



The dynamics of continuous cultural traits in social networks

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Abstract

We consider an overlapping generations model where *continuous* cultural traits are transmitted from an adult generation to the children. A weighted *social network* describes how children are influenced not only by their parents but also by other role models within the society. Parents can invest into the purposeful socialization of their children by strategically displaying a cultural trait (which need not coincide with their true cultural trait). We observe a cultural substitution effect when parents choose their behavior optimally. Based on Nash equilibrium behavior, we then study the dynamics of cultural traits throughout generations. These converge if parent's influence on their children is large enough compared to the social environment's influence. Under convergent dynamics, closed subgroups fully assimilate, while heterogeneous traits prevail in the other groups. Speed of convergence is low when parents' incentives to socialize their children to the own trait are high.

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1. Introduction

Economic behavior and outcomes are fundamentally shaped by individual value systems such as culturally transmitted preferences, attitudes, opinions, beliefs, etc. For instance, risk preferences and patience are classical determinants of economic decisions. It is even shown that inherited trust is a major factor in determining economic growth (Algan and Cahuc [3], Tabellini [40]). The question of how these traits are formed and evolve is hence of central interest.

In this paper, we provide a theory of the evolution of cultural traits. In contrast to most of the literature (see Bisin and Verdier [9], for a comprehensive survey), we model cultural traits as a *continuous* variable rather than a discrete variable. This modeling approach better reflects the continuous nature of cultural traits such as risk preferences, patience, and trust. That these traits are rather modeled by a continuous variable becomes evident when considering e.g. Arrow–Pratt measures of risk aversion, or discount factors in $[0, 1]$ as measures of patience.¹ To model the evolution of these traits across generations, we employ an overlapping generations (OLG) society. Parents care about their children’s adopted cultural trait and have a desire that this adopted trait is close to their own trait, an assumption called *imperfect empathy* in the literature.² Following empirical evidence (e.g. Dohmen et al. [18]), children are assumed to learn from observable cultural traits of their parents and of their social environment, represented by a *social network*. Surprisingly, this local aspect of trait formation has largely been ignored in the literature on formation of cultural traits even though empirical evidence suggests that the social network plays a crucial role: first, Dohmen et al. [18] show that the degree of risk aversion and trust can not only be explained by the parent’s risk preferences and trust attitudes, but also by the level of these traits in the local social environment; second, the fact that cultural traits often differ across geographic regions, e.g. cities (Guiso et al. [26], Voigtländer and Voth [42]), or countries (Algan and Cahuc [3]),³ is difficult to explain without modeling a local structure. Finally, social connections also seem crucial for questions of persistence of cultural traits and of assimilation as we discuss below.

Emphasizing the social network and the socialization incentives, or in other words, the degree of imperfect empathy, we use our model to study (i) how cultural traits evolve, (ii) under which conditions heterogeneous or homogeneous societies emerge, and (iii) how long this process takes before settling down.

These questions are motivated by empirical studies that provide substantial evidence that some cultural traits are persistent throughout many generations. For the example of trust, Guiso et al. [26] report persistence of trust levels in various Italian cities, Nunn and Wantchekon [35] show that (mis-)trust attitudes in African families are prevailing throughout many generations resulting from slave trade history, and Voigtländer and Voth [42] find that (mis-)trust attitudes towards the Jewish population persisted over many centuries in German cities dating back to the 14th century.⁴ Moreover, immigrant families in the United States are shown to retain their trust attitudes

¹ Also trust attitudes can be measured on a continuous scale representing different intensities of trust ranging from attitudes such as “you can’t be too careful” to attitudes like “most people can be trusted”.

² Imperfect empathy means that parents care about their children, but evaluate their (the children’s) actions through the own (the parental) utility function (Bisin and Verdier [7]). This will imply that parents want their children to become as they (the parents) are.

³ Note that also within regions strong correlations of cultural traits are observed (Dohmen et al. [18]).

⁴ Persistence is also documented for other cultural traits such as attitudes towards female labor force participation (Fernandez et al. [20], Alesina et al. [2]), fertility (Fernandez and Fogli [19], Cygan-Rehm [14]), and a preference for education (Botticini and Eckstein [10]).

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