# Making Hay While the Sun Shines? Climate Adaptation and the French Demographic Transition: 1851-1911

Eoin Dignam *

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*London School of Economics. Email: e.a.dignam@lse.ac.uk.

This paper focuses on France from 1851 to 1911. In this paper I provide a model to understand the relationship between climate change and fertility. As temperatures rise, damages to land-intensive pasture are greater than damages to labour-intensive tillage. As a result, demand for labour in agriculture rises along with agricultural wages. Because human capital is generally lower in the agricultural sector than in manufacturing, the returns from human capital accumulation are also lowered. As a result, parents choose to have a higher number of lower educated children - in line with the so-called quantity-quality trade-off (Becker & Lewis, 1973). I follow this model to assess the impact of climate shifts on fertility decisions in 19th century France.

In order to test this model, I use data from France's départements, administrative districts that were drawn after the French Revolution. These départements differ greatly in their climates and geography. France consists of a number of climate zones with distinct characteristics according to the Koppen-Geiger classifications (Peel, Finlayson, & McMahon, 2007). My main climate variables of interest consist of summer temperature and precipitation averages for each département. In order to test the mechanisms at play, I also consider data on school enrolment, agriculture outcomes, and the share of employment in industry.

My main results indicate that higher summer temperatures increase fertility in the following year by around 9 percent. This holds while controlling for a number of important determinants of fertility. I also find that higher temperatures, in line with my theoretical model, increase the amount of land devoted to cereal farming and reduce that of pastoral farming, increase agricultural wages, reduce school enrolment, and reduce employment in the industrial sector. These findings suggest that one of the mechanisms explaining the temperature-fertility relationship is through the quantity-quality trade-off.

# References

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