

**Conference theme:**

Entrepreneurship, Innovation and Public Policy

**Title:**

*Public subsidies, capital structure and industry dynamics: an agent based study*

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**Abstract:**

The paper analyzes using an agent-based model the role of public subsidies on industrial structure and industry dynamics. Public industrial policies take the form of: (a) individual firms' subsidies (b) interventions to create productive externalities. In response to these incentives entrepreneurs modify their investment profile and/or exploit the cost reduction effect on production factors. Empirical evidence suggests that the effect of public policies on market structure can lead to overcapitalized firms and/or to a reduction of entries and exits of firms: the competitive process is obscured and selection is sterilized.

We argue that the schemes of public subsidies have different outcomes on the market structure according to the following factors: (a) the dynamics of technical progress in the market, (b) the degree of heterogeneity of firms and (c) the selective pressure of the environment.

In the model we propose, Government balances its budget every period imposing a lump sum tax on the firms and spending this amount of money in money transfers to firms or in production externalities, e.g. infrastructures.

Firms are heterogeneous bounded rational and endowed with a two inputs fixed coefficients technology. They produce a homogeneous good sold in a competitive market. Firms use public subsidies in different ways: to reduce current spending (wages and remuneration of capital), to invest in additional capital endowment and to invest in R&D. The process of technical change is endogenous (depending on individual R&D expenditure) and uncertain.

We show that government “best” strategy varies endogenously with market conditions. In particular, in presence of a scarcely dynamic environment, if the government spends “too much” in firms’ individual subsidies, then the market is not able to sort out inefficient firms and aggregate performance results to be lower. Conversely, if government spends “too much” in creating production externalities, then firms can be induced to not invest in R&D (they exploit the augmenting productivity externality) locking the system into a lower growth rate.

As a result, there exists an optimal repartition of government spending that is dependent from endogenous conditions and institutional setup, i.e. selection and opportunity in the market. In addition, the model generates interesting entry-exit dynamics *via* the retroaction of public choices on system’s characteristics.