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Non-Technical Abstract

This paper considers an economic analysis of intergenerational transition of ethnic and social trait. We consider the level of social traits chosen by parents and its effect on their children's choice of ethnic and social traits when reaching adulthood. We develop a theory that suggests that parents will chose extreme ethnic and social traits in order to increase the cost that their children will pay if they wish to deviate from their parent's "ideal". The extreme choice of the ethnic social traits of parents has an effect on the segregation of minorities and migrants.

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Key words: intergenerational transition, ethnic trait, social trait, minorities, migrants.
JEL classification: F22, J1, D1

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1. Introduction

In this paper we consider the transition of social practices from parents to children. We developed an economic framework that studies the evolution of the persistence of ethnic and religious traits as dynamic properties of cultural transition and socialization mechanisms by studying the role of the parent's choice regarding their way of life with regard to ethnic and social practices in the development of the cultural traits of their children.

These social customs take many forms. The simplest type to consider is religion. Parents have to decide on the level of observance of their family. In all religions individuals have to choose how intensely they wish to keep the laws of their religion. There are many interpretations of the laws and this enables people to choose different levels of observance. For example, in Christianity the choice can be whether or not to go to church every Sunday, attend Mass, say grace before each meal and other religious activities. In Islam it could be praying five times a day, going to Mecca once a year, the dress code, not eating certain specific foods like pork etc. In Judiasm individuals can choose to keep the Sabbath by different methods (not working, not driving, going to the synagogue on the Sabbath etc), eat certain foods, keep different levels of Kashrut, decide to go to the synagogue once, twice or three times a day etc. However, this does not only hold for religion. For example, a Greek immigrant to the USA has to decide if he will keep all the Greek traditions, will he talk Greek at home? will he send his kids to Sunday Greek school etc.? The level of "observance" may differ from individual to individual. The choice of the observance level will have an effect on the children growing up in an environment that will affect their lives in the future. When children grow up in a certain way they learn that this is the way that they should live. Moreover, when a way of life is correlated to religion, there is a cost from deviating from this way of life. Of course a deviation could also increase the level of observance which may prove easier than decreasing the level of observance.

In our model, individuals live in two periods. In the first period, children live with their parents. The children are assumed to be born without well-defined cultural traits which they acquire from their parents before becoming adult. It has been extensively documented that religious and ethnic traits are usually adopted in the early formative years of the children's psychology and that family and role models play a crucial function in determining their adoption (see for example Erickson 1992, Hayes and Pittelkow 1993). Parents take as given the social traits under which they grew up

which determine the ideal social practices and observance level they wish to uphold. Changing a person's traits has a cost. For example, going every Sunday to church, praying a few times a day, not working on the Sabbath, not eating specific type of foods or at certain places, etc. all have opportunity costs. On the other hand, there are benefits from keeping their ideal social trait or observance level and any deviation also has a cost.

Bisin and Verdier (2000) developed an economic framework that studied a similar type of evolution about the persistence of ethnic and religious traits and the role of marriage in the development of the culture traits of children. In contrast to Bisin and Verdier (2000) we look at a more basic choice of the parents which is the social observances chosen by them as a way of life and which has a direct effect on the children. Our paper is also related to Bisin and Verdier (2001). In their paper they study the population dynamics of preference traits in a model of intergenerational culture transmission. While the model talks in general about transmission of preferences in this paper we discuss a specific case of extremism in which the parents choose, in the presences of children, an extreme way of life which would not have been chosen in the absence of having children.

Each parent is modeled as wishing to transmit his/her own characteristics to his/her children. Parents, while choosing their actual social trait, take into account that the trait they choose will affect their children's ideal and chosen social observances. Therefore the parents, by determining the family's actual social traits, affect their children's choice as they grow up.

We intend to show in this paper that parents may choose a more extreme social ideals than they would have if they didn't have children. The reason for this is that they wish to create a cost for their children for deviating from their ideal. In such a way the parents increase the probability that when the children become adults and have to choose their own way, it will be closer to that of their parents.

