Social Focal Points

James Habyarimana (Georgetown University)*

Macartan Humphreys (Columbia University)

Daniel Posner (UCLA) and

Jeremy Weinstein (Stanford University)

March 2006

*The authors thank Chris Crabbe for superb programming work; Dan Young, Donna Horowitz, and Kevin Thelen for their research assistance; the Russell Sage Foundation, the Harry Frank Guggenheim Foundation, the Harvard Academy for International and Area Studies, and the International Institute at UCLA for financial support; the staffs of CASSEL at UCLA and the CIS and the Law School Library at USC; and participants of the Princeton Political Economy Workshop for valuable comments on an earlier draft of the paper.

Social Focal Points

Abstract

We use experimental methods to study coordination games analogous to voting games over fixed divisions of a pie. We find that players use the ethnic or gender identities of other players, rather than other payoff irrelevant features of a game's description, to achieve coordination. Coordination along or across gender lines, we show, can be attributed in part to the presence of social norms rather than to the focal point properties of identity. Coordination along ethnic lines however is explained by focal point effects of ethnic categories and can not be accounted for either by the existence of other-regarding preferences between co-ethnics or to the existence of norms for cooperation within ethnic groups. This evidence suggests that the importance of identity in social interactions may can be explained without appealing to differential attitudinal characteristics of individuals or differences in norms across groups but more simply from the existence of categories that can be used by rational agents to structure their actions.

1 Introduction

That politics is organized along identity lines, and particularly along ethnic lines, is a well known but poorly understood regularity. Common attempts to explain the organization of politics in this way point to the nature of the preferences of identity group members or to the norms that have been formed within groups.[1] This paper focuses on, and provides new empirical support in favor of, a third possibility: that politics may come to be organized along identity lines because social identities provide focal cues around which actors can coordinate their behavior.

Drawing on a growing literature on focal points —extending back to Schelling's (1960) seminal research on the resolution of coordination problems—we show that although group based preferences and social norms may be prominent in many settings, these features are not necessary to explain the salience of social identity in politics. We demonstrate that, in distributive games, the mere existence of a set of identity categories may be a sufficient condition for coordination, allowing groups to determine who to benefit and who to exclude from the returns to strategic action.

Our results are based on a study of a three player coordination game, analogous to a situation in which agents vote over fixed divisions of a pie.

[1] See Hale (2004) for an excellent review.

The game captures the distributive political problems analyzed in studies of the evolution of conventions (Axtell, Epstein and Young 2001) and the emergence of ethnic groups (notably Fearon 1999, see also Varshney 2002). This game allows us to examine whether players use features of a player's identity such as gender or ethnicity as a coordinating device. If they do, then focality may provide a parsimonious explanation for differential treatment of other players that is based only on their membership of identity groups.[2]

Evidence of coordination along or across identity lines however is surprisingly difficult to obtain. This is because what appears to be successful coordination along or across lines need not be a product of players using the identity of other players as a focal point. Such a seemingly coordinated outcome might also arise from players having other regarding preferences vis-à-vis fellow group members or from the existence of social norms of within-group favoritism. More formally, the problem can be stated as follows:

Coordination can be attributed to focality in cases in which strategy choices can be shown not to be invariant to isomorphic transformations

[2] A second line of research, also drawing on Schelling (1960), emphasizes that identity groups can use shared interpretations of the world—cultural cues—or a history of past interactions to establish the salience of some strategies over others. As a result individuals coordinate more successfully with like types than they do with unlike types (see for example Hardin, 1995). Here however we focus on the question "Who do you select as partners to coordinate with?" rather than the secondary question, "How do you coordinate with a given set of partners?"

of a game (defined below). But in an experimental setting, the experimenter can not easily ensure that a manipulation of features such as the gender and ethnicity of players results in an isomorphic transformation of any given game. Such manipulations could instead introduce a substantive change in the game being played.

We respond to this problem by analyzing play in the coordination game in the light of further evidence we collect using more standard games from the experimental literature that tap the presence of other regarding preferences and social norms. These investigations suggest that the coordination that we identify across *gender* lines can not be unambiguously attributed to focality. Rather, an effect we call "first order appeal"—a desire to see particular types of players benefit —may account for observed success in coordination. Coordination along *ethnic* lines, however, can be attributed to the focality of ethnic categories and we find no evidence of confounding effects such as the activation of other-regarding preferences between co-ethnics or the existence of within-group norms.

We proceed as follows. In the next section we describe more formally the notions of focality and isomorphic equivalence; this discussion establishes the inferential difficulties associated with attributing successful coordination to focality. We then provide a formal description of the

game we study and analyze the equilibria of this game under different assumptions about information on player identity, about player preferences and about the existence of social norms regulating player behavior. We then describe a set of experiments that study play in this game and describe our results. A final section draws out the implications of the research for understanding how ethnicity and gender identities work.

2 Focality and isomorphic equivalence

Traditionally, player and strategy labels used in the description of games were considered to be irrelevant to the choices of rational players (Harsanyi and Selten, 1988). Contrary to these claims, experimental findings over the last two decades provide strong evidence that player and strategy labels matter (Kahnemann & Tversky). In the examination of games of pure coordination especially, a wide range of studies have found that strategy labels provide focal point properties that players can use to condition their behavior (Bacharach (1993), Mehta et al (1994a, 1994b), Sugden (1995), Bacharach and Bernasconi (1997), Bacharach and Stahl (2000), Casajus (2000), Janssen (2001)). Less work has been done in the examination of player labels, although Holm (2000) provides an important exception.

The importance of understanding the functioning of frames arises in

part from the fact that when real players play games, there typically exist contextual features that escape the theorist's characterization of the game and that players can use to condition their behavior. In the case of Holm's study the relevant contextual fact studied is that players often know the gender of other players and can make use of that fact when selecting strategies. Hence studying frames helps us move from abstract models to predictions about play in the real world. Insofar as features of these frames can be characterized, such examinations also allow us to refine theoretical predictions, providing guidance for determining which equilibria are more likely to be chosen in cases in which equilibria are multiple (for recent theoretical developments in this direction, see Casajus (2000) and Binmore and Samuelson (forthcoming)).

The aim of much of the experimental research on focality is to manipulate the games being played and examine the resulting variation in play. The purpose is to test whether play corresponds to the strategy profiles suggested by one or other solution concept—for example, whether a strategy profile that is played is Nash and in particular whether it is one of the Nash equilibria identified by some focality refinement. In particular, such studies aim to establish whether or not play is invariant to isomorphic transformations of a game, with theories of focality predicting that play is not invariant to such transformation.

A difficulty arises however because when we move from theory to testing *we do not know what games subjects are playing.* In particular we do not know whether two games are isomorphic transformations of each other. As a result we cannot be sure that when behavior changes this is because because the frames have changed or because the use of frames has changed the substantive game.

