Identity-Based Organizations

By Jean-Paul Carvalho*

I. The Organization of Identity

A person's identity is the way she is perceived by herself (personal identity) and by others (social identity). For example, "I am a believer in doctrine x", "I am racially/morally superior", "I will be hailed as a martyr." Forms of identity such as these can be valued *per se*. In their seminal work on the subject, Akerlof and Kranton (2000, 2010) develop a framework for analyzing the role of identity in economics. *Inter alia*, one's ascriptive characteristics determine one's choice of identity. One's identity in turn imposes specific norms which shape one's actions. We build on the Akerlof-Kranton framework by treating identity as a cultural trait which is cultivated in groups. In doing so, we bring together three literatures—the economics of identity, cultural transmission and religion—which have largely been separate.

Identity formation is an inescapably social process. Suppose, for example, that an individual invests time/effort in acquiring a system of metaphysical and moral beliefs. These beliefs, if acquired, can be undermined by contact with nonbelievers (Iannaccone and Berman, 2006, p. 116). Likewise, beliefs can be reinforced by contact with believers, with little personal investment. In this sense, identity is a cultural trait that is produced and socially transmitted, as in seminal work by Bisin and Verdier (2000) and Bisin et al. (2011). While cultural transmission has been studied in families and society at large, this paper studies cultural transmission in groups.

The insight developed here is that the cultural transmission process produces its own externality and free-rider problems. It is natural that organizations emerge to solve and possibly exploit these problems. Identity-based organizations provide an environment in which identities are formed and socially reinforced. They cultivate identity by performing two functions: (1) imposing rules of participation in identity-producing activities and (2) excluding nonmembers from social interactions.

Participation can produce identity in many ways. Communal prayer, scriptural study and religious sacrifice convert one into a believer in a religious organization's doctrine. Donating to one's *alma mater* confers identification with the institution and a share in its prestige. Participation in a white supremacist organization may cultivate a sense of racial superiority. Joining a violent rebellion could gain one recognition as a hero.

By excluding nonmembers, who have not participated in the same identity-producing activities, an organization confines members' exposure to like-minded individuals. This cultivates personal identity by regulating social transmission. It also produces social identity through group reputation for possessing an (unobservable) trait, akin to statistical discrimination (Coate and Loury, 1993).

Because identity-formation is based on the exclusion of nonmembers, identity can be viewed as a club good, a central subject of the economics of religion (Iannaccone, 1992; Berman, 2000). In this paper, we formalize the notion that identity formation, both personal and social, has a similar structure to the production of (rival) club goods. The analysis yields new predictions, linking an organization's doctrine to its ability to elicit sacrifices from members and coordinate collective action. Carvalho (in progress) studies a dynamic extension of this model, showing how identity formation

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leads to various forms of cultural cycles.

II. The Model

Society consists of a finite set of risk-neutral individuals I. The population I is partitioned into two (nonempty) communities I_0 and I_1 (e.g. secular and religious).

Individuals end the game with one of two identities $k \in \{0, 1\}$. We refer to identity 0 as the *mainstream* identity and identity 1 as the *alternative* identity, for reasons to be apparent shortly. Community membership determines identity preferences. Each $i \in I_k$ strictly prefers identity k to the other identity. Hence we at times refer to members of I_0 as mainstream types and members of I_1 as alternative types.

While an individual is born into a community, her participation in an identity-based organization is chosen. There are two organizations, also indexed by $k \in \{0, 1\}$. Organization k cultivates identity k and thereby caters to community I_k.

An individual's type is two-dimensional. Firstly, θ denotes an individual's ideal identity. That is, if $i \in I_k$, then i's type is $\theta = k$. Let $\pi_{\theta k}$ be the payoff to a type θ agent from acquiring identity k. By definition, $\pi_{00} > \pi_{01}$ and $\pi_{11} > \pi_{10}$. Secondly, each individual bears a privately known fixed cost c of joining an organization. We can think of c as an individual's degree of individualism or aversion to group participation. The membership cost c is determined by an independent draw from the distribution F. For a given agent, c is the same across organizations. The distribution F is the same across individuals (i.e. independent of θ). We assume $F(0) = 0$ and F is twice differentiable and strictly log-concave on $(0, \infty)$.

The timing of the game is as follows. Each organization k announces its strictness s_k, which is the minimum level of participation demanded of its members. Alternatively, strictness could be interpreted à la Iannaccone (1992) as the level of 'sacrifice' required of members. Religious organizations for example may prohibit certain dietary and sexual practices. Once announced, an organization remains committed to s_k.

Observing (s_0, s_1), each individual i chooses to become a member of an organization, $m_i = k$, or be unaffiliated, $m_i = n$. M_k is the set of organization k members. The set of unaffiliated individuals is $N = I - M_0 - M_1$.

