

# Identity-driven Cooperation versus Competition

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This paper explores motivational foundations of identity formation and their implications for economic activities. We examine multiple motives underlying one’s identity choices that set the scope of one’s in- and out-groups. These groups partition one’s economic and social interactions into prosocial cooperation and positional competition. In this context, we investigate how technological progress influences the degree of individualism, the extent of positional competition, and the balance between market- and non-market activities.

In the foundational models of identity economics (summarized in Akerlof and Kranton, 2010), people’s identities pertain to their social categories, associated with distinctive norms and ideals, promoted by the motive of *Affiliation*. Our analysis, by contrast, considers two further motives whereby identities are expressed: *Care* within social groups and *Status Seeking* across such groups. Under *Care*, people seek to promote the wellbeing of other in-group members; under *Status Seeking*, they are concerned with their standing relative to out-group members. Whereas *Care* propels a common form of cooperation,<sup>1</sup> *Status seeking* drives a common form of competition.

Economic activities are portrayed as the outcome of a balance between in-group cooperation and out-group competition. We examine how technological progress

changes this balance. Thereby we shed light on three well-documented, interrelated phenomena: the increasing scope of economic markets in organizing the production and distribution of goods (the “commercialization of life”), the rise of positional competition, and the spread of individualism (“bowling alone”).<sup>2</sup>

## I. Underlying Ideas

In accordance with the literature on motivation psychology, we recognize that people can be affected by multiple, discrete *motives*, each of which may be understood as a force that gives direction and energy to one’s behavior, thereby determining the objective, intensity and persistence of the behavior. This recognition differs markedly from standard neoclassical and behavioral economics, where each individual is assumed to have a unique set of preferences that are internally consistent, temporally stable and context-independent. Our analysis, by contrast, recognizes that an individual’s objectives depend on the motives that are active, and the activation of motives in turn is influenced by the individual’s social context. Thus preferences in our analysis are not located exclusively in the individual, but rather are the outcome of the interplay between the individual and the social environment. Individuals are *multi-directed*, in the sense that different environmental cues may give rise to different motives, associated with different objectives of decision making.<sup>3</sup>

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<sup>1</sup>Care occurs naturally among kin and can be extended to friends and other non-kin groups with whom one identifies. Care is a welfare-driven coordination device, whereas Affiliation coordinates the actions of in-group members through adherence to norms and ideals.

<sup>2</sup>See Putnam (2000). We collect additional evidence, as well as formal derivations of the results below, in Snower and Bosworth (2015).

<sup>3</sup>A survey of psychological motives underlying economic decisions, their biological substrates, and an account of multi-directedness are given in Przyrembel et al. (mimeo, 2015). Implications of multi-directedness for economic activity is explored in Bosworth et al. (mimeo, 2015).

Our analysis considers three motives: (1) Self-interest, whereby an individual's payoff depends only on her own payoff, (2) Status-Seeking, whereby her utility depends on the difference between her payoff and that of her out-group members, and (3) Care, whereby her payoff depends positively on the payoff of her in-group members. These motives are associated with three activities: *self-interestedness*, *positional competition* and *prosociality*, respectively. These activities generate three outputs: *non-positional goods*, *positional goods*, and *caring relationships* (a club good), respectively.

For simplicity, we assume that each person has a single identity, associated with a single in-group, regarding whose members the person is motivated by Care. Those who are not members of this in-group belong to the corresponding out-group, toward whom the person is motivated by Status-Seeking.<sup>4</sup>

People's performance in positional competition depends on their differing abilities, defined in terms of goods produced per unit of effort. Superior positional performance generates *pride* (a utility gain) and inferior performance generates *envy* (a utility loss). An individual's departure from a given in-group reduces the amount of the club good and increases the scope of positional competition. In the analysis below, the resulting utility tradeoff determines the size of each individual's in-group and remaining out-group. It also determines how identities are restructured in response to market-biased technological change.