To see this more formally, let a normal form game of complete information, Γ, be given in the usual way by a triple, $\Gamma = \langle N, A, \mathsf{u} \rangle$ where N is a set of players, A is the Cartesian product of player specific strategy sets and u is a profile of utility functions that map from strategy profiles to $\mathbf{R}^1$. Following Harsanyi and Selten (1988) we say that a game $\Gamma' = \langle N', A', \mathsf{u}' \rangle$ is an "*isomorphic transformation*" of Γ if Γ' can be obtained from Γ through a re-indexing of players (the application of a bijective mapping from N to N'), a corresponding re-indexing of strategies (the application of a corresponding bijective mapping from A to A') and an appropriate re-scaling of the payoffs (each utility function in u' is a positive affine transformation of the corresponding utility function in u, taking account of the corresponding player and strategy labels in Γ').

The problem in determining whether games used by an experimenter are isomorphic to each other is that when the experimenter runs a game

Γ, she can control N and A, but not u. Mappings from strategy profiles to monetary and other rewards can be provided but the experimenter does not control the mapping from strategy profiles, or outcomes, to welfare. Indeed in many experimental studies, the object of study is the preferences of the players—whether or not they have other regarding preferences, are inequality averse and so on (Camerer 2003). In this sense much of the work in experimental game theory is intended to estimate what game is being played.

The fact that the game being played is unknown is of general concern to the study of focality whenever it is the case that preferences can themselves be a function of frames. If they can, then when a game is played we cannot know whether or not two games are isomorphisms of each other or whether they are in fact substantively different games.

As a simple illustration of the point, consider the two games represented in Figure 1. If the numbers in the cells of the matrices in Figure 1 represent the utility gained by each player from each combination of strategies then these games are isomorphisms of each other. If however these numbers represent monetary payoffs, then these games are isomorphisms of each other only if there is no relevant utility difference between choosing an option labeled "strategy B" and the option labeled "the mean strategy." If it is not known whether the utilities are indepen-

dent of the label options and there is a difference in observed behavior between the two games then we do not know whether this difference is due to a focality effect (players recognize that there is something salient about the "generous" option) or due to the fact that these two games are not isomorphisms of each other in the first place (Player II does not wish to choose an option that implies a rotten disposition and Player I knows this).

Figure 1 Here

The problem is still more evident if subjects know that the labels, rather than simply being a tool for organizing data, actually provide information about who the players are, such as what their ethnicity or gender is. Previous work has indeed established that such features are not payoff irrelevant and that manipulation of information about the gender or ethnicity of players can generate variation in the outcomes observed (see Camerer (Ch. 3, 2003), Frey and Bohnet (1995), Roth et. al 1995, Gil-White (2004)).

Many of these studies focus on preferences. Some find that women are more generous (Eckel and Grossman 1998), or more egalitarian (Andreoni and Vesterlund 2001). Others find few significant differences (Bolton and Katok 1995). Eckel and Grossman (1998) find that players

are more likely to accept offers in an Ultimatum game if the offerer is a woman. Solnick (2001) (using a different version of the game) finds evidence that women's offers are more likely to be rejected. Dufwenberg and Muren (2000) find that women receive more than men in dictator games. Ben-Ner, Kong and Putterman (2004) find that women give less to women than to men. In coordination games in particular there is mixed evidence on gender composition: Brown-Kruse and Hummels (1993) find that male groups play public goods games more cooperatively than female groups; Dufwenberg and Gneezy (200x) find little evidence for such effects in a minimal effort coordination game. Dufwenberg and Muren (forthcoming) find that female majority groups act in a more generous manner than male majority groups in an oligarchic version of the dictator game .

Other studies focus more on the social norms that may be triggered when identity information is cued—how men should behave with respect to women, and *vice versa* (Eagly and Crowley, 1986), or how in-group members should behave with respect to other in-group members, or with respect to out-group members (Fearon and Laitin 1996, Eckel and Wilson 2003). Literatures on ethnic politics and on cooperation in groups and on networks suggests that if in-group members are engaged in more frequent interaction than out-group members, social norms that develop

inside ethnic identity groups should sanction members that fail to benefit in-group members (Taylor 1976, Plateau 1981, Ghosh and Ray 1996, Fafchamps and Minten, 2002). Other models suggest that repeated interactions coupled with other-regarding preferences give rise to "natural" alliances that can form the basis of political cleavages in the long run (Bawn 1999).[3] While many of these models assume that there exists the possibility of punishment within the context of the game, past experimental work suggests that players may act *as if* such norms apply to them even in one shot games once their identity is known to other players (Hoffman et al. 1996).

The direction and magnitudes of these gender and ethnicity effects may depend greatly on the details of the experiment design (Croson and Gneezy 2004); furthermore, since little attention has been paid to sampling issues, the external validity of many of these results is not established. Nonetheless, what seems clear is that in some settings at least, information about player identities can provide payoff relevant information.

If this is the case, then in studies that focus on coordination along or across identity lines, such as that conducted by Holm, the manipulation

[3]Bawn (1999) emphasises the role of externalities across players in which one benefits from projects that benefits another; these externalities produces the same strategic incentives as would other-regarding preferences in this model.

of identity labels may do more than substitute isomorphically equivalent games for each other. This produces a deep difficulty for attempts to demonstrate that identities can be used as focal points. Their use for this purpose can be observationally equivalent to other channels through which identities may facilitate social coordination, in particular with the possibility that members of identity groups have correlated preferences or adhere to enforceable norms regulating interactions between them. Because of these confounding factors, there has been no empirical evidence to date that can distinguish between the focality of identities and these other confounding features. In section 3.5 below we address these issues for the special case of the distributive game we study.

3 The Game

3.1 Game Description

Consider the following game. A set of players is given by $N = \{1, 2, 3\}$. In addition there exists a set of player labels Λ and a function λ that assigns some element of Λ to each $i \in N$; we do not require λ to be injective. Players have strategy sets containing three pure strategies with common labels: $A_{\mathsf{i}} = A = (a_{\mathsf{j}})_{\mathsf{j}\in\mathsf{I}}$ for $I = \{1, 2, 3\}$ and for $i \in N$. Letting $\sigma_{\mathsf{i}} \in A$ denote player i's strategy, the mapping from strategies to outcomes is given by $f : A^3 \to X$, with $f(\sigma_1, \sigma_2, \sigma_3) = x_{\mathsf{j}}$ if $\sigma_{\mathsf{h}} = \sigma_{\mathsf{i}} = a_{\mathsf{j}}$

for some $h, i \in N$, $h \neq i$, and $f(\sigma_1, \sigma_2, \sigma_3) = x_0$ otherwise. This last expression simply indicates that an option is chosen if it receives at least two "votes." Note that we ensure that there is a common labeling system by using the same index set both for the set of outcomes, X (excluding x_0) and for the individual strategy sets. This labeling system is assumed to be common knowledge.

The actual outcomes in our game are given as follows: x_0 provides no rewards to any player, x_1 provides an equal division of the pie between each of players 1 and 2, x_2 divides the pie equally between players 1 and 3, and x_3 provides the same reward but to each of players 2 and 3.[4]

We assume that players have von Neumann-Morgenstern utilities over outcomes and we normalize each player's utility such that $u_1(x_0) = 0$. When we consider players with selfish preferences we assume that $u_i(x_j) = 1$ whenever x_j entails a reward for player i and 0 otherwise. For more general specifications we simply assume that players get greatest utility out of options that favor them, but may also be concerned with how different options favor other players. Note that defining utility over outcomes rather than strategies comes with some loss of generality since in principle players may not care simply about which outcome receives support, but about which players voted to support the different

[4]For outcomes x_j, $j \in \{1, 2, 3\}$, this mapping from outcomes to rewards can be written more compactly as: $\pi_i(x_j) = I(i + j \neq 4)$.

outcomes. In our experimental setting however, players receive information about outcomes only and not about the strategies of other players and so this assumption is relatively innocuous.

