Extended Abstract
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Paper/Poster Title	Comparative analysis of revenue and land prices between organic and conventional farming

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Abstract	***200 words max***

France, the largest European country in terms of agricultural production, must become a major player in this agricultural transition. However, French farmers are hesitant to convert because of the uncertainty of whether organic farming will improve their income or not. We will conduct a double comparative analysis between the differences in income (on 103,000 observations distributed between 2004-2019) and the differences in the value of agricultural land (33,000 transactions between 2015-2020) between organic and conventional farmers.

The study shows that the current monetary incentives for conversion are very low. Panel data modelling using the Breusch-Mizon-Schmidt estimator shows no difference in income between organic and conventional farmers, despite higher subsidies and lower costs for organic farmers. Furthermore, Using an OLS regression including Ricardian theory and residential rent determinants, it is demonstrated that organic land is sold for the same price as conventional land. This result is confirmed by the Spatial Matching method, showing that organic practice does not influence the price of land. This article shows that it is necessary to consider whether the land is organic or not when selling agricultural land. This differentiation on the market can help to integrate environmental externalities (better soil quality) into the land value . This increasing price will encourage land conversion through an anticipated increase in farmers' income.

Keywords	Organic farming, Land price, Organic premium
JEL Code	C23, Q15, R14

Introduction	***100 – 250 words***

Conventional farmers are hesitant to convert to organic farming, mainly because they are afraid of losing revenue. The article aims to conduct a comparative analysis of economic performance (income, subsidies, yield, cost) between farmers as the results of Crowder and Reganolds (2015) are not replicable to the French case.

The second comparative analysis will focus on the sale price of land according to practice. From the joint processing of two graphical databases, we obtain a database of 33,000 transactions, including 2,100 organic land transactions at the time of sale during 2015-2020. We explain the formation of land prices on the basis of Ricardian rent theory, but also on the basis of residential rent (Cavailhès and Wavresky, 2003). The first refers to the influence of land productivity on the price, and the second shows

the implications of selling land for residential use (10 to 50 times higher than agricultural use, in France, Levesque 2007).

Methodology	***100 – 250 words***

Comparative economic performance study :

Farm accountancy data network database (2004-2019), i.e. 102,000 observations in unbalanced panel data. Use of Hausmann-Taylor, Ameniya-MaCurdy and Breusch-Mizon-Schmidt estimators, in order to take into account unobservable individual heterogeneity and time-invariant variables.

Comparative land price study:

OLS regression in which we explain the selling price of land per ha with respect to the farmer's practice, productivity determinants (soil characteristics, weather) and residential rent determinants (position with respect to an business center, population growth).

In order to avoid problems of multicollinearity between the organic practice and the Ricardian determinants (Nguyen-Van et al., 2021), we perform spatial matching and spatial year matching. The principle of this method is to associate each sold organic transaction with the closest conventional transaction geographically. This method allows the two matched observations to vary only with respect to the treatment (being farmed organically or conventionally).

Results	***100 – 250 words***

Comparative economic performance study:

It is found that organic farmers have lower total costs than conventional farmers, mainly due to the reduced purchase of chemical inputs, compensating for the increased labour required in organic farming. However, there is no difference in income between the two types of farmers. Thus the significantly higher subsidies received by organic farmers are essential.
Comparative study of land prices:

The OLS regression shows that there is no difference in price between conventional and organic land (with a margin of error of 1%). This result is confirmed with the analysis after matching by geographical proximity between organic and conventional land.
We also find a significant effect of residential rent on land prices. Indeed, it appears that an increase in summer temperatures increases the price of land. However, an increase in temperature has a negative effect on land productivity (Mendelsohn et al,

1994). This positive effect can be explained by the positive impact of summer temperatures on the price of housing (Grout, 2016), the impact of the residential rent being greater than that of the Ricardian rent.

Discussion and Conclusion	***100 – 250 words***

In conclusion, it appears that the situation between organic and conventional farmers is more or less identical. Indeed, the land is valued in the same way and farmers' incomes are similar. The current economic incentive to convert to organic farming is therefore weak or non-existent.

If the European Union wants to reach its objectives, i.e. 25% of land to be organic by 2030, the subsidy gap between organic and conventional farmers needs to be increased in order to increase the difference in income between the two and thus encourage conversion.

Another solution would be to set up a land market exclusively for organic farmland (currently sold on the same market as conventional land). Ideally, prices on this new market should be higher than prices for conventional land, thus improving the economic situation of organic farmers by sending a signal to conventional farmers. Indeed, non-converting farmers will be more motivated to convert if they see the possibility of increasing the value of their land by selling organic land. Moreover, this premium price applied to organic land seems justifiable insofar as the environmental quality of organic land is superior to that of conventional land (Sautereau and Benoit2016), notably because of the greater quantity of ecosystem services.