Each member $i \in M_k$ chooses a level of participation x_i in group k's activities, at quadratic cost x_i^2. We assume simply that members of group k are constrained to choose $x_i \geq s_k$. Unaffiliated agents cannot participate, i.e. $x_i = 0$ for all $i \in N$.

From this point, two variants of the model can be specified to capture personal and social identity. These variants end up having the same mathematical structure.

Social Transmission & Personal Identity. An individual concerned with personal identity wishes to acquire and retain a particular identity. Assume that with probability x_i, i.e. her degree of participation, $i \in M_k$ becomes a 'carrier' of identity k. With probability $1 - x_i$, i becomes a carrier of the mainstream identity 0. Hence the mainstream identity is the 'default' identity. We think of it as the identity supported by prevailing norms, the media, the education system and/or the state. This alludes to a centralized socializing agent, unlike standard work, but as in Carvalho and Koyama (2015).

If $i \in M_k$, she is exposed to all other members of group k (including herself). One individual $j \in M_k$ is chosen uniformly at random to be her 'role model'. If j is a carrier of identity $\kappa \in \{0, 1\}$, i ends the period with identity κ. Hence the likelihood that $i \in M_k$ acquires identity k through a role model equals the group's average participation level:

$$\bar{x}_k \equiv \frac{1}{|M_k|} \sum_{j \in M_k} x_j.$$

Likewise for unaffiliated agents, a role model is chosen uniformly at random from N. Since $x_i = 0$ for all $i \in N$, each unaffiliated agent acquires the mainstream identity with probability one.

Collective Reputation & Social Identity. An individual concerned with social identity wishes to communicate her identity to

others. Suppose that $i \in M_k$ acquires identity k with probability x_i, and the mainstream identity with complementary probability. We assume that an individual's identity and participation level are private information, but her group membership is publicly observable. In addition, the average participation of group members is public, as in the statistical discrimination literature (e.g. Coate and Loury, 1993). Hence from the perspective of $j \neq i$, the likelihood that $i \in M_k$ has identity k is $\bar{x}_k$.

Thus personal and social identity formation have the same structure. Regardless of which form of identity we have in mind, the expected payoff to a (θ, c)-type agent i who joins k is

(1) $u_i(\sigma, s) = \pi_{\theta k}\bar{x}_k + \pi_{\theta 0}(1 - \bar{x}_k) - x_i^2 - c.$

As the probability that $i \in N$ acquires identity $k = 1$ is zero, the payoff when unaffiliated is $\pi_{\theta 0}$.

Since an individual's payoff is determined by the average participation of fellow group members, identity is analogous to a rival club good. Thus, our model applies to agents who care both about identity and material club goods. This unifies several literatures and yields new predictions, as we shall see.

Rather than maximizing members' welfare, we assume that each organization k sets strictness s to maximize total participation in its activities, defined as:

(2) $$X_k = \sum_{j \in M_k} x_j.$$

Hence individuals may join an organization to cultivate a particular identity, but the organization itself may have other objectives, such as social service provision, political opposition and violent rebelion.

A. *Mainstream versus Alternative Identities*

Let us define *tension* here as the benefit to type-1 agents from acquiring the alternative identity, $\tau \equiv \pi_{11} - \pi_{10}$. To ensure interior solutions, we assume $\tau \leq 1$. When τ is close to one, alternative types get a much larger payoff from the alternative identity, viz. the mainstream identity is a poor substitute for the alternative one. In such cases, the alternative organization is said to be at high tension with mainstream society. We can now state the following result. Proofs are in the appendix.

PROPOSITION 1. *There exists a unique subgame perfect equilibrium [SPE] of this game. In this equilibrium:*

(i) *All type-0 individuals remain unaffiliated:* $I_0 \subset N$.

(ii) *Organization 0 attracts no members:* $M_0 = \emptyset$.

(iii) *For all* $i \in M_1$, *the participation rule binds:* $x_i^* = s_1^*$.

(iv) *For organization 1, strictness is* $s_1^* \in \left(\frac{1}{2}\tau, \tau\right)$ *and expected membership size is* $|M_1^*| \in (0, |I_1|)$.

Identity formation is a social process. This is captured here in a deliberately stark manner. Individual participation only makes one a *carrier* of an identity; it has little effect on one's ultimate or expected identity. That is the product of social transmission and inference, which in turn depend on participation levels across the entire group. Hence there is a severe free-rider problem in identity formation. The best an individual can do is to save entirely on the cost of collective participation and free ride on the identity-forming efforts of other group members. Because all individuals face this incentive, no participation occurs without rules imposed by the organization, and nobody participates more than required [Proposition 1(iii)].

