

# *Grabbed land: the socio-demographic determinants*

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## **Introduction**

Generally speaking, the term land grabbing indicates large-scale land acquisitions by countries and corporations, that cause a gradual concentration of huge areas of agricultural territories, located mainly in developing countries, but owned and managed by just a handful of public or private entities. Land grabbing is an ancient process that is currently widening its net and changing its shape. Recent literature points out that its new form began in the second half of the nineties, and rapidly grew between 2008 and 2009. Its increase can primarily be attributed to the growth in food prices in the two previous years (2007 to 2008), which led investors and governments, from some of the richest countries in the world, to take an active interest in agriculture and to seek new investment opportunities in “safe havens” (Rulli, Saviori, D’Odorico, 2013). Moreover, the expected increase of the world population (from 7 billion in 2011 to 9 billion by 2050; UN, 2013) is indicated as one of the main causes of the rise in the demand for food, as well as natural and agricultural resources. This is therefore considered one of the reasons why countries that depend on imports to ensure survival outsource their food production. Added to this is the raise in production of non-edible agricultural products for biofuel, which has led to a growth in land grabbing with the aim of increasing production and block any price raises within the buying countries (Friis, Grenberg, 2010).

The global extension of land grabbing, only considering transnational agreements, in June 2014 has reached 36 million hectares, equalling 4 times Portugal’s land surface.

Scholars have only recently given attention to this phenomenon and have defined it as an alternative form of colonialism or an opportunity for the development of the selling country (Livi Bacci, 2013; Petras, 2008). Recent studies reveal that current agreements of sale and acquisition of land are realised using new types of deeds. If they respect the laws and are managed responsibly, they may be useful in the development of poor countries. Unfortunately, in some cases contracts are not transparent, nor grounded on prior and informed consent of landowner, and nor based on a careful evaluation of social, economic and environmental impact. The local people often don’t receive any benefit and sometimes find themselves evicted from their homes and lands.

In this perspective, the aim of our research is to identify some of the main determinants of land grabbing, especially with regard to socio-demographic factors, in addition to political, environmental and economic ones, in the light of the recent literature on the topic. To this purpose, we analyze available data collected by Land Matrix and referred to transnational contracts signed in 173 countries up to March 2014. Given that the relevance of the consequence of the phenomenon will be evident mainly in the countries that yield lands, we will concentrate our attention on the determinant acting in the latter.

## Theoretical focus

Previous research on land grabbing suggest that the “global land rush” involves a large number of target countries with very different investment conditions, as well as a great variety of actors with different investment reasons.

International literature focused mainly on the impact of land grabbing on the countries that cede land; in the rare cases in which the determinants of the phenomenon have been observed, they have been considered mainly with reference to the countries that acquire land. Little attention has so far dedicated on the reasons of the “risk” to cede land.

The scarce research available on this issue however stressed that the magnitude and distribution of capital flows to recipient countries are determined by pull and push factors, in addition to country-specific characteristics, such as cultural and geographical proximity or past bilateral ties (Arezki, Deininger, Selod, 2013). It was firstly stressed that many countries see the chance of give up suitable land that is either not cultivated or produces well below its potential as an opportunity to gain access to better technology and more jobs for poor farmers and other rural citizens (Davis, D’Odorico, Rulli, 2014). At the same time, a number of countries are enthusiastically seeking to attract such investments to exploit “surplus” land that is allegedly unused or underutilized (Hallam, 2009).

Some Authors showed that countries that give up parts of their territory (usually for very low prices) are often not so interested in earning money, but rather to attract stronger currencies, often through loans. Their aim is to reinvest in the market of land grabbing and enter international financial markets, even if with enormous weakness and sometimes little economic benefit. In fact, some countries simultaneously give up land and acquire it (Zagema, 2011, International Bank for Reconstruction and Development - World Bank, 2010; Liberti 2011).

With reference to the characteristics of the countries that “risk” to cede lands, it was found that they typically have lower levels of development and economies heavily reliant on the agricultural sector, in terms of both employment and value of domestic product. Moreover, these countries are among the poorest, are scantily integrated into the world economy, and have a high incidence of hunger (Friis, Reenberg, 2010). In his perspective, host country benefits are mainly seen in the form of investor commitments on investment levels, employment creation and infrastructure development (Cotula et. al., 2009). Also agro-ecological characteristics and resource endowments are considered to be important factors in determining the willingness to sell or to rent out land. Irrigated areas are mostly being targeted by investors (Anseeuw et al., 2012).

