When in Rome: Conformity and the Provision of Public Goods

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April, 2002

MIDDLEBURY COLLEGE ECONOMICS DISCUSSION
PAPER NO. 02-17

DEPARTMENT OF ECONOMICS
MIDDLEBURY COLLEGE
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http://www.middlebury.edu/~econ

When in Rome: Conformity and the Provision of Public Goods

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April 19, 2002

Abstract: We ask whether conformity, copying the most observed behavior in a population, can affect free riding in a public goods situation. Our model suggests that, if free riding is sufficiently frequent at the start of a public goods game, conformity will increase the growth rate of free riding. We confirm this prediction in the experimental lab by showing that more free riding occurs when players have information about the distribution of contributions than when players know only the aggregate contribution level. As a stricter test, we econometrically estimate the dynamic on which the model is based and find that, controlling for the payoff incentive to free ride, players react significantly to the number of free riders in their groups. Further, conformity is significantly stronger when players have more information about the choices of others.

Keywords: conformity, public good, social dilemma, experiment, replicator dynamic

JEL Codes: C72, C92, H41

Introduction[*]

According to psychologists, *conformity* - the tendency to copy the most prevalent behavior in a population - is a particularly strong and robust predictor of human behavior (see the reviews of Moscovici [1985] and Cialdini and Trost [1998]). However, conformity is largely ignored in economic models of human behavior which focus, mostly, on the pursuit of material well-being.[1] Obviously, the situations where conformity might improve economic predictions are limited to scenarios where behavior is public and people can observe what others do. However, isolating economically important situations where conformity may play a role is not as simple as identifying situations in which decisions are made publicly because we must also consider why people conform.

Traditionally, there are two reasons that people conform: (1) to avoid sanctions for deviating from norms, and (2) to take advantage of the information acquired and processed by others (Deutsch and Gerard [1955]).[2] Previous research suggests that when economic decisions generate externalities that either benefit or harm other people (i.e. social dilemmas), those who are affected are typically adept at figuring out the actions of others and at sanctioning the people who make decisions that violate widely-held norms of cooperation.[3] In these situations people

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[*] The author thanks the participants in the Middlebury College Economics Junior Faculty Research Seminar for helpful comments on an earlier draft. This research is supported by the National Science Foundation (SES-CAREER 0092953).

[1] Interesting exceptions include Bowles [1998] on the endogenous formation of preferences and Anderson and Holt [1997] on information cascades.

[2] People may also conform to be better liked (Hatfield et al. [1993]) but this reason might just be a rationalization of norm compliance.

[3] Acheson [1988] is a fascinating and well documented example of lobster fishing in Maine. For laboratory evidence of punishing deviations from a norms see Fehr and Gaechter [2000b].

conform to evolved conventions to avoid being sanctioned.

People may also conform when they lack information about what the most beneficial action to take is or when they think they lack important information. In this case conformity is based on the perceived benefit of imitation. When presented with a new environment, the simple heuristic of copy the most prevalent behavior often pays off because copiers minimize the cognitive costs of gathering and analyzing information, while benefiting from the lessons learned by others (Tversky and Kahneman [1974], Cialdini [1993]).

One economically important situation in which people might feel they lack important information and/or fear sanctions for making inappropriate decisions is the provision of a public good. While the incentives involved in the provision of public goods (see Bergstrom et al. [1986]) appear straight-forward and assure that people will collectively contribute less that what would be socially optimal, to naïve decision makers it might not be obvious what the payoff maximizing contribution level is. For example, the fact that average contributions in many treatments of (theoretically straight-forward) linear public goods games start between 40 and 60 percent of the endowment is consistent with the hypothesis that participants are initially uncertain about what to do and simply try half-half to see what happens (Ledyard [1995]). Further, as demonstrated in Carpenter et al. [2001], Gintis [2000], and Sethi [1996], public goods games provide an environment in which sanctioning norm violators can and does evolve both in the lab and theoretically.

While the conforming effect of sanctions has been studied extensively and the role of being unfamiliar with the incentives of public goods has been examined to a lesser degree (Andreoni [1988]; Andreoni [1995]), there has been little economic research that isolates the nonpunishment, or imitation, role of conformity in the provision of a public good.[4]

What follows is an empirical study of conformity in the standard public goods experiment, the *voluntary contribution mechanism* or VCM (Isaac et al. [1984]). We begin by creating a model of conformity. The model is important because it provides us with both a baseline prediction when no conformity is present and an alternative prediction that accounts for the imitative effect of conformity. We then discuss the results of an experiment. The first experimental condition is a traditional VCM which we use as a control. The treatment modifies the standard VCM to allow, more explicitly, for the expression of conformity. We then estimate our model econometrically and find significantly more conformity in the treatment.