What kind of identity-based organization can attract members? Organizations that cultivate a mainstream identity are never joined [Proposition 1(ii)], since individuals can acquire a mainstream identity without incurring the costs of group membership. Hence all individuals who desire a mainstream identity remain unaffiliated [Proposition 1(i)].

In contrast, organizations that cultivate an alternative identity can attract members, as long as they impose an intermediate level of strictness $s_1 \in (0, \tau)$. A totally lax organization ($s_1 = 0$), does nothing to mitigate the free-rider problem in identity formation and cannot compensate for the cost of membership, however low it may be. On the other hand, if strictness is too high ($s_1 \geq \tau$), the organization is successful at identity formation, but at a prohibitively high cost.[1] In the intermediate range, the alternative organization faces a tradeoff between participation intensity and membership size. By raising its strictness s_1^* beyond the individual welfare-maximizing level $\tau/2$, it increases participation among members, but only attracts individuals who have a low cost of joining. Implicit solutions for the equilibrium strictness level s_1^* and membership M_1^* are derived in the proof of Proposition 1(iv).

B.   Tension, Strictness & Collective Action

Tension is an important concept in the sociology of religion. Stark and Finke (2000) propose that "[a]ll religious groups can be located along an axis of tension between the group and its sociocultural environment", where tension is defined in terms of "distinctiveness, separation, and antagonism" [p. 143].

It turns out that our identity-based notion of tension dictates how strict an organization can be and how much total participation it can generate:

PROPOSITION 2. *In the SPE, organization 1's strictness s_1^* and total participation X_1^* are strictly increasing in tension τ.*

When tension is high, it is more costly for alternative individuals to remain unaffiliated and acquire a mainstream identity. This relaxes the tradeoff between participation intensity and membership size. Therefore, high-tension organizations are able to impose more onerous demands on members and induce higher levels of total participation. This is the analog of results produced

by Bisin and Verdier (2000) and Bisin et al. (2011) on the persistence of minority cultures and oppositional identities. The difference here is that cultural transmission occurs in groups. *Inter alia*, our result explains why oppositional identities tend to form the basis for collective action, as elaborated below.

When there is free entry by organizations, or organizations maximize members' welfare or size of membership, one can show that $s_1^* = \tau/2$. Once again, higher tension increases equilibrium strictness and total participation.

Religious Doctrine & Strictness. The economics of religion has focussed largely on religious practice. Organizations that are stricter in terms of their practical requirements (dietary, sexual, sartorial etc.) are more successful at recruitment and retention (Iannaccone, 1992). No link between doctrine and strictness has been analyzed. One question that arises is why don't all religious organizations raise their strictness? Why aren't Episcopalian congregations as demanding of members as Jehovah's Witnesses?

A sociological conception of religion is one of "a unified system of beliefs and practices" (Durkheim, 1915). Our model shows how an organization's belief system might dictate its strictness. Non-affiliation is more costly for an individual who wishes to acquire, or be seen to acquire, religious beliefs that are "further" from the mainstream belief system (e.g. creationism). Hence religious organizations that cultivate more extreme belief systems can be more extreme in terms of their practical demands of members. Episcopalian congregations are unable to raise strictness, because beliefs prevailing in mainstream society are a close substitute for their belief system.

Oppositional Identity & Collective Action. Social movements involve well known free-rider problems, apart from the problems of identity formation. Their goals are often distant and improbable (e.g. terrorist organizations). Individually, participants make little difference, but bear the

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[1] Berman (2000) and McBride (2015) show how very strict groups can survive through high fertility rates.

full cost of contributing. More immediate rewards may be required to motivate participants. In our model, collective action is a byproduct of individuals' identity-forming activities. Identity-based organizations are successful at achieving tangible goals, because participation in their activities cultivates desired forms of identity. Social movements, such as the suffrage, temperance, civil rights and gay rights movements, all promoted identities among activists that were opposed to mainstream forms of identification. Thus solving the free-rider problem in identity formation solves the free-rider problem in more tangible forms of collective action, in our model.

Religious organizations are exceptionally effective at collective action, including public good provision, political opposition and violent rebelion (e.g. Berman, 2009). For example, the Muslim Brotherhood in Egypt operated a vast network of social services, including schools, mosques and healthcare clinics. Berman (2009) shows how the success of religious groups in terrorism is linked to their strict club structure. We suggest that this strict club structure may be supported by belief systems that are distant from mainstream thought (e.g. apocalyptic beliefs). Religious organizations expend an extraordinary amount of resources cultivating metaphysical and moral beliefs, as well as ingroup identification. Thus, in light of our theory, it is unsurprising that they are so effective at collective action.

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