3.2 Equilibrium when players have selfish preferences and neither strategies nor players are labeled

The game we employ is similar to a divide the dollar game, except that the set of possible divisions is fixed in such a way that members of a given winning coalition can not be attracted by membership in another winning coalition. This is sufficient to ensure that a pure strategy Nash equilibrium exists in this game. Substantively, the game could be thought of as one in which players of equal weight are deciding over rights to share in the spoils of government where the allocation between winners, rather than being guaranteed ex ante, is decided *ex post* through some symmetrical bargaining process.[5]

Figure 2 Here

The game is represented in strategic form in Figure 2 above.

[5] See Fearon (1999) for a description and discussion of a closely related distributive game.

Analyzing the game in the standard way, as if labels contain no strategy relevant information,[6] we note that of the 27 possible strategy profiles, a full 21 of these produce coordination successes; of these there are however just nine Nash equilibria (shaded in the figure), three of which are weakly dominated. If unable to use strategy or player labels to coordinate then even though we might expect coordination successes to be frequent, for any individual, successful coordination presents a formidable problem.

3.3 Equilibrium when players have selfish preferences and strategies are labeled

A slightly different form of the basic game described above is one in which the strategies that the players are choosing among are labeled according to some labelling system that is common knowledge. In games of this form, a tradition starting with Schelling (1960) and studied in later experimental work (see Mehta et al. 1994), suggests that humans are very creative in finding ways to solve coordination problems of this form. Rich work has been undertaken examining how humans use seemingly irrelevant (and certainly payoff irrelevant) aspects of game descriptions

[6] We can in principle consider a version of the game in which each player randomly and independently selects a labelling system and returns his strategy given his private labelling system. In such a case a private labelling system exists but cannot be used as a basis for coordination.

to resolve indeterminacies, focusing, for example, on particular strategies based on their labels. Thus, given a set of labels, $\{1, 2, ...\}$, appended to strategies in a coordination game, and no evident way to select between them, players may choose that label that they expect other players are most likely to choose given that those other players are themselves aiming to choose a strategy that they believe other players are likely to choose. In such situations, striking but payoff irrelevant features of strategy labels can form the basis of such a convergence of expectations. Given a set of unique integers, Schelling suggests, the number "1" is strikingly unique and may be a likely candidate for converging expectations.

An estimation problem associated with this work (and largely resolved in Mehta et al. 1994), is that the salience of particular labels may encourage players to choose particular strategy options even if they have no well-formed expectations regarding the strategies employed by others. In such cases, they may select those strategies that, in the face of strategic indeterminacy, appear most obvious. If players play in this way we can say that they select the strategies that have the greatest *primary salience.* If primary salience is correlated across players, it may induce what empirically looks like evidence for coordination even if players are not playing strategically (because they are not considering the strategies

played by others).[7]

For the game described above, Schelling's argument suggests that due to the "prominence" of the first item in the players' strategy set (or, as in Lewis (1969) the "conspicuousness" of the first item) that players 1 and 2 can successfully coordinate by choosing strategy 1.[8] The predictions regarding player 3 are more ambiguous, and depend on whether the player thinks it more likely that player 2 would coordinate on option 3, or player 1 on option 2. Our first conjecture follows directly.

Conjecture 1 *With no further information about the identity of players, Player 1 is most likely to select option 1; player 2 in this game is also most likely to select option 1. Player 3's actions are indeterminate.*

Our interest however lies in identifying whether or not players use payoff-irrelevant information not about strategies but about *the players in the game* in order to solve coordination problems of this form and, in particular about whether they use information regarding shared identity as a coordinating device.

[7] This notion of primary salience can be extended to account for different forms of bounded rationality by defining the n^{th}-order salience of a strategy as the expectation that the strategy will maximize a player's payoff under the assumption that other players are playing strategies that have greatest $(n-1)^{\text{th}}$ order salience for them.

[8] Note that we do not attempt to distinguish here between the "primary salience" of option 1 or the "Schelling salience" of option 1.

3.4 Equilibrium when players have selfish preferences and players are labeled

The game that we study is more complex than those typically studied in the literature on focal points. A core difference is that whereas in pure coordination games, all players attempt to coordinate to achieve outcomes that benefit them all (although possibly to different extents), in our game, some players strive to coordinate with some other players, and to exclude some other players, in order to produce gains for themselves (and for some but not all other players). This setting more richly approximates distributive political environments but adds an extra level of complexity into the analysis of the game. It also puts us in a position to investigate whether the identities of different players—the labels specified by λ—affect the strategic choices at hand.

We distinguish between two ways in which player labels, or identity categories, may structure decision making in this game. We refer to Case I situations as situations in which one and only one player has a label that can, under the labeling system, be distinguished unambiguously from those of the other two players. This may arise for example if $\lambda(1) = \lambda(2)$, but $\lambda(1) \neq \lambda(3)$. Case II situations correspond to those in which either all players have distinct labels, ($\lambda(i) = \lambda(h)$ if and only if $i = h$) or all players have indistinguishable labels ($\lambda(1) = \lambda(2) = \lambda(3)$).

These two situations cover the most important types of distributions of identity labels.[9] Our focus here and in our empirical analysis is on Case I situations.[10]

Under Case I, three distinct types of equilibria can obtain. If players can only use labels of other players as a basis for selecting strategies, then that player who is uniquely distinguishable from the other two players, by definition, can not strategize to select one player over the other. Ignoring the weakly dominated strategy of selecting options that do not benefit him, the distinguished player (effectively) randomizes between the two (indistinguishable) options that give benefits to him. Again, ignoring options that do not benefit them, the two indistinguishable players have two pure strategy options: they can attempt to coordinate with each other—which we term coordination along identity lines—or they can attempt to coordinate with the distinguished player—which we term coordination across identity lines. In this game both coordinating along or coordinating across identity lines can be consistent with Nash play, as long as the other undistinguished player plays in the same manner. The

[9] This taxonomy can be applied in cases in which there are two distinct "sets of categories" such as "gender" or "ethnicity." Letting $\Lambda^{\mathtt{g}} = \{\mathrm{m}, \mathrm{f}\}$ and $\Lambda^{\mathtt{e}} = \{\mathrm{e}_1, \mathrm{e}_2, ...\}$, λ can be defined to map from N to $\Lambda^{\mathtt{g}} \times \Lambda^{\mathtt{e}}$ and Cases 1 and 2 can be defined accordingly. If we are willing to assume that individuals focus on a given set categories only if they can perform useful classifications along those categories, then λ can be said to induce a Case I situation if the composite mapping produces a Case I situation *or* if exactly one of the two component mappings induces a Case 1.