Modeling the Effect of Conformity on the Provision of a Public Good

Consider a large population of agents who are randomly repaired each period to play the following public goods game in groups of size n. Agents are "hard-wired" to either contribute to the public good or not and strategies survive (i.e. persist or grow in the population) to the extent that they return higher material benefits than that accruing to the strategy used by the average agent.[5] Agents are endowed with e resource units that can either be all contributed to the public good or all kept. Each unit contributed returns benefits of $0<m<1$ to all the members of

[4] There are, however, a few papers on the more general topic of conformity in social dilemmas in psychology (e.g. Parks et al. [2001], Schroeder et al. [1983]).

[5] A more complicated "social learning" story can be told based on agents who are not "hard-wired" but instead compare outcomes to aspiration levels and switch strategies when dissatisfied. However, as shown in Gale et al. [1995], such a story is largely equivalent to the simpler, shorter, story that follows.

the group while kept units only benefit the free rider.[6] If we denote p as the fraction of free riders in the population we can calculate the expected payoff for the two strategies: *contribute* and *free ride*. The expected payoffs to contributing, π_c, and to free riding, π_{fr}, when there are p free riders in the population are:

$$\pi_c = em + em(n-1)(1-p)$$
$$\pi_{fr} = e + em(n-1)(1-p)$$

Notice, both payoffs are decreasing in the number of free riders and the payoff to free riding dominates the payoff to contributing for any value of p. This defines the game as a standard linear public goods problem.

As we stated above, we will allow the population to evolve according to the standard replicator dynamic (Taylor and Jonker [1978], Maynard Smith [1982]) under which the growth rate of a strategy depends on the differential benefit the strategy confers on agents when compared to the payoff received by the average agent. In discrete time, the growth of free riders in the population follows:

$$p_t = \frac{p_{t-1}(\pi_{fr} - \bar{\pi})}{\bar{\pi}} + p_{t-1}$$

Where $\bar{\pi} = p_{t-1}\pi_{fr} + (1-p_{t-1})\pi_c$ is the average payoff. Because the denominator does not determine the fixed points of the dynamic, we consider the simpler version,

[6] This baseline model is very similar to Miller and Andreoni [1991] except Miller and Andreoni allow a larger strategy space (i.e. the contribution decision is not binary). As we will see, controlling for the return on the public good and the size of groups, our simpler binary choice game provides nearly identical time paths.

$$p_t = p_{t-1}(\pi_{fr} - \overline{\pi}) + p_{t-1}$$

This sort of public goods game conducted in the experimental lab would, for example, allocate five persons to a group ($n=5$), assign a marginal per capita return from the public good of three quarters of each contribution ($m=0.75$), and give players an endowment of 20 experimental monetary units or EMUs ($e=20$). Substituting these values into the payoffs to contributing and free riding, calculating the average payoff, and after some algebra we arrive at:

$$p_t = p_{t-1}(1 - p_{t-1})(5) + p_{t-1}$$

The time paths of this dynamic mimic the standard increase in free riding we see in many VCM experiments (see Ledyard [1995]). Figure 1 plots the time paths (in continuous time) from different initial conditions. Notice, as pointed out in Miller and Andreoni [1991], allowing strategies to evolve generates behavioral time paths that mimic the growth of free riding in actual laboratory experiments.

Figure 1 about here

Now we ask what happens if people conform. While there are many functional forms that we could use to represent conformity, we will only consider what we call the class of "cubic" functions represented in figure 2. [7]

[7] In related work, Henrich and Boyd [2001] use the linear conformity function, $p_t = p_{t-1} + 2(p_{t-1} - 1)$.

Figure 2 about here

We limit our analysis to cubic conformity functions for two reasons. One, cubic functions can be constructed such that $\Delta p < 0$ when free riders represent less than half the population and $\Delta p > 0$ when free riders make up more than half the population. Second, to assure the dynamic never "runs off the strategy simplex," we also limit our choice to cubic functions which have rest points at $p=0$ and $p=1$. Let $c(p_{t-1})$ be one member of this class of conformity functions, in which case, we can combine the incentive to conform with the payoff incentive to free ride by assuming that the strength of conformity can be measured by a parameter, $0 \leq \alpha \leq 1$. Under this assumption the population now evolves according to:

$$p_t = (1-\alpha)[p_{t-1}(\pi_{fr} - \overline{\pi})] + \alpha c(p_{t-1}) + p_{t-1}$$