Another interesting application is the theory of family interactions. Thus, the "Rotten Kid Theorem", that started with Becker (1974), continues to play a living role in discussions about the theory of the family (see for example Bergstrom, 1989 and Hendrik, 2000). This theory talks about whether or not the parents can provide proper incentives to their "rotten kids", focusing on a situation where the objectives are not fully aligned across generations. The theory talks about the head of a family, that cares sufficiently about all the members, transferring general resources to them so that

redistribution of income among them would not affect the consumption of any as long as he continues to contribute to all. The major, and unexpected conclusion, is that, if a head exist, other members also are motivated to maximize family income and consumption, even if their welfare depends on their own consumption alone. The present theory has some similarities to the "rotten kid" theory. In this paper, we show how parents try to affect the choice of the kids to be more inline with those of the parents. The parents create costs for the kids so that they do not deviate too much from those of the parents. This has some similarities to the "rotten kid" theory, since in that theory even though the kids may be selfish the parents are able to affect their choices by the way they contribute to the family members. This paper's setup is just one important example of such interaction between parents and kids.

This result has the same type of flavor of the analysis carried out by Glazer, Gradstein and Konrad (1998). Glazer, Gradstein and Konrad (1998) demonstrate that extreme policies may appear not in spite of, but because of, political opposition. More specifically, an incumbent may gain political support by adopting a policy the challenger is more likely to change. The awareness of voters, to the high cost of the more likely policy changes, induces them to support the extreme policies proposed by the incumbent.

Our work adds to the blossoming literature on majority – minority conflict and resolution, assimilation, and the reestablishment of cultural identity (see, for example, Gradstein and Justman, 2005, Alesina and La Ferrara, 2000, Anas, 2002, Bisin and Verdier, 2000, 2001, Dustmann, Fabbri and Preston, 2004, and Lazear, 1999).

2. The Model

Individuals live in two periods. In the first period, parents live with their children. The children are assumed to be born without well-defined cultural attitudes which they acquire from their parents before becoming adults. As in Bisin and Verdier 2000 we assume that families have well defined preferences over culture and traits acquired and developed by their own children. Further, they have access to a socialization technology that allows then to influence the cultural traits of their children's social environment.

The payoff of individual i ($i = f$ (farther), s (son)) is given by v_i which is a function of three components: a. the ideal level of social traits (hereafter observance

level), x_I, *b*. the actual level of observance the individual decides to follow, x_i and *c*. the level of observance under which the individual begins with, x_g. The individual's payoff equals to:

$$(1) \qquad v_i = -u_i(x_I - x_i) - c_i(x_g - x_i)$$

where $-u_i(x_I - x_i)$ is the individual's utility from choosing an actual level of observance of level x_i while his ideal level is x_I. The individual's utility decreases if the individual deviates from his ideal level of observance. We assume that $-\dfrac{\partial u_i(x_I - x_i)}{\partial |x_I - x_i|} < 0$ namely, deviating from the ideal point decreases the utility. It is assumed that $Sign\left(\dfrac{\partial u_i(b)}{\partial b}\right) = Sign(b)$ or putting it differently[2]:

$$(2) \qquad -\frac{\partial u_i(x_I - x_i)}{\partial x_i} \begin{array}{c} < \\ = \\ > \end{array} 0 \qquad if \ (x_I - x_i) \begin{array}{c} < \\ = \\ > \end{array} 0$$

namely, if we increase the actual level of observance, x_i, and get closer to the ideal point, x_I, then the utility, $-u(.)$, increases and if we increase the actual level of observance beyond the ideal point then the utility will decrease.

Let us consider the second part of the individual's payoff: $-c_i(x_g - x_i)$. It is assumed that an individual begins with a level of observance of x_g. This level is given to him by his parents: the way he was brought up, they way he has been doing things until the day he can make a decision to change his life style and observance level. The larger the change in observance level that the individual decides to make, either by increasing or decreasing, the higher the cost of adjustment. Therefore it is assumed that $-\dfrac{\partial c_i(x_g - x_i)}{\partial |x_g - x_i|} < 0$. Also here we assume that $Sign\left(\dfrac{\partial c_i(d)}{\partial d}\right) = Sign(d)$ thus,

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[2] An example of a specific utility function that incorporates all the assumptions made regarding the utility of an individual, $v_i = -u_i(x_I - x_i) - c_i(x_g - x_i)$, would be of the quadratic form: $v_i = -(x_I - x_i)^2 - a(x_g - x_i)^2$.

