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**A “technology-gap approach to cumulative growth”:
toward an integrated model.
Empirical evidence for Spain, 1960-1997.**

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Abstract

The purpose of the present paper is to explore the possibility to compound in a unique formalization two different but complementary theories of technical change and macroeconomic growth, that is the Kaldorian idea of cumulative causation and the technology-gap approach to economic growth.

In section 1 the main linkages between macroeconomic aggregates are considered. In a first step, the French school of “regulation” is presented, as an interesting framework to compound the main relationships between institutions, technology and the economy (section 1a). Given such a general framework, the main long-run macroeconomic relationships between growth in average productivity and growth in demand are considered in section 1b, in which the Regulationist-Kaldorian idea of cumulative growth is put forward. However, as observed in section 1c, such a framework is unable to explain the process of catching up through the diffusion of innovation created in more technologically advanced countries (regions), so that its complementarity and integrability with a technology-gap view of economic growth is explored in sections 2 and 3.

More precisely, in section 2 the structural form of this model of "technology-gap approach to cumulative growth" is presented; and in section 3 the characteristics of the sub-reduced forms for the dynamic of productivity and demand and the main analytical properties of the model are discussed.

The main findings of these sections can be sum up in the following way: an higher rate of diffusion or creation of innovative activity in a country determines a higher and stable rate of productivity increase only if it is "sustained" by the technological characteristics of the system, by the prevailing type of investment of firms and by the

distribution of the productivity increases between profit earners and wage perceivers. In other words, what matters for growth is not just innovation, accumulation or distribution, but their structural compatibility over time. Many different growth regimes are theoretically possible, but only some of them lead to a cumulative-technology-gap led growth.

As a first experiment, the model has been empirically tested for the case of Spain in the period 1960-1997. The results of the estimations show that there has been a structural break with the transformation from a Kaldorian cumulative growth regime led by internal consumption, in the first period (1960-1975), to a technology-gap growth regime, in the second period (1982-1990). Hence, as a general conclusion for the case of Spain, the Kaldorian cumulative causation process and the technology-gap growth appear to be alternative rather than complementary explanations of economic growth.

It is then necessary in future works to extend the empirical test of the model to a set of advanced countries, in order to investigate whether this conclusion is common to other countries, or rather it is peculiar to the evolution of the Spanish growth regime.