The Economics of Cultural Formation of Preferences

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1. Introduction

My work considers the intergenerational formation of continuous preferences. These are those types of preferences that can reflect different intensities, located in a convex subset of the real line. Examples are the degree of altruism, the intensity of preferences for leisure or for social status, the patience (intensity), etc.; but notably, they also contain continuous cultural traits and concepts like the values, attitudes, (strength of) norms and 'continuous opinions' that a person adopts.

The representation of the socialization process is based on the children's social learning from the observed *role models for preference intensities* in their adult environment. Parents invest into active socialization of their children since they obtain intergenerational utility related to the preference intensity that their children adopt. The socialization measures they can take contain their choice of behavior (the role model) and their weight in the socialization process of their child.

The focus of the analysis is on the static characterization of the parents' Nash Equilibrium decisions and on the resulting evolution of the continuous preferences of the society.

2. Cultural Formation of Preferences

Consider an OLG society populated by a continuum of adults, $a \in A$, and their children. Assume that all adults have available the same feasible set of socio–economic actions, $X \subseteq \mathbb{R}^n$. In particular, any typical element $x \in X$ is the characteristic role model for exactly one preference intensity (PI). We will call this the *displayed preference intensity* (DPI) of a choice of socio–economic actions x, $\phi^d(x) \in \mathbb{R}$. Thus, there exists a displayed preference intensity function

$$\phi^d : X \mapsto \mathbb{R}$$

where $\phi^d(X)$ then corresponds to the set of possible DPIs. We will denote the DPI of the socio–economic actions of adult $a \in A$ in period $t \in \mathbb{N}$, $x_a(t) \in X$, as $\phi_a^d(t) := \phi^d(x_a(t))$.

The DPIs of the adults constitute the 'observable' role models from which the children socially learn. Specifically, we let the PI that the child of $a \in A$ in period t adopts (and keeps in its adult period $t+1$) be formed according to a weighted average between the DPI taken by its single parent, $\phi_a^d(t)$, and the representative DPI of its general adult environment, $\phi_{A_a}^d(t)$, where $A_a := A \backslash \{a\}$.

In this respect, we consider a finite partition of the adult set, $\{A_J\}_{J=1}^K$, and assume that the children socially learn from the *average* DPIs of these subsets, denoted $\phi_{A_J}^d(t)$, $\forall J = 1, \ldots, K$. The relative social learning weights that the children have with the various subsets are represented by $\{\sigma_{aJ}(t)\}_{J=1}^K$. We obtain

$$\phi_{A_a}^d(t) := \sum_{J=1}^{K} \sigma_{aJ}(t) \phi_{A_J}^d(t) \in \operatorname{con} \phi^d(X).$$

Finally, the weight that the DPI of the parent $a \in A$ has in the socialization process of the child will be called the *parental socialization success share*, $\hat{\sigma}_a(t) \in [0,1]$. We then obtain the intergenerational preference formation rule as

$$\phi_a(t+1) = \hat{\sigma}_a(t) \phi_a^d(t) + (1 - \hat{\sigma}_a(t)) \phi_{A_a}^d(t).$$

The adopted preference intensities of the adults induce utility functions over choices of DPIs in $\operatorname{con} \phi^d(X)$, $\forall a \in A$, $\forall t \in \mathbb{N}$

$$u\left(\cdot \left| \phi_a(t) \right.\right) : \operatorname{con} \phi^d(X) \mapsto \mathbb{R}.$$

These utility functions are single–peaked with peak at $\phi_a(t)$, i.e. they are strictly increasing/decreasing at all $\phi_a^d(t) \in \operatorname{con} \phi^d(X)$ such that $\phi_a^d(t) < / > \phi_a(t)$.

3. Endogenous Cultural Formation of Preferences

Parents can control the socialization process of their children by choosing their DPI and investing into their parental socialization success share.[1] Their motivation to do so stems from the fact that they also obtain an intergenerational utility component. This is related to either the future choice of DPI and/or the adopted PI of their adult children. Assuming that parents expect their children's DPI choice to coincide with their adopted PI, both concepts coincide.

Parents can have different sorts of 'socialization targets' for the adopted PI of their children. These include (a) their desire that their children adopt the same PI as they (the parents) have, (b) endogenous norms on behavior where their children should behave according to the representative DPI of a subset of the adults, or (c) exogenously fixed norms of behavior (e.g. imposed by religious or ideological institutions).

Denoting the socialization targets of the parents as $\hat{\phi}_a(t) \in \operatorname{con} \phi^d(X)$, we assume that these induce intergenerational utility functions

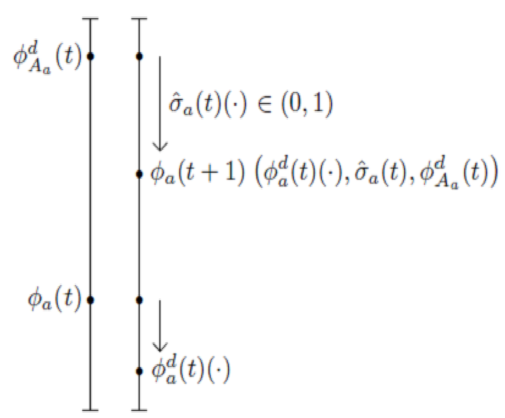
$$v\left(\cdot \left| \hat{\phi}_a(t) \right.\right) : \operatorname{con} \phi^d(X) \mapsto \mathbb{R}$$

which are (again) single–peaked with peak $\hat{\phi}_a(t)$, thus strictly increasing/decreasing at all $\phi_a(t) \in \operatorname{con} \phi^d(X)$ such that $\phi_a(t+1) < / > \hat{\phi}_a(t)$.