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(3)
$$-\frac{\partial c_i(x_g - x_i)}{\partial x_i} \quad \begin{matrix} < \\ = \\ > \end{matrix} \quad 0 \qquad if \quad (x_g - x_i) \quad \begin{matrix} < \\ = \\ > \end{matrix} \quad 0$$

namely if we get closer to the given observance level x_g the cost of the change are smaller.

At this point we do not assume anything regarding the asymmetry between the utility and costs of deviation from the ideal level of observance or from the given level at the time of choice. It may well be that the cost and utility are not symmetric, namely, increasing the level of observance decreases the utility by less than the same change in the other direction. We will return to this later. We assume that the change in the marginal cost of deviation from the ideal level of observance and from the given level of observance is positive. Namely,

(4)
$$\frac{\partial^2 u_i(x_I - x_i)}{\partial(x_I - x_i)^2} > 0 \ and \ \frac{\partial^2 c_i(x_g - x_i)}{\partial(x_g - x_i)^2} > 0$$

An individual will choose the level of observance that maximizes his utility v_i. The first order condition is given by:[3]

(5)
$$\frac{\partial v_i}{\partial x_i} = \frac{\partial u_i(x_I - x_i)}{\partial x_i} + \frac{\partial c_i(x_g - x_i)}{\partial x_i} = 0$$

Thus ,

(6)
$$\frac{\partial u_i(x_I - x_i)}{\partial x_i} = -\frac{\partial c_i(x_g - x_i)}{\partial x_i}$$

Denote the level of observance that satisfies (6) by x_i^*. Consider the relationship between the chosen level of observance, x_i^*, and the ideal level, x_I. It can be verified

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[3] It can be verified that the second order condition holds, $\frac{\partial^2 v_i}{\partial x_i^2} < 0$.

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that $\dfrac{\partial x_i^*}{\partial x_I} = -\dfrac{\dfrac{\partial^2 v_i}{\partial x_i \partial x_I}}{\dfrac{\partial^2 v_i}{\partial x_i^2}}$. Since $\dfrac{\partial^2 v_i}{\partial x_i^2} < 0$, the sign of $\dfrac{\partial x_i^*}{\partial x_I}$ equals to the sign of $\dfrac{\partial^2 v_i}{\partial x_i \partial x_I}$.

Lets us calculate $\dfrac{\partial^2 v_i}{\partial x_i \partial x_I}$

(7)
$$\frac{\partial^2 v_i}{\partial x_i \partial x_I} = \frac{\partial^2 u_i (x_I - x_i)}{\partial x_i \partial x_I} = \frac{\partial^2 u_i (x_I - x_i)}{\partial (x_I - x_i)^2} > 0$$

Therefore, the optimal level of observance is a positive function of the ideal level of observance. In a similar way we can show that the optimal level of observance is a positive function of the given level of observance, x_g . Thus:

(8)
$$\frac{\partial x_i^*}{\partial x_I} > 0 \quad and \quad \frac{\partial x_i^*}{\partial x_g} > 0$$

The given level of observance x_g is the level that the parents pass on to their children. If the father's ideal point is equal to his given level of observance, $x_I = x_g$ then it is clear that the father will choose the level of observance that equals his given observance which in itself equals the ideal level of observance: $x_i^* = x_I = x_g$. However, if the son's ideal observance level differs from the actual level of observance of his parents, then the son will decide on a level that will probably not equal the actual level of his parents.