We argue that technological progress falls primarily on market activities (associated with non-positional and positional goods), rather than non-market activities (associated with caring relationships). The reason is akin to the "Baumol effect:" Caring relationships with one's spouse and children,

<sup>4</sup>These assumptions are of course radical simplifications. In practice, individuals generally belong to several in-groups. Furthermore, in-group relations are often motivated by more than Care and out-group relations by more than Status-Seeking. For example, rivalries among in-group members are common, and out-group members often evoke indifference. Nevertheless, in-group relations are usually more caring than out-group relations.

for example, require the same time and effort nowadays as they did a century ago, whereas the production of goods and services has seen huge technology-driven productivity improvements. Our analysis explores how such market-biased technological progress leads to a restructuring of identities, which in turn increases the scope of individualism and promotes Status-Seeking competition at the expense of Care.<sup>5</sup> Since Status Seeking generates negative externalities while Care creates positive ones, these developments have important welfare implications.

## II. Cooperation versus Competition

We now construct a simple model of care-driven cooperation and status-driven competition.

### A. Non-market Activity

Each individual  $i$  contributes  $q_i$  to her non-marketable club good (caring relationships) in each period of analysis. The production function is  $q_i = \alpha e_i$ , where  $e_i$  is effort. For simplicity, let the individual provide one unit of effort ( $e_i = 1$ ). The total amount of the club good available to each in-group member is  $Q = \sum_i q_i = N_i q_i$ , where  $N_i$  is the size of individual  $i$ 's in-group. Individual  $i$ 's payoff is  $U_i^q = Q - e_i$ . Under perfect Care (whereby the individual's utility is weighted equally with that of the other group members), the individual's utility is  $U_i^c = \frac{1}{N_i} (U_i^q + \sum_{j \neq i} U_j^q)$ .

### B. Market Activity

Each individual  $i$  produces  $x_i$  market goods. The production function is  $x_i = \beta a_i \eta_i$ , where  $a_i$  is the individual's ability (higher  $a_i$  stands for higher ability),  $\eta_i$  is effort, and  $\beta$  is a positive productivity parameter. Again, the individual is assumed

<sup>5</sup>The empirical evidence on the rise of positional competition relative care points to various underlying forces that lie beyond the scope of this analysis, such as the role of advertising in raising the salience of positional goals, the crowding out of caring activities through time and cognitive load devoted to positional battles, etc.

to provide one unit of effort ( $\eta_i = 1$ ). Ability is uniformly distributed. For a group containing individual  $i$ , the ability of its lowest-ranked member is  $\underline{a}_i$  and that of its highest-ranked member is  $\bar{a}_i$ . Thus, the size of the in-group is  $N_i = \bar{a}_i - \underline{a}_i$ .

For the  $x_i$  market goods produced by individual  $i$ ,  $\gamma x_i$  are non-positional and  $(1 - \gamma)x_i$  are positional, where  $\gamma$  is a constant ( $0 < \gamma < 1$ ). The individual's utility from the non-positional good is  $U_i^n = \gamma x_i$ .

In each period of analysis she also competes with a random member from her out-group. Her utility from positional competition with the outsider  $j$  is  $U_{i,j}^s \equiv \pi \max(x_i - x_j, 0) - \varepsilon \max(x_j - x_i, 0)$ , where  $\pi$  is a *pride parameter* and  $\varepsilon$  is an *envy parameter*.

The individual  $i$  derives utility  $U_i^c$  from cooperation with members of her in-group. Her expected utility from competing with a random outsider is  $(\underline{a}_i U_i^s + (1 - \bar{a}_i) U_i^{\bar{s}})$ , where  $\underline{a}_i$  is the probability of encountering an inferior-ability outsider and  $U_i^s$  is  $i$ 's pride-driven utility from this encounter, whereas  $(1 - \bar{a}_i)$  is the probability of encountering a superior-ability outsider and  $U_i^{\bar{s}}$  is  $i$ 's envy-driven utility from that encounter.