Some researchers demonstrated that political and institutional factors also motivate or facilitate the land investment. Counter-intuitively, it was found that countries with weak tenure security and governance have been most attractive for investors. Thus, although weak governance may deter investments in absolute terms, land grabbing is likely to be more spread in countries with fragile governance because investors demand ways of investing that provide them relatively high levels of protection. Furthermore, land demand is higher where security of property and of existing occupants remain weak (Arezki, Deininger, Selod, 2013). In other words, countries preferred by investors are those that combine a strong general institutional framework - that protects their investment and allows them to smoothly operate their business - with low land tenure security - that gives them easy and possibly cheap access to land (Anseeuw et al., 2012). Also, it was verified that in many cases land transactions take place in countries where information on land deals and their rural economic impacts suffers from a lack of transparency and without informed consent from the prior land users (Cotula, 2011; Davis, D’Odorico, Rulli, 2014). These investments in agriculture often occur without the ‘informed consent’ of current land users, with no consideration of the societal and environmental impacts of the conversion from subsistence farming to large scale commercial agriculture, and without ensuring that the profits are shared with the local communities (International Land Coalition, 2011).

Lastly, demographic aspects have been so far quite neglected by international researchers: the few

analyses that consider this factor considered, at the best of our knowledge, the population density of the countries that cede land. Indeed, it was noted that, in terms of population density, large-scale land sold and rented fall into many different classes: large part of deals affects areas with population densities of less than 25 persons per km<sup>2</sup>. Conversely – and probably more importantly – more than 60% of all land deals target areas with population densities of more than 25 persons per km<sup>2</sup> (Anseeuw et al., 2012).

## Data and research methods

The used data were extracted from the online Land Matrix database, that is considered the most complete and consistent source on this topic. This database is a product of Land Matrix Global Observatory, an international independent organisation that promotes transparency and accountability in decisions and investments regarding the buying and selling of land on a large-scale. The Land Matrix database affords an assortment of information to help analyse the phenomenon, but intrinsic limitations remain due to the lack of transparency of the transactions, or of their public communication; as a consequence the phenomenon may, in some cases, be underestimated.

Our analysis includes contracts registered up to March 2014, both orally and written. Since the legislation in some countries does not allow the sale of public land, we had to consider both sale and rental agreements. In the end, we examined transnational contracts signed in 173 countries worldwide. We used both international and independent organisations' sources to identify the most suitable indicators of these dimensions. The choice of indicators has also been influenced by the availability of updated information for the observed countries.

We firstly perform a descriptive analysis considering the ratio between the sum of hectares sold or rented with all contracts signed by each country, and its total agricultural area. Subsequently, we identify and build the most suitable and appropriate variables for representing each dimension, quoted by the previous literature, as determinants on land grabbing. We apply a factor analysis to reduce the number of variables considered in a lower number of factors, and, lastly, we implement an ordinal regression model to define the main determinants of the risk to yield land by each observed country.

## Main findings

Performed descriptive analysis can be summarized in fig. 1. The map represents the “sold land” standardized variable, as to say the ratio of the sum of hectares sold or rented in all contracts signed by each country, to its total agricultural area. This variable has been divided into seven intervals: the first one includes all countries that haven't sold any land and the subsequent ones have been created on the basis of the extension of the sold area.