Let us now consider a two generation model of a father and son. The son chooses his optimal level of observance given the actual level he grows up with (i.e. his father's actual choice). The son, in our story, only takes into account his own utility and does not consider his children's utility. The ideal level for the father is x_I, however, he knows that any level he chooses will affect his son when he makes his choice. The father does not only take into consideration his own utility but also his son's utility. Moreover, the ideal level of observance for the father is x_I and it is assumed that the father also believes this would be the ideal level for his son. This

may not be the case. The father may wish to affect the son's ideal point by determining the actual level of observance. This will have the same affect as affecting the actual point at which the son begins. This would not change our main results. To simplify we assume that the father believes that the ideal level for the son is his own ideal point and around this point he calculates the son's utility. The father's utility from the son's choice is relative to his own ideal level and not to his son's actual ideal level. Our main results would not change if the son also takes into account the effect his choice has on his own children. To summarize, the son takes into account one period forward while the father two periods.

The father's utility over the two periods is given by,

(9) $$V_f = \left\{-u_f\left(x_I - x_f\right) - c_f\left(x_g - x_f\right)\right\} + \left\{-u_s(x_I - x_s) - c_s\left(x_f - x_s\right)\right\}$$

where f for father and s for son and $-u_f\left(x_I - x_f\right) - c_f\left(x_g - x_f\right)$ is the direct utility of the father (given by (1)) not taking into account the son's utility and $-u_s(x_I - x_s) - c_s(x_i - x_s)$ is the son's utility in the eyes of the father. Remember that the father believes the ideal level of observance for himself and for his son is at a level of x_I. Therefore, when the father calculates the son's utility it is calculated around the ideal point x_I.

The son, on the other hand, determines his optimal observance level in accordance with (1) where his given level of observance is $x_g = x_f^*$. From (1)-(8) it is clear that the son will choose an observance level which is related to the father's level: $x_s^*\left(x_f\right)$ such that $\dfrac{\partial x_s^*\left(x_f\right)}{\partial x_f} > 0$. Moreover the son's optimal level of observance is a positive function of his ideal level $\left(x_{Is}\right)$ $\dfrac{\partial x_s^*\left(x_f, x_{Is}\right)}{\partial x_{Is}} > 0$. The ideal level is a function of two main components: the actual level that one was educated to and outside conditions (the level of assimilation of the minority, the possibility of intermarriage, and the way the majority accepts or rejects the minorities (see for example Epstein and Gang, 2006). To simplify our analysis we assume that

(10) $$x_s^* = x_f + e$$

Latter on we discuss the determinacy of *e*.

The father's problem is therefore to maximize

$$(11) \qquad V_f = \left\{-u_f\left(x_I - x_f\right) - c_f\left(x_g - x_f\right)\right\} + \left\{-u_s\left(x_I - x_s^*\left(x_f\right)\right) - c_s\left(x_f - x_s^*\left(x_f\right)\right)\right\}$$

which becomes

$$(12) \qquad V_f = \left\{-u_f\left(x_I - x_f\right) - c_f\left(x_g - x_f\right)\right\} + \left\{-u_s\left(x_I - \left(x_f + e\right)\right) - c_s\left(e\right)\right\}$$

The first order condition is given by

$$(13) \qquad \frac{\partial V_f}{\partial x_f} = \frac{\partial u_f\left(x_I - x_f\right)}{\partial x_f} + \frac{\partial c_f\left(x_g - x_f\right)}{\partial x_f} + \frac{u_s\left(x_I - \left(x_f + e\right)\right)}{\partial x_f} = 0$$

(13) is satisfied if

$$(14) \qquad \frac{\partial u_f\left(x_I - x_f\right)}{\partial x_f} + \frac{\partial c_f\left(x_g - x_f\right)}{\partial x_f} = -\frac{u_s\left(x_I - \left(x_f + e\right)\right)}{\partial x_f}$$

If the father's ideal point is equal to the given level of observance, $x_I = x_g$ and if the son also sees his father's level of observance as his own ideal level, $x_I = x_{Is}$ then it is clear that the father and the son will have the same observance level.