In each period of analysis she encounters an in- and out-group members with probabilities proportional to the number of in- and out-group members, respectively. The proportionality factors are  $A$  and  $(1 - A)$ , respectively, measuring the degree of assortative matching. ( $A = 1/2$  represents random matching and  $A = 1$  stands for extreme in-group matching bias.) Thus her expected utility from positional competition is  $E(U_{i,j}^s) = (1 - \gamma)(\underline{a}_i U_i^s + (1 - \bar{a}_i) U_i^{\bar{s}})$ .

### C. Group size

Letting  $\theta$  be the weighting of positional utility relative to caring utility, the expected utility of individual  $i$  is  $U_i = (1 - \theta)AU_i^c + \theta(1 - A)E(U_{i,j}^s) + U_i^n$ .

All individuals seek to join the highest-ranking group that will accept them, as  $U_i$  is increasing in  $\bar{a}_i$ . Since the highest-ability member of each group has the great-

est incentive to leave the group with a subset of group members that would willingly follow, the lower boundary of each group maximizes the utility of this highest-ranking member. When the lowest-ability members are successively expelled and the lower bound  $\underline{a}$  rises, there is a progressively larger fall in the highest-ability member's utility from caring relationships and a progressively smaller rise in the highest-ability member's pride-driven utility from status competition. At the margin, expelling the lowest-ability group member leads to a fall in the highest-ability member's utility from caring relationships that is exactly equal to the rise in the member's pride-driven utility from competition. Accordingly, it can be shown that, for group  $k$  with upper bound  $\bar{a}_k$ , the utility-maximizing group size is

$$(1) \quad \bar{a}_k - \underline{a}_k^* = \frac{A\alpha(1 - \theta)}{\beta\pi\theta(1 - A)(1 - \gamma)}.$$

The upper bound of the highest-ability group is the upper bound of the ability distribution. The size of each group may be derived recursively, moving down the ability ladder.

A technological advance in the production of the market good may be depicted in terms of a rise in the productivity parameter  $\beta$ . Note that  $\partial \underline{a}_k^* / \partial \beta > 0$ , i.e., a rise in productivity reduces the size of social groups and increases the scope of positional competition. Smaller group size serves as our measure of increased "individualization".

Group size is also reduced by a heavier weighting ( $\theta$ ) of positional utility relative to caring utility in people's expected utility functions ( $\partial \underline{a}_k^* / \partial \theta > 0$ ) and by an increased sensitivity to the gains from such positional competition ( $\partial \underline{a}_k^* / \partial \pi > 0$ ).

## III. Implications

Over the past 350 years there has been an unprecedented explosion in material living standards, much of it driven by technological advances in the design, production and distribution of goods and services. As noted above, these advances have fallen pri-

marily market activities rather than non-market ones, since marketable goods and services are more amenable to productivity improvements than are non-market caring relationships.

In the model above, positional and non-positional goods are assumed to benefit proportionally from technological progress. Regarding the balance between positional battles and caring activities, this is a conservative assumption, since the evidence suggests that positional goods benefited more than proportionally, since the demands for non-positional goods are commonly satiable whereas those for positional goods are not. So as countries become more affluent, a progressively larger proportion of market goods and services is devoted to status wants (such as sports cars, designer clothing and luxury cruises). Consequently, technological progress appears to have benefited positional goods more than caring relationships. At the same time market economies commonly experience a well-documented rise in individualism, in the sense of a contraction in one's circle of social solidarity (as illustrated by the fragmentation of family structures and a rise in contractual relative to communal relationships).

Our model can shed light on the connections among these phenomena and their implications for economic activity and welfare. As we have seen, technological advance falling on material goods and services (rising  $\beta$ ) leads to increased individualization, accompanied by more positional competition. On account of the forces of habit, cultural transmission, and loss aversion, the wider scope of positional competition may be expected to lead to a heavier weighting (rising  $\theta$ ) of positional utility relative to caring utility in people's expected utility functions. Increased positional competition may also lead to an increased sensitivity to the gains from such competition (rising  $\pi$ ). As shown, the rise in  $\theta$  and  $\pi$  further reduce the size of social groups, thereby promoting individualization and positional competition.

Along these lines, technologically-driven economic growth – falling predominantly on

goods and services rather than on caring relationships – may be accompanied by a growing quest for status, whereby people can gain only at each other's expense.