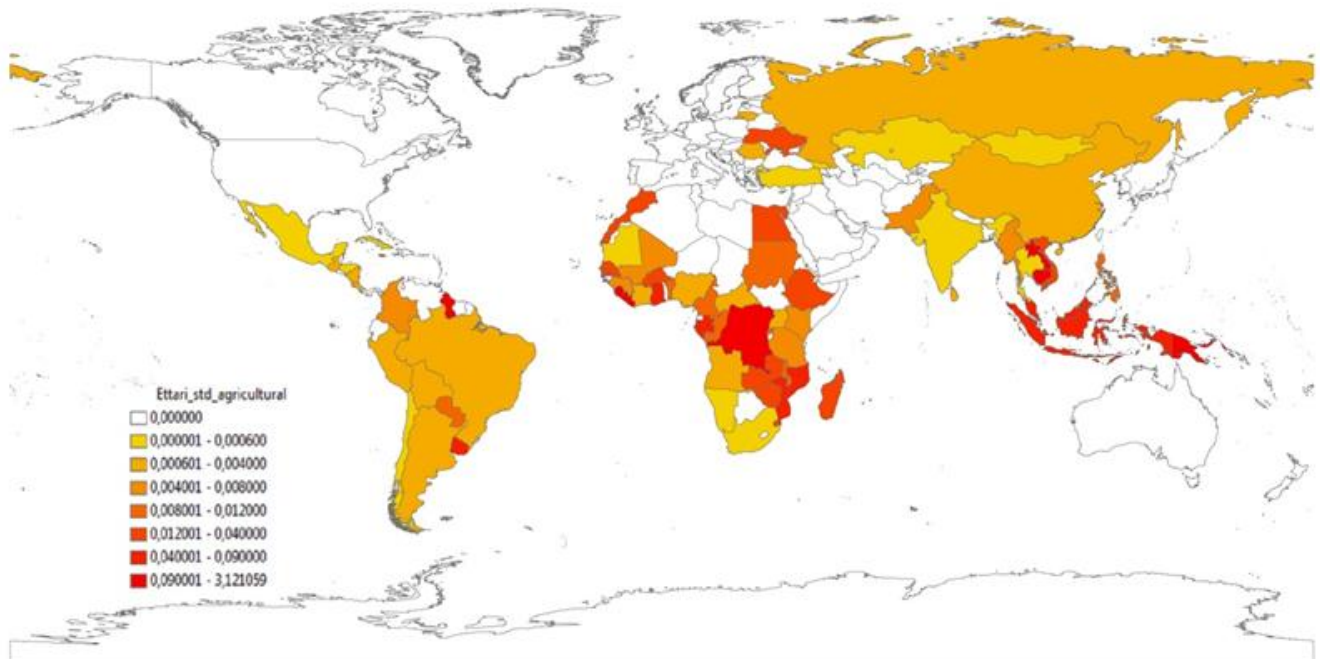
The sold lands are mainly concentrated in Africa (where the lands that have not been sold are mostly desert) and in Oceania. The other areas involved, although with lower extension, are in Asia and in Central and South America. Therefore, the phenomenon concerns the countries of the “south” of the world. Countries that have sold most land are: Liberia, Guyana, Sierra Leone, Papua New Guinea, Timor Lest.

The leading buyers of land are all rich countries: United Kingdom, United States and United Arab Emirates. Among them, there are also many European, Asian (including China), and South American countries.

In a second step, we applied the factor analysis to reduce a wide number of variables that are considered as determinant of land grabbing, in a lower number of factors (tab. 1). Most of variables represent the aspects commonly considered related to land grabbing in previous studies. We also

added some variables representing the phase of the demographic and social development process of each country, aiming to highlight their effects. These variables are: child mortality rate, percentage of population living in urban areas, Human Development Index, and percentage of students who complete primary school (as to say the ratio between the total number of students in the last grade of primary school, and the total number of children of official graduation age). Then we included the political aspects: democracy index, economic freedom index and control of press index. The latter is an indicator that varies between 0 and 100, with 0 being the best score and 100 the worst and is based on a questionnaire filled out by journalists, researchers, jurists and human rights activists, asking questions about pluralism, independence of the media, legislation, and transparency of institutions that provide news and information. The environmental aspects consist of: percentage of agricultural areas, percentage of protected terrestrial areas, and indicator of bio-capacity of farmlands. The bio-capacity represents the ability of ecosystems to produce useful biological materials and to absorb waste, using dominant agricultural practices and prevailing technology. The useful biological material is the one used by the economic system and can vary in time.