We now wish to compare the level of observance that a father will choose when ignoring and, afterwards, not ignoring his son's utility. Denote the level of observances that maximizes the father's utility when he does not take into consideration the effect on his son's utility by x_f^*, (i.e. x_f^* is the level that maximizes equation (1): $x_i^* = x_f^*$) and the level of observance when he takes into account his son's utility into consideration by x_f^{**}. Denote by e^0 the level under which $x_f^* = x_f^{**}$ therefore from (6) and (14) it is clear that $x_f^* = x_I - e^0$. In the case we described

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before where the son's ideal point is that of his father's and the given observance level equals his ideal level then $e=0$ and $x_I = x_f^*$.

From (14) together with the assumptions (2) and (3) we obtain that,

$$(15) \qquad \qquad If \quad e \; \begin{matrix} > \\ = \\ < \end{matrix} \; e^0 \;\; then \;\; x_f^{**} \; \begin{matrix} < \\ = \\ > \end{matrix} \; x_f^*$$

3. Discussion

This paper has studied the cultural transmission of an ethnic or social trait. The main contributions of the model with respect to the existing literature are twofold: 1. the trait is a continuous variable, "observance," and 2. the interaction between parents socialization and the children's identity choice determine the children's trait.

The results presented above depend on the level of e. The level of e is determined by many factors. For example, a Moslem living in the USA will have a different level of e than an identical Moslem living in an Arab Moslem country. The level of assimilation of the minority, the possibility of intermarriage, and the way the majority accepts or rejects the minorities will all determine the ideal observance level for the son.

As a result of different levels of e as a result of exogenous circumstances parents may choose a more extreme observance (social traits) than they would have if they didn't have children. The reason for this is that they wish to create a cost for their children for deviating from their ideal. In such a way the parents increase the probability that when the children become adults and have to choose their own way, it will be closer to that of their parents.

As we stated above the utility functions are not always symmetric. A believer, who decides to choose a certain observance level, would probably prefer that his children choose to be more observant rather than less. This would mean that we would tend to see more extremes, towards a higher level of observance.

Such analysis of the socialization has natural implications for the dynamics of the behavior of minorities, with ethnic and religious traits, in the population. In the basic model, the population dynamics converge to a heterogeneous limit distribution, in which minorities are never completely assimilated. However, in a more

generalized dynamic model, it is not clear if minorities necessarily persist. The persistence, of minorities and assimilation, depends on many factors such as the majority attitudes and minority desires. There is a conflict, or at least a potential conflict, between the majority and the minority/migrants over their position in the economy and in society. This potential conflict is acute between the majority and the minority, and as we have seen, may also exist within the minority community (see Epstein and Gang, 2006, Gradstein and Schiff, 2006 and Gradstein and Justman, 2005). The majority's attitude, towards minorities, is the majority group welcoming, and is there an attempt made to integrate minorities?. The minorities, on the other hand, desire to integrate and the willingness of minority determine the degree of integration. Income, and the standard of living, may well have an impact on the willingness of the minorities to assimilate, and thus change their ideal social traits or they may be willing to compromise, since the cost of deviating may decrease as a result of an increase in earnings. Thus they may wish to increase their utility via an increase in earnings rather than keeping to their ideal traits. If the majority feels threatened by the minorities, in terms of work displacement and wage decreases, the majority group may harasses the minorities, by not cooperating with them, in order to forestall and prevent this, or at least to keep the gains from the process out of the hands of minorities. This may have an impact on the compromise the minority is willing to make with regard to its ideal social traits, which, on one hand, would be strengthened by becoming more extreme, or, on the other hand, weakened in order to minimize the resistance of the majority. This, of course, would also depend on the intergenerational links and the intensity of socialization of the minority group.[4] The stronger the links are the less is needed in terms of extremism and thus, over time, it is not clear that minorities persist. Historical evidence has shown us that some minorities do persist while others do not. For example, some Jews and Moslem in the Diaspora have assimilated into the local population, while others have chosen to keep practicing their heritage. Our paper shows that, in order to keep their identity, extremism is needed by the parents, to help their children to hold on to the same type of ideal social traits.

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[4] The values of e and x_I would change accordingly.

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