Figure 3 is drawn with $c(p_{t-1}) = 60 p_{t-1}{}^2 - 20 p_{t-1} - 40 p_{t-1}{}^3$ and $\alpha = 0.5$. As one can see, with sufficient conformity two important things happen to the time paths. First, as shown in the two lower curves, if the initial frequency of free riding is small, and if conformity is strong enough a second fixed point arises in which all agents contribute. Second, and more important for our purposes, with conformity, the growth rate of free riding increases when there are sufficiently many free riders at the start of the game. Initially, the conformist dynamic causes free riding to grow slower near $p_{t-1} = 0.5$ because the effect of conformity at this population distribution is relatively low, but once there are sufficiently many free riders, the conformity effect exacerbates the payoff effect and free riding grows more rapidly than in the baseline model. Hence, our prior is: *if free riding is sufficiently common at the start of the game and* *conformity significantly affects contributions to a public good, we should see an increase in the growth rate of free riding as the game proceeds.*

Figure 3 about here

Testing For Conformity in the Experimental Lab

To test for conformity we ran a VCM experiment with 10 sessions (5 for each treatment) and 165 participants who earned 16.14 dollars, on average, including a 5 dollar show-up fee. In each of ten periods participants were randomly shuffled into groups of five. This is the familiar *strangers* condition (Keser and van Winden [2000], Croson [1996], Andreoni [1988]). We used the strangers condition to control, as much as possible, for any strategic or conditionally cooperative reasons that may influence participant choices; doing so allows us to focus on conformity. We also used the strangers condition to match the conditions of the model (and the replicator dynamic) as closely as possible.

As in figure 1, in the experiment each EMU contributed returned 0.75 EMUs for each of the five members of the group. With an endowment of 20 EMUs, the payoff function for the experiment was:

$$\pi_i = (20 - x_i) + 0.75\sum_i x_i$$

where π_i and x_i are the payoff and contribution of the ith group member ($i = 1,2,3,4,5$), respectively. Differentiating π_i with respect to x_i illustrates that contributing nothing is the dominant strategy, but differentiating with respect to $\sum_i x_i$ shows that the social optimum occurs when everyone contributes fully.

In the *control* treatment, participants were first asked to decide how to allocate their 20 EMU endowment between the public good and their own personal accounts. After everyone had made the allocation decision, each individual was shown three pieces of information: the individual's contribution, how much the individual's group contributed *in total*, and the individual's payoff for the period.[8] Hence, participants in the control only knew how much the group contributed in total – they did not know what the other group members had contributed individually. The *monitor* treatment proceeded identically to the control treatment except the information participants were shown after deciding on contribution levels was augmented by the individual contribution decisions of all the other current group members (however individual identities were never revealed).

In the monitor treatment participants could see the distribution of contribution choices rather than just the group total contribution. Knowing the distribution gives players the information necessary for conformity to play a stronger role. For example, when players know only the group total contribution, a situation in which two of the other group members contribute fully and the other two free ride fully is identical to the situation where each other group member contributes 10 EMUs. Using the same example, for a conformist who knows the distribution of choices the first scenario is perplexing because the group is split half contributors and half free riders, but in the latter scenario it is obvious what conforming means.

What happens in this experiment? Figure 4 plots the average fraction of EMUs kept in the two treatments for each period of the experiment. In both treatments average contributions start at approximately 50% of the endowment. The control treatment replicates

[8] At the second stage of each period the information from all pervious periods was also listed.

the results of other VCM experiments in which the marginal per capita return from the public good is 0.75 (Isaac et al. [1984]); specifically, free riding increases, but slowly. Compared to the control, in the monitor treatment free riding grows faster.[9] Further, as in the model (recall figure 3) the conformist treatment cuts the control treatment from below and then elicits more free riding faster. This result alone is evidence favoring a significant conformity effect.

Figure 4 about here

One, more formal, way to test for conformity is to check whether the distribution of EMUs kept in period ten looks similar to the distribution in the previous nine periods. That is, if players conform we would expect the distribution of EMUs kept in period 10 would look very much like the distribution in periods one through nine. Further, the more conformity, the closer the two distributions should be. In figure 5 we present four histograms, two for the distribution of EMUs kept in periods one through nine and two for the distributions in period ten. As one can see by the end of ten periods, the control treatment appears to bifurcate decisions much more than the monitor treatment. Participants in the control are most likely to keep none of the endowment or three quarters of it, while the participants in the monitor treatment are distributed much closer to the average contribution.[10]

[9] Overall, EMUs kept in the monitor treatment are distributed significantly higher than in the control. Defining an observation as the session average contribution in a period and testing for differences in central tendencies we get $z=2.13$, $p=0.03$. Testing for differences in the cumulative distributions we get $ks=0.30$, $p=0.02$.

