-century Uruguay. On the contrary, the state showed a major vulnerability in political and

institutional terms, marked by recurrent financial crisis and the lack of effective control of the national territory. Between 1830 and 1870, the successive governments that ruled the country adopted a policy of selling public land instead of offering this land for leasing contracts (see table 1). Between 1830 and 1836 the private property of land rose from 20 % to 42 % of total land. Laws in the years 1831, 1833 and 1835 promoted the private property of land and regulated the leasing of public lands, limiting the extension and the duration of leasing contracts. But the continuous political instability that haunted the Uruguayan history in that period prevented the consolidation and effective working of a market for factors of production before 1870. The sate lost its control over public lands, being unable to determine precisely their extension and localization in the national territory.

**Table 1**

| EVOLUTION OF THE PRIVATE AND PUBLIC PROPERTY OF THE LAND | | | | | | | |
|---|---|---|---|---|---|---|---|
| **NEW ZEALAND** | | | | **URUGUAY** | | | |
| | **Private property** | **Publica Lands** | **TOTAL** | | **Private property** | **Publica Lands** | **TOTAL** |
| años | % | % | | años | % | % | |
| 1881 | 67,8 | 32,2 | 100 | 1830 | 19,6 | 80,4 | 100 |
| 1891 | 64,0 | 36,0 | 100 | 1835 | 30,7 | 69,3 | 100 |
| 1913 | 56,4 | 43,6 | 100 | 1836 | 42,2 | 57,8 | 100 |
| 1929 | 58,6 | 41,4 | 100 | 1878 | 75,0 | 25,0 | 100 |
| 1930 | 58,5 | 41,5 | 100 | 1894 | 79,3 | 20,7 | 100 |
| 1940 | 60,7 | 39,3 | 100 | 1931 | 88,5 | 11,5 | 100 |
| ***Sources and comments*** | | | | | | | |

URUGUAY
Source: Own elaboration based on Acevedo (1933; Tomo 1: 504,505; Tomo 5: 71); Bertino and Bucheli, (2000; 33); Libro del Centenario (1925 ;99)
New Zealand, own elaboration based on Prichard (1970; 138, 334); The statesman's year-book (1930; 411), (1931; 411), (1932, 413), (1933; 416), (1935, 429), (1937, 439).

The consolidation of property rights in the rural sector would only be attained in the second half of the 1870s, in the context of the military regimes which begun with Colonel Latorre in March 1876. The emergence of new technologies in weaponry (the Mauser and Remington rifles), transportation (railways) and communication (telegraph) offered the government a decisive advantage over the rural *caudillos*. In addition, the delimitation of the rural properties was made possible by the diffusion of the iron fence (*alambramiento*) in the landscape of the pampas (Barran and Nahum, 1967, 1971; 1972; 1973; Jacob, 1969;

Millot y Bertino, 1996; Moraes, 2001; Vázquez, 1968). This consolidated the dominance of large estates in the rural sector, to which a substantial part of public lands was eventually incorporated.

## IV Functional income distribution in the agrarian sector

The literature suggests that the wage share is the key determinant of income distribution in modern industrial societies. As regards to distribution within the group of wage earners, differences in wages levels are related to human capital. Still, to be able to understand the evolution of income distribution in the long term, it is necessary to take into account the income derived from the property of land. In this paper we address income distribution form a macroeconomic perspective, estimating the reward of factors of production in the rural sector. This estimation is based on the following criteria:

i) The agrarian sector was the key driving force of economic growth during large part of the period under analysis;
ii) The functional distribution of income is a relevant variable affecting the productive performance of the sector;
iii) The asymmetric distribution of the property of assets (land) was the main source of inequality in NZ and Uruguay in the first decade of the XXth century;

We estimated the functional income distribution of the agrarian sector in NZ and Uruguay between 1890 and 1940. More specifically, it was estimated the agrarian product, wages and total rent paid in the agrarian sector in selected years: 1891, 1996, 1911 and 1936. In both cases the volume of profits was obtained as a residual (see tables 2 and 3).

