

Climate and Economic Development: Further Evidence in Support of “The Tropical Effect”

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Abstract

Economists have historically ignored the relationship between geographical factors and economic growth and development. However researchers in other fields, historians and biologists, have provided detailed and plausible explanations of the connection between geography/climate and economic progress. Recently, economists have also begun to examine the existence of this relationship by studying the effects of climate on agricultural and labour productivity, for example. Using both cross-sectional and panel data sets, studies have been conducted on the specific aspects of climate and weather that may influence economic outcomes. This paper adds to that literature by focusing in particular on the effects of climate as it pertains to temperature and rainfall, using ground station data from the Global Historical Climatology Network over a period of 30 years. The study finds empirical evidence suggesting that higher temperatures are negatively associated with the level of GDP per capita of a country. In addition, countries that have larger ranges of temperature extremes also have higher incomes. The relationship between temperature and GDP per capita growth rates turns out to be more complex but again the evidence indicates that temperature matters. Lastly, the paper discusses evidence that points to the importance of rainfall and stresses the need for further verification to pinpoint the relationship.

Keywords: Economic Growth, Economic Development, Climate, Geography, Empirical, Cross-Country

1. Introduction

The relationship between geographical factors and economic development has historically been ignored by economists. However, views about the correlation between temperature and climate have been expressed in works dating as far back as Montesquieu (1748) and Huntington (1915).

This paper examines specific features of climate, namely temperature and rainfall, as possible factors that might influence productivity and hence income per capita across countries. Building on previous studies by economists and ecologists who have studied the impact of climate on agricultural productivity and disease burden, this investigation seeks to pinpoint the characteristics of climate that are important in establishing that link.

Earlier works on this topic include Kamarck (1973) and later, economic historian Landes (1998). Researchers in other fields, Crosby (1986) and Diamond (1997), a historian and a biologist respectively, have provided detailed and plausible explanations of the connection between geographical, climatic and economic factors.

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