[10] In many Case II situations we expect coordination to be determined by what Bacharach (1993) terms the "availability" of different aspects of the player's identities. At present we have no measures of availability.

third type of Nash equilibrium involves randomization by all players. This third type of equilibrium, though Nash, does not correspond to an evolutionarily stable strategy profile.

The choice of coordinating along identity lines or off identity lines takes on the form of an "Assurance game" (Sen, 1969) between the two undistinguished players: they can either coordinate together to achieve the payoff for sure, or they can fail to coordinate with each other but successfully coordinate with the distinguished player with only a 50% likelihood of success.

Both of these Nash equilibria are evolutionary stable strategy profiles. Furthermore, neither risk dominates the other (hence they are also stochastically stable strategy profiles.) To see this, note that for an undistinguished player, coordinating along identity lines gives expected utility of q, where q is the expected probability that the other undistinguished player also tries to coordinate along identity lines. The expected utility of attempting to coordinate across identity lines, meanwhile, is .5. In the case where $q = .5$ — the condition used for assessing whether a strategy is risk dominant—the expected utilities from the two strategies are the same (Young, 1993).

Considerations of equilibrium selection in such contexts suggests that within the population of players in Case I situations, the two Nash equi-

libria that are evolutionarily stable (and stochastically stable) are more likely to be observed and the mixed strategy (profile) is less likely to be observed. This suggests the following conjecture:

Conjecture 2 *In situations in which two players share an identity label and one player differs in label, either the two like types both play along identity lines or they both play across identity lines.*

Further considerations of equilibrium selection lead to a somewhat finer prediction. We have from the above discussion that the equilibrium in which like types coordinate along ethnic lines *Pareto dominates* (for these two players) the equilibrium in which they attempt to coordinate with the distinguished player. If then, in the nested Assurance game between like types, players follow the "principle of coordination" (Gauthier 1975; Bacharach 1993) they will successfully coordinate on the Pareto optimal outcome.[11] In this case they will use both payoff information and identity labels to coordinate on a focal point in the game as a whole. This leads to our third conjecture, a refinement of Conjecture 2:

Conjecture 3 *In situations in which two players share an identity label and one player differs in label, the two like types both coordinate along identity lines.*

[11] A related principle developed in Janssen (2001) is the "Principle of Individual Team Member Rationality (TMR)," although here, unlike in Janssen, there are rival teams with respect to which the principle may be applied.

3.5 The confounding effect of preferences: coordination due to first and second order appeal

As described in 2, in addition to providing focal points around which coordination might take place, the introduction of player labels may also open additional channels through which coordination may occur. One of these is through the activation of other-regarding preferences.

Unlike the focal point mechanism (and the sanctioning mechanism discussed in the next section), other-regarding preferences can induce coordination even if players do not act strategically.

To see how, consider the following setting. Assume that player 1 believes that players 2 and 3 select between their three options randomly, that is with a $\frac{1}{3}$ chance of playing each option. In this case, the payoff to player 1 of selecting option a_j is given by $\frac{4}{9}u_1(x_j) + \frac{1}{9}\sum_{k \in I} u_1(x_k)$. The optimal (non-Nash) strategy in this instance is for each player simply to ignore the coordination aspect of the game and to select whichever strategy corresponds to the option they most prefer as a final outcome. The same applies even if each player expects that other players randomize only over outcomes that include payoffs for themselves. In that case, playing a_j yields expected payoff $\frac{1}{2}u_1(x_j) + \frac{1}{4}u_1(x_3)$ for player 1.

Hence other regarding preferences can resolve indeterminacy, even in instances in which each player expects other players to play randomly.

We call this feature *primary appeal*. This is akin to the notion of primary salience described above. In particular, it shares with the notion of primary salience the idea that players do not choose actions *strategically*, that is, in order to correlate with the actions of others, but rather choose their actions unilaterally, given some form of uniform prior about the likely actions of others. Unlike the notion of primary salience, differences in appeal are rooted in attitudes towards *outcomes* rather than towards strategies.

Again, akin to the notion of secondary salience, we can introduce a notion of *secondary appeal*. A strategy has secondary appeal for a player if it maximizes her utility, given that other players select their strategies on the basis of primary appeal. In our game for example, consider the case where it is common knowledge that player 2 is well disposed towards player 1, but no other players have other regarding preferences, and in particular, player 1 does not share player 2's affinity towards her. In this case, secondary appeal is sufficient to produce successful coordination between players 1 and 2, even though primary appeal in this situation is not sufficient to guarantee coordination. This is not however always the case.[12]

[12]It is possible that coordination is less successful when players play using secondary appeal instead of primary appeal. Consider a version of our game in which utilities are given as follows: $u_1(x_1) = 1.1, u_1(x_2) = 1$, $u_1(x_3) = 0$, $u_2(x_1) = 1, u_2(x_2) = 0$, $u_2(x_3) = 1$, $u_3(x_1) = 0$, $u_3(x_2) = 1.1$, $u_3(x_3) = 1$. This is a case in which player 1 has a small preference for increments in player 2's welfare over

There is a second type of confounding effect that we need to consider once we introduce the possibility that players use real aspects of players' identities in order to coordinate. In the settings we consider, both within and outside the lab, the choice to coordinate with others for sharing spoils of distribution takes place in a context in which players' identities are not just revealed to other players, but in which this fact is common knowledge. Because of the externalities that one player's decision can have on other players, players have interests in ensuring that other players behave in their interest. The employment of social norms, with expectations of punishment, is one mechanism that can be used to constrain the actions of others in such contexts. As discussed above, even in one shot environments players may act *as if* such norms apply to them in a laboratory setting (Hoffman et al. 1996).

The problem, however, is that if such social norms are in operation, their effects , which reports the results of games in which the offerer is anonymous). This may be similar to the effects we have discussed for other-regarding preferences. Indeed, they may produce a first order

increments in player 3's welfare, but player 3 has a slight preference for increments in player 1's welfare over increments in player 2's welfare. In this case, playing according to primary appeal, there is a 50% chance that players 1 and 2 will coordinate on option 1. But playing according to secondary appeal, there is no chance of successful coordination since player 1 will select option 2, player 2 will select option 1 and player 3 will select option 3. Note that in this example, coordination fails also for 3rd-order appeal and indeed for any n-th order appeal. Clearly here, a little intelligence can be a dangerous thing.

appeal effect, a second order appeal effect and so on.

The implication of this discussion is that to be confident that observed coordination along identity lines is a function of the focal point properties of ethnicity or gender, we need to ensure that it is not an artifact of first or second order appeal.

4 Findings

We next describe a set of experiments designed to identify the use of identity based focal points to achieve coordination and to distinguish the effects that we find from observationally equivalent effects that could arise from the presence of other-regarding preferences that are structured along ethnic or gender lines or of social norms that players import into the laboratory.

4.1 Experiment Design

To study these relations we undertook experimental work using a sample of 96 undergraduate students from the University of California, Los Angeles (UCLA) and the University of Southern California (USC). The participants were recruited from seven ethnic groups that have large presences on both campuses: African Americans, Arabs, Asians, Caucasians, Indians, Persians, and Latino/as, with about 54 percent of the

participants recruited through ethnic student associations on each campus, and the rest from the regular subject population of the California Social Science Experimental Lab (CASSEL) at UCLA. Since the subjects can in no way be considerd a random sample of the ethnic groups with which they identify we make no claims about differences in behavior across populations; to emphasize the point we refer in the analysis that follows to the seven groups simply as Groups $A - G$, with labels assigned according to rates of realized coordination.