The evolution of functional income distribution shows that total wages as a share of total product was stable in both countries, representing about 30 % in NZ and 22 % in Uruguay. The rent share fell from 68 % of the total agricultural product in 1892 to 37 % in 1940 in the case of Uruguay. In NZ the fall was less marked (from 26 % in 1891 to 22 % in 1936), but the participation of land rent always remained at much lower levels than in Uruguay.

The profit share was very low Uruguay in 1892 (10 %) as compared to NZ (41 %), but they converged to similar values by the end of the thirties (41 % in Uruguay (1940) and 45 % in NZ (1936))

**Table 2**

**Functional distribution of the incomes in the agrarian sector**

| NEW ZEALAND | | | | | | |
|---|---|---|---|---|---|---|
| | WAGE | Renta | | RENT | BENEFIT | AGRARIAN PRODUCT |
| | | Public | Private | | | |
| | 1 | 2 | 3 | 4 (2+3) | 5 | 6 |
| 1891 | 33,1 | 4,4 | 21,7 | 26,2 | 40,7 | 100 |
| 1896 | 31,9 | 3,5 | 15,6 | 19,1 | 48,9 | 100 |
| 1911 | 21,4 | 4,6 | 21,6 | 26,2 | 52,4 | 100 |
| 1936 | 33,1 | 4,5 | 17,8 | 22,3 | 44,7 | 100 |
| Average | **30** | ***4*** | ***19*** | **23** | **47** | **100** |
| ***Source:*** | | | | | | |

Sources: New Zealand: Briggs (2003); Bloomfield (1984); Greasley and Oxley (2003; 1998: 14, 33); Prichard (1970: 137, 138, 194, 335); Prichard (1970: 137, 138, 193, 194, 335); Hawke (1985: 102, 234, 235)

**Table 3**

| URUGUAY | | | | |
|---|---|---|---|---|
| | WAGE | RENT | BENEFIT | AGRARIAN PRODUCT |
| | 1 | 2 | 3 | 4 |
| 1892 | 22,0 | 67,7 | 10,3 | 100 |
| 1895 | 22,0 | 57,1 | 20,9 | 100 |
| 1908 | 20,3 | 43,6 | 36,1 | 100 |
| 1911 | 19,5 | 45,6 | 34,9 | 100 |
| 1916 | 24,6 | 32,8 | 42,6 | 100 |
| 1930 | 21,5 | 37,9 | 40,5 | 100 |
| 1937 | 22,8 | 30,6 | 46,5 | 100 |
| 1940 | 22,0 | 36,6 | 41,4 | 100 |
| Average | **22** | **44** | **34** | **100** |
| ***Source:*** | | | | |

Sources: Anuario Estadístico (1938), Censos Agropecuarios (1908, 1916, 1930, 1937 y 1943); Ardente, Díaz, Rossi (2004); Bértola (2005); Bértola, Calicchio, Camou, Porcile (1998); Barrán y Nahum, (s/f: 319; 1971: 637; 1972: 430; 1973, 467; 1977: 429); Balbis (fecha: 123); Reig – Vigorito (1986: 183, 184); BROU (1933: 53); Jacob (1981: 181)

The evolution of income distribution was more stable in NZ than in Uruguay. From the beginning of the period analyzed NZ offered a higher reward to labor and reproducible capital than Uruguay (these factors received about 70 % of total output in NZ, while Uruguay only approached this figure at the end of the period). In Uruguay the land rent absorbed 68 % of total output in 1891. On average, in Uruguay land renters captured 44 %, capitalists 34 % and workers 22 % of the total agricultural output. These figures were 23 %, 47 % and 30 %, respectively, in the case of NZ. Moreover, in NZ the agrarian rent was made of two parts, one accruing to the government (4 % of total output) and the other to private landowners (19 %). Public property of land was a key difference between NZ and Uruguay, since it crucially affected the availability of land to be distributed and allowed the NZ state to enjoy during most of the period a much more equilibrated fiscal situation. Another form of looking at this difference is by comparing the land rent derived from the private property of land in both countries: 44 % in Uruguay and 19 % in NZ.