These developments may be summarized by the shift parameter  $y = f(\beta, \theta, \pi)$ . Their welfare implications may be assessed in terms of the social welfare function  $W = \sum_k \int_{\underline{a}_k}^{\bar{a}_k} U_i da_i$ , i.e. the sum of the utilities of all groups:

$$\frac{dW}{dy} = \frac{\partial W}{\partial y} + \sum_k \left( \frac{\partial W}{\partial \bar{a}_k} \cdot \frac{d\bar{a}_k}{dy} + \frac{\partial W}{\partial \underline{a}_k} \cdot \frac{d\underline{a}_k}{dy} \right).$$

The first term is the direct welfare effect, which is conventional; the second term is the indirect effect, which may be decomposed into the effect of increased individualization on (i) welfare from caring relationships and (ii) welfare from positional competition. Obviously, social welfare from caring relationships declines, because as social groups become smaller, their production of caring relationships falls.

Welfare from positional competition arises from envy and pride. To understand the effects on pride and envy, note that the process of individualization leads to a cascade of social demotions down the ladder of status, starting with a shrinking top-status group and rippling down to the progressively shrinking lower-status groups. Each step in the individualization process generates “*demotees*” (who are relegated to the next-lower social position) and remaining “*incumbents*” (who maintain their previous social position).

Recall that one's social position is assumed to depend on one's ability in positional competition, and abilities are uniformly distributed over the population. As noted, people are envious of higher-status groups and proud regarding lower-status groups, but they experience neither pride nor envy regarding members of their own social group. For simplicity, we have assumed that the utility of pride is linear and homogeneous across social groups (given by parameter  $\pi$ ) and similarly for the disutility of envy (given by parameter  $\varepsilon$ ). In the analysis above, each social group is of equal

size, comprising the incumbents and demotees from a higher-status group.

Under these assumptions, it can be shown that the comparative static changes in envy and pride obey the following conditions:

(1) *Envy Condition*: Demotees become envious of the group from which they have been expelled, and incumbents cease to be envious of the demotees who have joined them. It can be shown the demotees' increased envy is greater than the incumbents' reduced envy. The reason is that the number of incumbents falls and the number of demotees rises as we descend the ladder of status.

(2) *Pride Condition*: Demotees cease to experience pride regarding the incumbents they have joined, and incumbents become proud with regard to the demotees that have been expelled from their group. Recalling that increases in pride are always associated with less care (caring relationships production), it can be shown that the demotee's welfare losses associated reduced pride exceed the incumbents' welfare gains from increased pride. The reason is that in equilibrium, the highest-ability incumbent's pride gained from the marginal expelled group member is just offset by the associated reduction in the production of caring relationships. For all other incumbents, the marginal expelled group member does not confer sufficient pride to offset the reduction in caring relationships. In addition, demotees' are worse off on account of their lost pride.<sup>6</sup>

The overall welfare implications are now clear. The exogenous developments above – technological advance falling on market goods (a rise in  $\beta$ ), heavier weighting of positional utility (a rise in  $\theta$ ), and increased sensitivity to competitive gains (a rise in  $\pi$ ) – have standard direct effects, but their indirect effects via increased individualization are negative. The unambiguous welfare loss from individualization arises from the deterioration of caring relationships and the deterioration of the position of the residual demotees.

<sup>6</sup>These conditions are derived formally in Snower and Bosworth (2015).

This result runs counter to the conventional wisdom that increased positional competition leaves social welfare unchanged, provided that the gains from pride are equal to the losses from envy and the resource cost of positional competition is ignored. Whereas our analysis highlights important sources of welfare losses from individualization, it is of course worth noting that our simplified model also overlooks potentially important welfare gains from individualization (such as possible utility from an increased sense of agency or from an increased impetus for creativity and innovation).

Beyond the scope of the model above, the rising demand for positional goods may be expected to promote incentives for further innovation in the production of these goods, leading to another round of increased individualism. This chain reaction of effects may be called the “innovation-individualization multiplier,” which may drive a process of endogenous growth.

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