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Culture and human capital in a two-sector endogenous growth model[☆]

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ABSTRACT

Recent literature in the field of cultural economics highlights a possible inversion in the usual causality relation (from economic growth to culture) and points out that culture may represent an important driver of economic growth. By viewing culture in line with Throsby's (2001) definition of cultural capital (i.e., an asset of tangible and intangible cultural expressions), in this article we analyze one possible channel through which culture may positively affect economic growth, namely the existence of a relationship of complementarity between cultural and human capital investments. Using a two-sector endogenous growth model, we find that in the long run a higher growth rate of real per-capita income can be attained the more cultural and human capital investments are complementary for each other in the process leading to agents' skill acquisition. We also analyze the conditions under which an increase of the cultural capital share in total GDP can be conducive to a rise of real per-capita income.

1. Introduction

Among the possible sources of economic growth, human capital investment plays a central role within the *new growth theory*. However, despite the strong theoretical support, empirical evidence that increases in educational attainments lead unambiguously to faster per-capita income growth is unexpectedly not clear-cut. Indeed, empirical results on the relationship between human capital and living standards still remain largely controversial, depending on: (i) The methodological approach used, whether *cross-country growth accounting* (Benhabib and Spiegel, 1994; Krueger and Lindahl, 2001; Pritchett, 2001; Caselli, 2005, among others) or *cross-country growth regressions* (Barro, 1999; Easterly and Levine, 1997; Islam, 1995); (ii) The measure of human capital employed[2] and, finally; (iii) The type of data utilized. In this regard, studies using cross-section data, unlike those based on panel data, conclude that human capital accumulation has a positive effect on the rate of growth of real per-capita income. Islam (1995, p. 1153) summarizes this finding by observing that: "*…Whenever researchers have attempted to incorporate the temporal dimension of human capital variables into growth regressions, outcomes of either statistical insignificance or negative sign have surfaced*".[3] Today, there exist many

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2 Wößmann (2003) provides a detailed survey of all the main measures of human capital used to date by empirical studies on growth (in particular adult literacy rates, school enrollment ratios and average years of schooling of the working-age population), and analyzes the pros and cons of each of them.

3 See also Topel (1999) and Mathur (1999) for reviews.

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different attempts at explaining this puzzle, mainly based on a more careful analysis of both data and estimation-techniques problems.[4]

Within this framework we suggest that, in a world where complementarities (especially those involving human capital) are important, another variable that may be of particular interest in explaining economic growth is culture. Although extremely important, the analysis of the long-run effects of culture on economic growth still remains a research topic almost completely neglected by endogenous growth theory.

Culture is often considered just as one of the possible outcomes of personal wealth and/or political power. However, recent developments in the field of cultural economics highlight a likely inversion in the usual causality (from economic growth to culture) and point out that the investment in culture may represent another important engine of long-run economic growth.

Cultural production generates, directly and indirectly, substantial economic effects. The traditional view according to which the cultural value produced has to be simply considered a merit good requiring some public transfers has been abandoned.[5] We are now witnessing an increase in the economic importance of cultural industry – where the large and industrial-scale production, typical of film, music, broadcasting, publishing and print sectors, takes place – while assisting at the same time to a widening of the borders of cultural industry as a productive sector per se.[6] This is certainly a direct source of overall economic growth.

Besides its direct effects, however, cultural production can generate substantial economic effects also indirectly.[7] Cultural industries are a driver of economic growth because numerous externalities originate from the creative sectors and spill over onto other productive sectors. More generally, the system of cultural values and the culture-rich environment created by the creative industries stimulate the production of new ideas and new technologies. Culture has also an important function of animation and enhancement of the quality of life, which is an increasingly important element in determining a particular area's competitiveness and attractiveness for residents, tourists and firms. Culture may also contribute to a more balanced and sustainable economic development since it provides opportunities for personal enrichment and social interaction among weaker groups, and gives to "excluded" individuals a chance to start their own businesses or to catch up socially. Furthermore, because cultural industries are typically labor-intensive, culture sustains labor markets. Consistently with this idea, different programs of economic valorization have been added in many countries in the 1990s to the traditional activities of preservation and conservation of historical and artistic heritage with the specific objective of sustaining and accelerating long-run economic growth.

The definition of culture we use in the present paper is strictly related to the one given by Throsby (2001) who introduces in the literature the concept of *cultural capital* viewed as a stock of tangible and intangible cultural expressions. The stock of tangible cultural capital exists in buildings, structures, sites and locations endowed with cultural significance (heritage) and in artworks and artifacts existing as private goods, such as paintings, sculptures, and other objects. Intangible cultural capital comprises the set of ideas, practices, beliefs, traditions and values which serve to identify a certain group of people, together with the stock of artworks existing in the public domain as public goods, such as certain instances of literature and music.

In a recent work Sacco and Segre (2009) highlight a general lack of investigation of the causal relationships involving the factors through which culture may affect economic growth, and suggest an endogenous growth mechanism sustained by cultural investment. Among the possible channels identified by the authors, in this paper we focus on human capital accumulation and emphasize the important role played in economic growth by the existence of a complementarity-relationship between cultural and human capital investments.

More specifically, in the present paper we investigate the role of cultural capital in fostering economic growth by modeling human capital investment as an economic activity being not only relatively intensive in human capital as an input,[8] but also driven by the presence of complementarities with cultural capital accumulation. Our theoretical model serves, thus, two main purposes. The first is to show that, in a setting where two reproducible factor inputs (human and cultural capital) do exist, in the long run the endogenous growth rate of real per-capita income is higher the more human and cultural capital investments are complementary for each other. Therefore, our claim is that the main channel through which (the investment in) culture can affect economic growth is the one passing through the *complementarity* between the two forms of capital accumulation. The second objective of the model is to analyze quantitatively the conditions under which an increase of the cultural capital share in total GDP can lead to a rise of real per-capita income, as empirical evidence seems to suggest most.

The paper is organized as follows. The results of a first look at some available data and simple empirical evidence about the relationship between per-capita GDP and possible measures of cultural capital are presented in Section 2. In Section 3 we further extend the conceptual framework that links economic growth and culture to the analysis of the role of creativity.

4 Notable examples include Temple (1999, 2001), Benhabib and Spiegel (2005), Bassanini and Scarpetta (2002).

5 See Cunningham et al. (2008) for a description of the different approaches followed by the cultural economic literature.

6 In the literature, no clear agreement exists as to which industries should or should not be included in the cultural sector of the economy, and the definition of cultural or creative industries is still a matter of debate (Throsby, 2008).

7 See, among others, Scott, 2000; Santagata, 2002; Florida, 2002, 2005.

8 This is the traditional way of describing the process of education, or human capital accumulation, in the new growth theory.