In sum, in general terms income distribution in NZ favored the reward of labor and of productive investment over the land rent and land speculation. Investments in productivity growth were more attractive in NZ than in Uruguay, since in the latter country the simple possession of land allowed the owner to seize a significant part of the total agricultural output. As discussed in section I, this may have had a significant influence on the intensity of structural change in both regions, more favorable to activities with higher labor um human capital productivity. The diversification of the productive structure, in turn, may have foster higher rates of economic growth in NZ than in Uruguay. This will be the focus of the next section.

**V Structural Change in NZ and Uruguay**

Did the so different dynamics of land distribution, the rental to wage ratio and income distribution have a significant effect on the diversification of the economic structure of NZ and Uruguay? In this section we will produce some evidence in favor of this hypothesis.

Table 4 shows the participation of the manufacturing industry in the GDP of NZ and Uruguay. It can be seen that this participation in NZ was almost twice the participation in Uruguay by the mid-thirties. Table 4 also presents the economic structure from the standpoint of employment. A similar conclusion is obtained when one looks at the participation of manufacturing employment in total employment (as a percentage of the total working force).

**Table 4**

**Structural change in NZ and Uruguay: participation in GDP and total employment**

| Participation of the manufacturing industry in GDP | | | |
|---|---|---|---|
| (%) | | | |
| Nueva Zealand | | Uruguay | |
| 1870 | 12 | | |
| 1882 | 9 | | |
| 1900 | 16 | | |
| 1912 | 13 | 1913 | 11 |
| 1921 | 19 | | |
| 1930 | 25 | 1930 | 12 |
| 1938 | 21 | 1938 | 15 |

| Employment in the manufacturing sector | | | | | | | |
|---|---|---|---|---|---|---|---|
| Nueva Zealand | | | | Uruguay | | | |
| | Working population | Manufacturing Employment | % | | Working population | Manufacturing Employment | % |
| 1891 | 252.763 | 42.971 | 17 | | | | |
| 1901 | 340.230 | 61.002 | 18 | | | | |
| 1911 | 454.117 | 79.131 | 17 | 1908 | 429.522 | 36.877 | 8,6 |
| 1921 | 530.418 | 98.587 | 19 | | | | |
| | | | | 1930 | 696.000 | 54.143 | 7,8 |
| 1936 | 644.448 | 105.362 | 16 | 1936 | 759.873 | 65.962 | 8,7 |

Source: Elaborated from Prichard (1970), Briggs (2000) and Bértola (1991).

In addition, the differences in terms of the efforts at educating the labor force in the two countries are striking. These efforts were significantly higher in NZ than in Uruguay, as can be seen in table 6. At the beginning of the past century, the percentage of children attending the primary school in NZ was slightly higher than the average of the G-4 benchmark (United States, Germany, France and the UK), and more than twice this percentage in

Uruguay. The difference had decreased by the mid-thirties, but it still remained high. As regards the enrolment in secondary and university education, the patterns are the same: NZ is very close (or even overcomes) the G-4 benchmark, while Uruguay lagged behind.

**Table 5**

**Education in NZ, Uruguay and the G-4 (%)**

| | Primary School | | | Secondary School | | | University | | |
|---|---|---|---|---|---|---|---|---|---|
| | UY | NZ | Average G-4 | UY | NZ | Average G-4 | UY | NZ | Aver G-4 |
| 1901 | 30,20 | 88,24 | 80,00 | 1,00 | 1,66 | | 0,50 | 0,88 | 1,50 |
| 1911 | 33,90 | 94,42 | 80,70 | 1,10 | 4,67 | 4,50 | 0,90 | 1,98 | 1,90 |
| 1921 | 35,70 | 92,91 | 77,70 | 2,90 | 6,96 | 8,30 | 1,20 | 4,25 | 3,10 |
| 1936 | 48,70 | 91,29 | 79,40 | 5,30 | 13,86 | 15,30 | 1,40 | 3,88 | 4,10 |
| 1945 | 57,50 | 85,77 | | 10,00 | 19,56 | | 3,40 | 6,94 | 5,10 |

Source: Elaborated from Mitchell (1998) and Prichard (1970) and Bértola and Bertoni (2000). Percentages are calculated using the total population aged from 5 to 14 years old (primary school), from 10 to 19 years old (secondary school) and from 20 to 24 years old (university).