At the outset of our experiments, we collected video and still images of each subject with a digital camera, all filmed in front of an identical blue background. These images provided the data that individuals could use to label their partners during the games we describe below.

The subjects then played three of the games we use to analyze coordinating behavior in this paper: the Voting game (as described above), plus the more standard Dictator and Ultimatum games (the results of which we use to check for the effects of other regarding preferences and social norms).

All games were played at CASSEL at UCLA and at a computer classroom in the Law School library at USC. Formally all sessions followed the same format. Subjects were welcomed, explained the rules of the games they were about to play, given a position in front of a terminal,

and asked to put on a set of headphones and to log in to the terminal. Each session was run by one of the co-authors plus the project programmer.

Each player played all games multiple times but never played twice with any other player. This limited the ability of players to use repeated interaction to establish coordination procedures or social norms or different forms of other-regarding preferences.[13] Furthermore, although players played multiple times (with different partners) they were not given feedback about the results of their play until they had completed all games. This further limited the possibility that players could use repeated interaction to condition each other's behavior. Finally, although players typically played both sides in the games (for example, they played both as offerers and receivers in the Dictator and ultimatum games), they played these different roles in blocks and did not know that they would be playing as receivers until after they had played all of their games as offerers.

To ensure that players did not know each other personally, in most cases, games were played between students on different campuses. In addition, players were asked to report, as each partner was introduced, whether she knew the partner personally. On average about 1% of plays

[13] See Crawford and Heller (1990) for evidence of coordination deriving from repeated interaction) or norms or different forms of other-regarding preferences

involved partners that knew each other and all results have been checked for robustness to the exclusion of these plays.

In all games sessions, any information that was provided about the identities of others was provided publicly to the players in the game. This was done through the use of a "public information box" which provided images of all participants in that round. All players playing a game viewed the same public information box and this became data of the game: hence players were able both to view information about the identities of their partners and to see the information that their partners received about them.

Importantly, although players could make inferences about the other players' ethnic and gender backgrounds from the images they were shown, players were not primed to ethnicity or gender at any point in the playing of the games we describe. They were simply told that the purpose of the experiment was to investigate how individuals interact with one another in the context of everyday economics interactions. This feature is very important for interpreting the results of all games we play: from results in the study of minimal groups we know that by simply being assigned to groups individuals are more likely to act in the interest of fellow group members and identify strongly with the groups to which they are assigned (for reviews of this very large literature see Turner

1981 and Tajfel 1982). Explicit cueing is thus likely sufficient to establish the salience of one set of strategies over another and to facilitate coordination along group lines. In our design, by contrast, we do not *create* groups, we simply provide images about partners without cuing ethnicity, gender or any other features of the partner. Any categorization of partners into gender or ethnic categories is done by the players themselves.

The voting game was played in trios. At the start of each round players were shown the public information box that identified the three players playing in that round. For games in which no information was given about the identity of players, these panels remained blank. The order in which the players appeared in the panel was random but fixed for a given trio: all players in that round of the game were shown the same ordering of players in the public information box. Below the public information box, players were shown a table indicating the payoff allocations for each of the three proposals and asked to select one of them. This was then repeated with a new set of partners. In total, each player played one game in which her partners were each of different (self-declared) ethnic groups, one game in which all partners were drawn from the same ethnic group, one game in which she was a minority player while her two partners were both from the same ethnic group and two

games in which one of her partners was drawn from her own group and the other was drawn from a different group. Gender matchings were created through random assignment of partners.

The playing of the Dictator and Ultimatum games was for the most part standard to the literature and is described in more detail in *Authors* (2005). In the Dictator game a player is asked to decide on a division of a dollar between herself and another player; the Dictator's decision is then implemented. The Ultimatum game is similar except that the second player—the receiver—may veto the Dictator's proposed allocation, in which case no player receives any benefits. An innovation of these games, made possible by the public information box, is that the information provided about the identity of subjects was sometimes asymmetrical. In some games, offerers had information about receivers although receivers had no information about offerers. We use the results of these games to make inferences about other regarding preferences. In other cases, receivers had information about offerers but offerers had no information about the receivers. Some games were played with symmetric information about the two players. We use the results of these two games to make inferences about the impact of social sanctions and within-group norms. A further innovation to the Dictator game is that we recorded not simply the offers made by players but also the expecta-

tions that receivers had regarding the offers made to them.

4.2 Results

4.2.1 Coordinating on strategy labels

Our results find strong support for our first conjecture. Below we describe the choices made by players in situations in which they were provided with no information about the identity of their partners in the games. As shown in Figure 3, both players 1 and 2 are more likely to play option 1 than they are to play any other option, and in particular they are more likely to choose the first option than they are to choose the other outcome that gives them private returns (options 2 and options 3 respectively).

Figure 3 Here

Furthermore, the difference in the propensity of the players to choose the first option is substantively large and statistically significant for each of players 1 and 2 (and for both combined). The t-statistic for the difference in the frequencies of $a_{1,1}$ relative to $a_{1,2}$ is 2.00; for $a_{2,1}$ relative to $a_{2,3}$ it is 4.40. The t-statistic for the differences in the frequencies of $a_{1,1}$ and $a_{2,1}$ combined relative to each of player 1 and 2's alternative self-rewarding choice, $a_{1,2}$ and $a_{2,3}$ is 4.10, corresponding to over

70% of these players choosing the option suggested by strategy labels. We cannot reject the null hypothesis that Player 3's are equally likely to choose either of the two options that give benefits to them. These players are somewhat more likely to choose the outcome that benefits their "neighbor," Player 2, but this does not reflect a greater likelihood of Player 2 to coordinate with Player 3 relative to Player 1's likelihood of coordinating with Player 3's, at least as observed in the data.

Consistent with previous work, we find then that, even without incorporating any information about player identities, we can establish patterns of coordination that are more successful than what could be achieved by chance.

4.2.2 Coordinating on ethnic identities

We next consider the choices made by players in settings in which they have richer information about their partner and can select between sharing with a co-ethnic and sharing with a non-co-ethnic, where co-ethnicity is defined in terms of self-placement in ethnic categories.[14]

[14] A natural concern is whether we, as analysts, are imposing beliefs about the ability of players to categorize other players in the manner our anaylsis suggests. To check for this, in a final session, after the completion of the Voting, Dictator and Ultimatum games, we played an "identification game" in which respondents were shown images of other subjects and asked to guess each subject's ethnic background. This was the first time subjects were informed that the ethnic backgrounds of subjects was a relevant feature of the study. The results from this game, not discussed further in this paper, confirmed that despite variation across groups, most groups in our sample were able to distinguish in-group members from out-group members with a high degree of precision.