Representing the indirect cost function of the choice of parental socialization success shares with $c : [0,1] \mapsto \mathbb{R}_+$, we obtain the parental optimization problems as

$$\max_{(\phi_a^d(t), \hat{\sigma}_a(t)) \in \phi^d(X) \times [0,1]} u\left(\phi_a^d(t) \left| \phi_a(t) \right.\right) + v\left(\phi_a(t+1) \left| \hat{\phi}_a(t) \right.\right) - c\left(\hat{\sigma}_a(t)\right).$$

These optimization problems induce sets of pairs of parental best reply choices against the general society's representative DPI and subject to their adopted PIs and socialization targets. Abbreviating any pair of best reply choices as $\left(\phi_a^d(t)(\cdot), \hat{\sigma}_a(t)(\cdot)\right)$ and the resulting best reply location of the adult child's adopted PI as $\phi_a(t+1)\left(\phi_a^d(t)(\cdot), \hat{\sigma}_a(t)(\cdot), \phi_{A_a}^d(t)\right)$, we obtain the best reply characterization as in the figure below.[2]

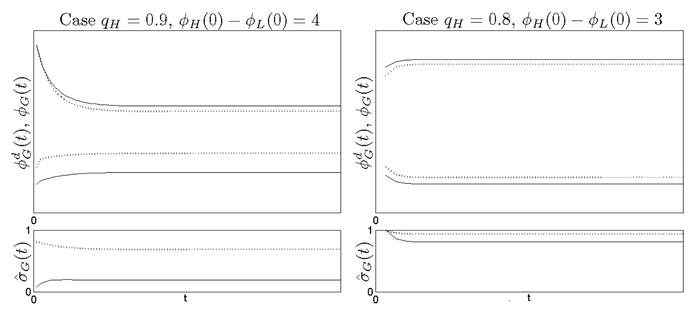


4. Evolution

The evolution of the tuple of adopted PIs under Nash Equilibrium choices depends crucially on what the parents perceive as their 'socialization targets'. In case that all parents want their children to adopt the parents' PIs (*imperfect empathy*[3]), then the preferences of the society converge to the same point. This is true for an arbitrary distribution of initial PIs on the adult set.

In case that the adult set is partitioned into two distinct cultural groups (see [3]), then this result can never realize if the two cultural groups perceive distinct *intergenerationally fixed norms on behavior*. Despite initial assimilation, the groups will have different preferences forever. This is illustrated in the left graph of the figure below.[4]

If the socialization targets coincide with the average behavior of the own group (*endogenous norms on behavior*), then a multitude of convergence path types can realize. These contain an intergenerational assimilation process toward the same preference intensity point; an initial but incomplete assimilation, with steady state PIs that are closer than initially; as well as intergenerational dissimilation with steady state PIs that are more distant than initially (this last case is illustrated in the right graph of the figure below). Which of those patterns will realize depends (among others) on the initial distance of the PIs.



These examples show that the present framework can add to the understanding of empirically observable patterns of integration and assimilation of cultural groups. This issue is among many other potential applications to economic questions.

References

[1] Alberto Bisin and Thierry Verdier, *The economics of cultural transmission and the dynamics of preferences*, J. Econ. Theory **97** (2001April), no. 2, 298–319.

[2] Berno Büchel, Tim Hellmann, and Michael M. Pichler, *The evolution of continuous preferences in social networks*, 2010.

[3] Michael M. Pichler, *Cultural formation of preferences and assimilation of cultural groups*, Technical Report 438, Bielefeld University, Institute of Mathematical Economics, 2010.

[4] _____, *The economics of cultural formation of preferences*, Technical Report 431, Bielefeld University, Institute of Mathematical Economics, 2010.

[1] In [3, 4], the children's social learning weights with the unrelated adults were taken as exogenously given. An endogeneization is considered by [2] in a finite population setting.

[2] In the left interval of the figure (all intervals correspond to the set of possible DPIs), the context of the parent's decision problem is depicted. In the right interval a corresponding best reply choice is stylized.

[3] This concept has been introduced by [1], who consider the (probabilistic) cultural transmission of discrete preferences, respectively cultural traits.

[4] In both graphs, the two cultural groups are denoted $G = H$(igh)/L(ow), where $q_H = 1 - q_L$ denotes the population shares. The solid lines in the upper part of the graphs denote the DPI choices, and the dotted lines the adopted PIs. The paths of the socialization success shares of the parents of group L are represented by the dotted lines in the lower graph of each case.