Modernization, Climate Variability and Vulnerability to Famines

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Abstract

From 1876 to 1879 and from 1896 to 1902 due to absence of monsoons related to El Niño events, India experienced the two worst famines of all times. Karl Polanyi explained the millions of fatalities as a consequence of the introduction of market prices by British colonial institutions, in areas where traditional agricultural societies had kept significant stocks in rainy seasons in order to compensate for bad harvest of others. In recent literature (e.g. Amartya Sen’s Poverty and Famines) the institutional determinants of famines are found in political factors (e.g. degree of authoritarianism of the government), but little emphasis is put on the mechanisms through which markets can induce precariousness in the life of rural people. Besides historical investigation, there is scope for a theoretical inquiry into the dynamics which tie environmental variability to economic institutions. In this paper we model the functioning of a simple economic system where strong climate variability determines the need to overcome variance in agricultural productivity by maintaining food stocks. The introduction of new modes of production under colonialism, thanks to the modernization of infrastructures, implies a greater stability of wage. Nevertheless, capitalist production can easily increase the risk of famines. Indeed, negative environmental shocks produce a drop in wages that is larger in magnitude than the increase in wage due to an equivalent positive environmental shock. Consequently the level of the stocks increases more slowly in good seasons than it decreases in the bad ones. Such a process reduces the ability to keep adequate food stocks, thereby increasing the vulnerability of peasants to famines.

JEL classification: Q18; N50; O13; C61; J10

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