Our first finding is that in this setting, players greatly reduce their reliance on strategy labels and focus instead on information provided about the other players. Whereas over 70% of players in position 1 or 2 selected option 1 over the alternative option that would benefit them in situations in which they had no further information about their partners, only 56% choose the first option once more information was provided about the other players in the game. Despite a considerable increase in our sample size between those who do have information about their partners compared to those that do not, the t-statistic associated with these figures, given a null of 50%, drops from 4.1 to 1.86.

The second major finding is that instead of relying on labels, players coordinate along ethnic lines. In a sample of 124 individual choices made in a setting in which players can select a package that rewards them and a co-ethnic or one that rewards them and a non-co-ethnic, a full 85, or 69% choose an option that allocates a share to their co-ethnic. This finding is substantially and statistically significant; the associated $t-$statistic based on the null hypothesis of equiprobabilities for choosing co-ethnics and non-co-ethnics is 4.43.[15]

Figure 4 Here

[15]If we restrict attention only to cases where players chose options that included shares for themselves, the results are essentially unchanged, 77 of 116 players, or over 66% choose the option with a coethnic, the associated t-statistic is 3.72.

Furthermore, as shown in Figure 4, this pattern of playing along identity lines occurs not simply overall, but within (essentially) every one of our groups. With the exception of the two smallest groups, which account for just 7% of our sample and for whom there is no discernible propensity to play either along or across identity lines, we observe a statistically significant propensity to play along ethnic lines in every one of our other groups, bordering on significance at the 90% level for two groups and finding significance well above the 95% level for the other three groups.

Finally, this pattern clearly trumps strategy label effects. In the subset of cases in which players are in position 1 or 2, and have information about their partners, with one a co-ethnic and the other not, just 56% chose option 1, as predicted by strategy labels. This figure, with an associated t-statistic of 1.02, is indistinguishable from 50%. A full 64% of the same sample however coordinated along ethnic lines, a figure with an associated t-statistic of 2.47 and significantly different from 50% at the 99% level.

4.2.3 Coordinating along and across gender lines

The evidence for coordination on gender identities is more surprising. We examine 183 cases in which a player can use gender to select between coordinating along identity lines and coordinating across identity

lines. We do not find evidence that *on average*, players use gender to coordinate along or across identity lines. This seems to suggest that, contrary to our second conjecture, neither of the two evolutionary stable strategies (choosing along or across identity lines) is being played by this population.

On closer examination however we find that this average effect masks a much richer effect taking place *within* gender categories. Disaggregating by gender, we find that approximately two thirds of women do play along gender lines, while approximately two thirds of men play across gender lines (see Figure 5). These two separate findings, both consistent with Conjecture 2, are statistically significant, but in opposite ways. As we found with ethnicity, we find here that in each case, the share of those choices predicted correctly based on the identities of players is greater than the predictions made based on strategy labels.

Figure 5 Here

In the next sections we consider to what extent these surprising results can be accounted for by the confounding effects of other regarding preferences and of group norms.

4.3 Accounting for the Confounding Effects of Preferences and Social Norms

To examine the possibility that coordination along identity lines is a function of preferences, through first or second order appeal, we begin with an analysis of results from the dictator game in situations where offerers have information about the identity of receivers, but know that receivers have no information about the identity of offerers.

In our experiments, we studied approximately 548 such actions. Of these, 120 consisted of offers made to co-ethnics and 428 consisted of offers made to non-co-ethnics.

We find no evidence that players are more likely to reward co-ethnics than they are to reward non-co-ethnics (see the the first column of Figure 6, which reports the results of games in which the offerer is anonymous). This suggests that the coordination that we have observed among co-ethnics can not be attributed to first order appeal.[16] While behavior in the Dictator game can certainly not account for all forms of other-regarding preferences, it does account for that form of other regarding preferences—the desire to distribute benefits to co-ethnics in experimen-

[16] As a further check we disaggregated offerers into three "types", based on whether they had an average propensity to make higher offers, lower offers, or the same offers to co-ethnics as compared to non-co-ethnics; we find that the propensity to coordinate along ethnic lines is in evidence in all three categories.

tal settings—that would be required to produce a confounding effect in our study of coordination.

Figure 6 Here

As described above, it is still possible that, even if co-ethnic preferences of this form do not exist in this environment, there may still be a shared *belief* among players that such preferences exist. In this case, the logic of second order appeal is sufficient to produce coordination among co-ethnics. To check for this possibility we collected information about players' beliefs about the other regarding preferences of others. Since collecting this information requires both that receivers know the identities of offerers and that offerers know the identity of receivers, these beliefs incorporate information about the expectations of other regarding preferences and about the employment of social norms that are triggered once players are observed in the actions they take towards others. We first then describe the evidence for the use of social norms among co-ethnics.

If social norms are employed, their presence may be detected in games where offerers know that their actions are observed by receivers, even if they remain unobserved when the identities of offerers is kept private. Returning now to Figure 6, the second column suggests that players are

no more likely to reward co-ethnics than they are non-co-ethnics, even when they are observed in their actions. This suggests that the fact of being observed does not trigger behavior that increases the propensity to take actions to benefit co-ethnics. Plays of the ultimatum game provide a second check for the presence of social norms operating between co-ethnic pairings. Insights from the work of Fehr and Gächter (2002) that if social norms are in operation, then receivers in an ultimatum game that are members of the same group as the offerer should use the threat of punishment to demand higher offers than would a non-co-ethnic. In fact we find that co-ethnics are, on average, *less* likely to engage in costly punishment (although the differences between punishing behavior between co-ethnic and non-co-ethnic pairings is not statistically significant at conventional levels). The result of these enquiries is firmly to reject the hypothesis that the success of coordination among co-ethnic pairings is due to first or second order appeal effects of other regarding preferences, structured by ethnicity, or of social norms, enforced within ethnic groups.

Figure 7 Here

Now consider second order appeal. As shown in Figure 7, below, we find no evidence that players believe that co-ethnics have positive

other-regarding preferences in their favor. This again suggests that the coordination we observe among co-ethnics can not be attributed to a second order appeal based on other regarding preferences.

The first panel in Figure 8 suggests that the coordination observed along gender lines can not be attributed to other-regarding preferences. Even though women coordinate more with women, we find no evidence that women differentiate between men and women in situations where the distributive decisions are fully under their control. Similarly, even though men are more likely to try to coordinate with women, we find no evidence that this is due to the presence of altruism towards women.

Figure 8 Here

Refer now to the second panel in Figure 8. Here we find striking results on the impacts of social norms on gendered behavior in this environment. Men, although they do not offer more to women when they are unobserved, offer substantially more to women once they *are* observed by those women. This "public chivalry" effect, in the case of men, can account for the propensity, as a first order appeal effect, to coordinate with women across identity lines.[17]

[17] When we disaggregate between those men that exhibit public chivalry and those that do not, we find that *both* types of player coordinate across ethnic lines, indicating that second or higher order appeal effects may indeed be working in addition to first order appeal.

Women, by contrast, although they too offer no more to women than to men when unobserved in their actions, also offer considerably more to women once they are observed. In this case, the public nature of a coordination game is sufficient to invoke these norms, and in particular, is sufficient to produce the observed coordination by women along identity lines, without that implying anything about "Schelling coordination" in the pure sense.[18] The presence of gender norms is further confirmed in plays of the ultimatum game. Consistent with Fehr and Gächter (2002), we find that women players punish both men and women for failing to provide them with high rewards.