In sum, NZ shows a more significant diversification of its economic structure towards the manufacturing sector, and more vigorously developed its base of human capital than Uruguay. These trends interacted in a virtuous circle which fostered higher rates of growth in NZ.

## Conclusions

The paper discusses why the evolution of NZ and Uruguay was so different in the long run, in spite of the many similarities that both countries held by the end of the XIXth century. It is shown that there were key institutional differences between them as regards the distribution of land and the role the state played in promoting its effective occupation.

In Uruguay public lands were offered to a small group of agents endowed with political and military power, preventing new colonizers from having access to land. In the second half of the XIXth century there was no more frontier land in Uruguay, which conferred to private owners all the (economic ands political) advantages of the possession of a limited, critical

asset in a mostly agrarian economy. On the other hand, in NZ the state kept for itself a substantial part of the total available land. It allowed colonizers to exploit their own parcels in stable conditions, avoiding an excessive concentration of land property in private hands. From this emerged a democratic society in which economic opportunities were more equally distributed (among white colonizers), having this relevant implications from the perspective of the political economy and the incentives to invest.

In this paper we focused on a specific dimension of the institutional framework, namely property rights, income distribution in the agrarian economy and the burden of the land rent o the ability of the economy to compete in sectors more intensive in technology. It was shown that the land rent absorbed a much larger part of total output in Uruguay than in NZ and compromised its ability to diversify its economic structure. This represented a negative incentive to productivity growth and export diversification in Uruguay, contributing to explain the Uruguayan relative failure as compared to New Zealand.

## Appendix: Sources for the estimation of the Agricultural Product, Wages and Land Rent

*New Zealand*

The estimation of total wages in New Zealand was based on:

a) Time series for the wages of rural workers as provided by Briggs (2003) (who in turn used Bloomfield (1984) series computed from census data).
b) Wages of rural workers obtained from Greasley and Oxley (2003; 1998).

The estimation of total rents was based on:

a) Land prices taken from Prichard (1970) and Greasley and Oxley (2003). The series of the latter authors are deflated by the IPC series produced by Briggs (2003);
b) Total land occupied and exploited each year, identifying public and private lands in the total, as published by Prichard (1970).

The estimation of the agrarian product was drawn from Hawke (1985) and Prichard (1970).

*Uruguay*

The estimation of total wages was based on:

a) Series for rural workers elaborated on the basis of the *Estudio Económico y Social de la Agricultura en el Uruguay* (1967), *Anuario Estadístico* (19438), Censos Agropecuarios (1908, 1916, 1930, 1937 y 1943); and the series elaborated by Ardente, Díaz and Rossi (2004) and Bértola (2005)
b) Wages series of rural workers estimated by Bértola, Caliccio, Camou and Porcile (1996); Bértola (2005); Ardente, Díaz and Rossi (2004).

The estimation of the volume of the land rent was based on:

a) Time series data for land prices provided by the PHES data bank, elaborated from Barrán and Nahum (s/f, 319) for the period (1886-1895); Barrán and Nahum (1973) for the period 1896-1905; Barrán and Nahum (1977) for the period 1906-1913; Balbis for the period 1916 and 1930; Reig-Vigorito (1986) for the period 1931-40.
b) Prices for rural leasing elaborated on the basis of PHS databank; Buchelli, Moraes (2001); Barrán and Nahum (1972) for the years 19908-1911; BROU (1933) for the years 1916 and 1930; Jacob for the year 1940.

The estimation of the agrarian output was based on Bértola et al (1998); Bertino et al (1999) and Bértola 2005.

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