Figure 1 - Countries by hectares of sold land\* through all contracts



\* Standardized by dividing it by the agricultural area of the country itself  
 Source: our elaboration on Land Matrix data

The factor analysis identified three components. The first indicates the level of demographic transition and social development, obviously opposed to the child mortality rate to the rate of urbanisation, the human development index and the proportion of children who complete primary education. The second factor represents the level of democracy and the index of economic freedom, set against the degree of control of the press. The third factor represents the percentage of agricultural land and the indicator of bio-capacity versus the share of protected lands.

Aiming to define some of the main determinants of the risk to yield land by the countries, we built an ordinal regression model, where the dependent variable was previously described, as to say the ratio between the sum of hectares sold or rented with all contracts signed by each country, and its total agricultural area (tab 2).

Table 1 - Factor analysis: results of the Rotated Factorial Matrix (Varimax method)

| Variables                            | Factors |         |         |
|--------------------------------------|---------|---------|---------|
|                                      | 1       | 2       | 3       |
| M05_09                               | - 0.922 | - 0.190 | 0.004   |
| Pua_09                               | 0.667   | 0.259   | - 0.061 |
| Hdi_09                               | 0.922   | 0.357   | - 0.044 |
| Prim_comp_rate_99_09                 | 0.848   | 0.110   | 0.001   |
| Democracy_index2008                  | 0.408   | 0.765   | - 0.004 |
| Economic_freedom_index2008           | 0.427   | 0.682   | - 0.015 |
| Press_control_index2008              | - 0.063 | - 0.862 | 0.104   |
| Agricultural_area_perc2009           | - 0.211 | 0.041   | 0.527   |
| Protected_terrestrial_areas_perc2009 | - 0.050 | 0.168   | - 0.440 |
| Cropland2010                         | 0.211   | 0.218   | 0.276   |

Keiser Meyer Olkin measure =0.799; Chi square test = 807.057; Barlett test = 45; Sig. = 0.000

Source: our elaboration on Land Matrix data

As independent variables are included in the model first of all the three components identified through the factor analysis. In addition, we included a covariate that takes the value of 1 if the country is a buyer within the land grabbing market and 0 if not. In this way we would investigate if to cede land is a means to gain access to the international financial market, as showed by previous studies. Lastly, we added to them, according to the relevant literature, and as control variables, the gross national product per capita, the density of population and the precipitation level.

Table 2 - Ordinal regression model: results

| Variables                           | Estimates   | Sig. |
|-------------------------------------|-------------|------|
| Demographic transition factor       | -0.892      | **   |
| Political factor                    | -0.450      | *    |
| Quality of area factor              | 0.375       |      |
| Being buyer (not <i>versus</i> yes) | -1.440      | *    |
| GDP per capita                      | -3.970 E-12 | *    |
| Population density                  | -0.375      |      |
| Precipitation level                 | 0.001       | **   |

\*\* p< 0,01; \* p< 0,05

Pseudo R-square: Cox & Snell = 0.373; Nagelkerke = 0.392; Mc Fadden = 0.154

Source: our elaboration on Land Matrix data

The application of the model shows firstly that the countries most “backward” in the process of demographic and social development are the most “at risk” to give up their lands. This adds an

interesting element in the identification of the determinants of land grabbing. A similar, but less significant effect, is played by the level of political democracy and freedom, that indicates that the countries the countries having the lowest levels of democratic progress are also the most prone to cede their land. The third factor, regarding the quality of the land, is not significant. The regression results indicate also that the determinant with the strongest effect is being a buyer in the land market, that increase the probability to sell soil, supporting the hypothesis that countries give up land aiming to enter in the international financial markets. The other significant variables, both inversely correlated with the dependent one, are the degree of precipitation, and, as expected, the gross domestic product. Lastly, the density of the population, although not reaching statistical significance, is related to the dependent variable by a negative relationship.

## Provisional conclusion

In conclusion, our analysis shows, in addition to the variables identified by the literature, the importance of the demographic dimension when exploring the land grabbing phenomenon. We have to recall also that there are many limits in data availability. They lie overall on the lack of objective and complete data, that can produce an underestimation of the phenomenon, and on the lack of specific information (original land ownership, use of land, stage of the project, and so on) that can cause possible erroneous analyses and incorrect results. Therefore, it is important to highlight that this phenomenon could be better explored only if these limits will be removed.

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