Finally, the results of our study of *expectations* of generous behavior as a function of other regarding preferences or of social norms presented in Figure 7 suggests that the observed coordinating behavior along and across gender lines, while it may derive from first order appeal effects, is not due to second order appeal effects.

[18]It is natural to ask, given that gender preferences and ethnic coordination work in opposite directions, which effect will dominate. Our experiments include an insufficient number of cases to conduct a satisfactory analysis of such "Case II" coordination problems. However the few instances we have may indicate a more general trend. Of the fifteen cases in which women subjects could select between sharing with a male co-ethnic and a female non-co-ethnic, they elected to share with the male co-ethnic 10 times (66%), correctly anticipating that male co-ethnics in such situations select co-ethnics. Of the 18 cases in which a male could elect between coordinating with another male co-ethnic and a female non-co-ethnic, they selected female non-co-ethnics 12 times (again 66%). The indication is that co-ethnicity is *a more salient* coordinating device for women than is gender, even taking into account the preference based incentives related to gender.

5 Conclusion

Previous research on coordination games demonstrates that players use payoff irrelevant information about the structure of coordination games in order to achieve collective action. We develop this literature and bring it to bear on the study of identity politics by examining how identities can be used to solve coordination problems in mixed motive games. Because in many environments of interest, pure coordination effects are observationally equivalent to more common mechanisms linking identity to collective action, such as preferences or social norms, we use experimental methods to test the hypothesis that individuals do use gender and ethnicity as coordinating devices.

Consistent with past literature we find that when faced with coordination dilemmas, players are creative in searching for focal points, and frequently coordinate on strategy labels. However, this effect, we find, largely depends on the absence of richer information about player identities.

A more powerful predictor of player strategies is information about the identities of their partners. *How* this functions is likely to be context dependent, depending on the salience of different identity classifications and markers. Our study demonstrates however that it happens and that the effects of pure coordination can be distinguished from more common

explanations of cooperation on identity lines that are based on arguments of correlated preferences or common norms.

Specifically, we find, players coordinate along ethnic identity lines. We show that the high degree of coordination we observe can not be accounted for either through the common arguments that co-ethnics have positive other regarding preferences for in-group members, or even that they believe that other members hold such preferences. Nor can the high degree of coordination be accounted for through the existence of social norms requiring co-ethnics to act in each others interests. Such behavior is not observable in environments designed explicitly to expose it.

We find weaker evidence that players coordinate along gender lines, even though gender identification is typically easier than ethnic identification. Coordination does occur, but in a more complex manner, with women coordinating along gender lines and men attempting to coordinate across gender lines. However, in this case, and unlike the case of coordination along ethnic lines, we cannot reject the hypothesis that the pattern of successful coordination that we observe along or across gender lines is an artifact of the exercise of social norms regulating patterns of cooperation between men and women.

The implications of this research are striking. Most standard theo-

ries of the role of social identity in strategic decision making emphasize the different beliefs and attitudes of different "types" of individuals, the attachments individuals have towards in-group and out-group members, and the social norms that may evolve within identity groups that may shape the behavior of their members. In many instances these features may be important—different mechanisms that can explain the use of identity categories in politics may vary according to the political context— however, the research here suggests that none of these features is necessary to explain the organization of politics along identity lines. Instead of focusing on the motivations players have to treat each other well or badly, the results presented here indicate that what may be more important is the distributive nature of the political environment. When political structures push individuals to form coalitions the ability people have to categorize and to be categorized can be more important than the meaningfulness of the categories that they use.

References

[1] Axtell, R.L., J.M. Epstein and H.P. Young. 2001. Emergence of Class Norms in a Multi-Agent Model of Bargaining. In S. Durlauf and H.P. Young, eds. Social Dynamics. MIT Press: Cambridge, Mass.

[2] Bacharach,M. 1993. Variable universe games. In K. Binmore, A. Kirman and P. Tani (eds.), Frontiers of Game Theory. MIT Press, Cambridge,Mass.

[3] Bacharach, M. and M. Bernasconi. 1997. The Variable Frame Theory of Focal Points: An Experimental Study. Games and Economic Behavior 19: 1-45.

[4] Bawn, K. 1999. Constructing 'Us': Ideology, Coalition Politics, and False Consciousness. American Journal of Political Science, Vol. 43, No. 2. (Apr., 1999): 303-334.

[5] Binmore K and L Samuelson (Forthcoming) The evolution of focal points. Games and Economic Behavior

[6] Casajus, A. 2000. Focal Points in Framed Strategic Forms. Games and Economic Behavior 32, 263–291.

[7] Bolton, G and Katok E. 1995. "An Experimental Test for Gender Differences in Beneficent Behavior," Economics Letters 48, pp. 287-292.

[8] Colman, A. 1997. Salience and Focusing in Pure Coordination Games. Journal of Economic Methodology 4: 61-82.

[9] Crawford, V. P. and H. Heller. 1990. "Learning How to Cooperate: Optimal Play in Repeated Coordination Games" Econometrica 58: 571-595.

[10] Croson R and Gneezy U (2004) Gender Differences in Preferences Unpublished Manuscript

[11] Dufwenberg M. and U. Gneezy. Gender and Coordination.

[12] Dufwenberg M. and Muren, A. (forthcoming) Gender Composition in Teams, Journal of Economic Behavior & Organization.

[13] Dufwenberg M., and A. Muren. (2000) Discrimination by Gender and Political Correctness. Unpublished manuscript.

[14] Eagly, A., & Crowley, M. 1986. Gender and helping behavior: A meta-analytic review of the social psychology literature. Psychological Bulletin, 100, 283-308.

[15] Eckel, C. and R. Wilson. 2003. Conditional trust: sex, race and facial expressions in a trust game. In Trust and Reciprocity: Interdisciplinary Lessons from Experimental Research, Russell Sage Foundation. Elinor Ostrom and James M. Walker (eds).

[16] Fafchamps, M. and B. Minten. 2002. Returns to Social Network Capital Among Traders. Oxford Economic Papers, 54, 173-206.

[17] Fearon, J. D. 1999. "Why Ethnic Politics and 'Pork' Tend to Go Together." Typescript. Stanford University.

[18] Fearon, J. D.. and D. D. Laitin. 1996. "Explaining Interethnic Cooperation." American Political Science Review 90, 4: 715-35.

[19] Fehr, Ernst and Simon Gächter. 2002. "Altruistic punishment in humans" Nature. 412.

[20] Fershtman, C. and U. Gneezy. 2001. "Discrimination in a Segmented Society: An Experimental Approach." Quarterly Journal of Economics 116, 1: 351-377.

[21] Ghosh, P. and D. Ray. 1996. Cooperation in Community Interaction without Information Flows. Review of Economic Studies. 63:491-519.

[22] Gil-White, F. J. 2004. "Ultimatum Game with an Ethnicity Manipulation: Results from Bulgan Sum, Mongoloa." In Joseph Henrich et al. Foundations of Human Sociality: Economic Experiments and Ethnographic Evidence from Fifteen Small-Scale Societies. New York: Oxford University Press: 260-304.

[23] Henry H., Explaining Ethnicity. Comparative Political Studies 37 (4): 458

[24] Hardin, R. 1995. One for All: the Logic of Group Conflict. Princeton: Princeton University Press.

[25] Harsanyi, J. C., and Selten, R. 1988. A General Theory of Equilibrium Selection in Games. Cambridge, MA: MIT Press.

[26] Hoffman, E, K. McCabe, and V. L. Smith. 1996. "Social Distance and Other- Regarding Behavior in Dictator Games." American Economic Review 86 (June): 653-660.

[27] Holm,H. 2000. "Gender-Based Focal Points." Games and Economic Behavior 32, 292 314

[28] Janssen, M. CW.2001. "Rationalizing Focal Points." Theory and Decision 50: 119–148.

[29] Janssen, M. CW.1998. "Focal Points." New Palgrave Dictionary of Economics and the Law.

[30] Lewis, D. 1969. Convention. Harvard UP, Cambridge, Mass.

[31] Mehta, J., C. Starmer, and R. Sugden. 1994a. "The Nature of Salience: An Experimental Investigation of Pure Coordination Games," American Economic Review, American Economic Association, vol. 84(3).

[32] Mehta, J., Starmer, C., and Sugden, R. 1994b. "Focal Points in Pure Coordination Games: An Experimental Investigation," Theory Decision 36, 163–185.

[33] Platteau, J.-P. 1994. Behind the Market Stage Where Real Societies Exist. The Journal of Development Studies 30(3-4): 533-77 and 753-

817.

[34] Schelling, T.C. (1960). The Strategy of Conflict. Cambridge, MA: Harvard University Press.

[35] Sen, A. 1969. A game theoretical analysis of theories of collectivismin allocation. In Majumdar, T., Growth and Choice, 1–17. Oxford: Oxford University Press.

[36] Sugden, R. 1995. "Towards a Theory of Focal Points." Economic Journal 105:533-550.

[37] Tajfel, H. 1982.Social Psychology of Intergroup Relations. Annual Review of Psychology. 33:1-39.

[38] Turner, J.C. 1981. The experimental social psychology of intergroup behavior. In Turner and Giles (Eds) 1981 Intergroup Behavior. Oxford: Blackwell.

[39] Van Huyck, J., C. Battalio and R. Bell 1990. "Tacit Coordination Games, Strategic Uncertainty and Coordination Failure." American Economic Review 80: 234-48.

[40] Varshney, A. 2002. "Poverty Eradication and Democracy in the Developing World" New York: UNDP. Background paper for HDR 2002

[41] Young, H.P. 1993. "The Evolution of Conventions." Econometrica 61: 57-84.

6 Tables and Figures

Herein follow Figures 1–8, accompanying "Social Focal Points."

		Player II	
		Option A	Option B
Player I	Option A	2,2	0,0
	Option B	0,0	1,3

		Player II	
		The generous strategy	The mean strategy
Player I	Option A	2,2	0,0
	Option B	0,0	1,3

Figure 1: Two games that are isomorphically equivalent if cell entries denote utility information but that may not be in an experimental setting in which cell entries denote monetary payoffs.

		σ_1 = a_1			σ_1 = a_2			σ_1 = a_3		
		σ_2			σ_2			σ_2		
σ_3		a_1	a_2	a_3	a_1	a_2	a_3	a_1	a_2	a_3
a_1		1 1 0	1 1 0	1 1 0						
a_2		**1** **1** **0**	1 0 1	0 0 0						
a_3		**1** **1** **0**	0 0 0	**0** **1** **1**						
$a_{3,1}$					1 1 0	1 0 1	0 0 0			
$a_{3,2}$					**1** **0** **1**	1 0 1	**1** **0** **1**			
$a_{3,3}$					0 0 0	1 0 1	**0** **1** **1**			
$a_{3,1}$								1 1 0	0 0 0	0 1 1
$a_{3,2}$								0 0 0	1 0 1	0 1 1
$a_{3,3}$								0 1 1	0 1 1	0 1 1

Figure 2: The Game in Strategic Form: The number in the upper right corner in each of the 27 cells corresponds to Player 1's payoff, the centered number corresponds to 2's payoff, the number in the lower left corner gives 3's payoff. Nash equilibria are shaded; Nash equilibria that are not weakly dominated are written in bold.

	a_1	a_2	a_3	Total
Player 1	55%	27.5%	17.5%	100
	(22)	(11)	(7)	(40)
Player 2	72%	10%	18%	100
	(28)	(4)	(7)	(39)
Player 3	6%	44%	50%	100
	(2)	(15)	(17)	(34)

Figure 3: Coordinating through strategy labels: Frequencies of choosing alternative strategies when players have no information about the other players in the game.

Group	*N*	Percent choosing option that benefits co-ethnic given one co-ethnic and one non-co-ethnic partner	Probability of seeing as many co-ethnic choices (or more) given null (null: 50% probability)
A	3	33%	.875
B	6	50%	.656
C	30	63%	.100
D	23	65%	.105
E	40	68%	.019
F	14	86%	.007
G	8	100%	.004
Total	124	69%	.000

Figure 4: Frequency of playing along identity lines given option of playing along or across identity lines.

Gender of Chooser	*N*	Percent choosing option that benefits co-gender given one co-gender and one non-co-gender partner	t-stat (null: 50% probability)
Male	79	0.35	-2.69
Female	104	0.64	3.05
Total	183	0.52	0.5

Figure 5: Using gender to coordinate along or across identity lines.

	Offerer Not Observed	Offerer Observed	Difference	t-stat (Null: No difference due to information on offerer)
Non-Co-ethnic	30.04 (428)	31.28 (301)	1.24	.71
Co-ethnic	28.61 (120)	32.52 (73)	3.91	1.06
Difference	-1.43	1.22		
t-stat (Null: No difference between Co-ethnic and Non-co-ethnic)	-0.59	0.4		

Figure 6: Average offers made in the dictator game

***Expected* Offers (Two-Way Info)**

Offerer is a co-ethnic?		Significant
Yes	No	Difference?
34.29	32.45	NO

***Expected* Offers (Two-Way Info)**

		Receiver's Gender		Significant
		Female	Male	Difference?
Offerer's Gender	Female	34.81	32.09	NO
	Male	30.73	32.80	NO

Figure 7: This table reports the offers that receivers expect offerers to make in a dictator game as a funciton of the coethnicity of the offerer and the receiver and as a function of the gender of the offerer and the gender of the receiver.

One-Way Info (on Receiver Only)

Overall Sample: 29.73

		Receiver's Gender		Significant
		Female	Male	Difference?
Offerer's Gender	Female	29.57	28.28	NO
	Male	30.44	30.99	NO

Two-Way Info (on Receiver and Offerer)

Overall Sample: 31.52

		Receiver's Gender		Significant?
		Female	Male	Difference
Offerer's Gender	Female	33.10	27.49	YES
	Male	36.37	26.31	YES

Figure 8: Evidence for other regarding preferences structured by gender and for behavior according to gender norms.