[10] In fact in period ten the variance of behavior in the control is nearly twice as high as in the monitor treatment (compare 56.50 to 29.51).

To test how close the period ten distributions are to the periods one through nine distributions we used the Komogornov-Smirnov test (see Siegel and Castellan [1988]) which tests for differences in cumulative distributions. According to this test the two distributions in the control treatment are significantly different (KS=0.19, p=0.01) indicating less conformity in the control treatment. However, in the monitor treatment the two distributions are statistically indistinguishable (KS=0.13, p=0.14) suggesting more conformity. We now proceed to bolster the case for conformity with a more sophisticated statistical argument.

Measuring the Effect of Conformity Econometrically

As a more rigorous test of conformity we econometrically estimated our model to see if the key behavioral determinants, the differential benefit of free riding and the frequency of free riders, influenced the contribution choices of our participants. We also tested whether the monitor treatment elicited more conformity.

All the results we report are from regressing the number of EMUs a person kept in period *t* on the frequency of free riders in the person's group in period *t-1*, on the differential payoff accruing to free riders in period *t-1*, and on the EMUs a person kept in period *t-1*. We measure the free rider's payoff differential as the average payoff received by a free rider minus the average payoff received by players overall within each period and session. To test the robustness of our results, we measure free riding in three different ways: contributing 1/4 of the endowment or less, contributing 1/3 of the endowment or less, and contributing 1/2 the endowment or less. To prevent our results from being biased by the fact that contributions are bound between 0 and 20, we use the tobit procedure. Lastly, to control for individual specific heterogeneity, we include random effects.

Table 1 is a simple test of whether something that we might loosely call conformity - a response to the frequency of free riding that is independent of the payoff motivation to free ride – is present in our data. Interestingly, within our pooled data we see that, controlling for how much one free rode last period, all the increase in free riding can be attributed to conformity; the payoff incentive to free ride contributes effectively nothing to one's contribution decision.[11] Further, the conformity effect is invariant to the definition of free riding. Under each definition of free riding we see a significant influence of conformity – the more free riders there were last period, the more individuals free ride this period.

Table 1 about here

In table 2 we ask, for each free riding definition, whether either the payoff motive to free ride or the conformist motive to free ride has a differential effect in the monitor treatment. Under none of the free riding definitions are participants significantly more responsive to the material incentive to free ride in the monitor treatment than in the control treatment (i.e. the free rider differential by monitor interaction is never significant). However, as hypothesized, conformity is stronger when participants are given the full distribution of what other players in

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[11] Note, one should expect a strong correlation between the free rider's payoff differential and the frequency of free riders and that the resulting colinearity might cause the free rider's differential to predict poorly. However, because of how the free rider's differential is defined (i.e. expected free rider payoff minus the average payoff) we measured the free rider's differential at the session level while we measured the frequency of free riding at the group level. As a result, the correlation is never greater than $\rho = -0.33$. Further, dropping the frequency from the regressions in table 1 does not substantially increase the size or significance of the free rider differential indicating that colinearity is not driving the result.

their groups are doing (i.e. the frequency by monitor interaction is significant in all cases).

The size and significance of the differential conformity effect depends on the definition of free riding. As the definition of free riding loosens, the differential effect of conformity in the monitoring treatment increases. This increase grows to the point where conformity is approximately 10% stronger in the monitor treatment when we use the contribute 1/2 or less definition of free riding.

We also see that (controlling for treatment differences) the effect of the material incentive to free ride becomes stronger and more significant as we loosen the definition of free riding. In fact, using either the contribute 1/3 or less or the contribute 1/2 or less definition the replicator dynamic fits our data rather well. The higher the material incentive to free ride last period, the more people free ride this period, and the more free riders there were last period, the more people free ride this period, the later effect being stronger when more information about free riding is provided.

Table 2 about here

Concluding Remarks

The model presented above and the experiment designed to test the model's predictions demonstrate that conformity may be an important economic phenomenon in social dilemma situations such as the provision of a public good. Conformity may be important because it helps sustain contributions when they start at sufficiently high levels. More importantly however, as demonstrated by the current experiment, conformity is important because it can account for why cooperation might wane faster than standard theories based on boundedly rational agents (e.g. the replicator dynamic) would suggest. As the number of free riders increases, conformity provides an additional incentive (or excuse) to free ride. This also implies that when conformity is present, trying to initiate contributions in a population of free riders will be even harder than first thought.

These results suggest a possible confound for explanations of the dynamics seen in public goods experiments based on the specific idea of conditional cooperation or, more generally, reciprocity. *Conditional cooperation* (Andreoni [1988], Keser and van Winden [2000]) hypothesizes that players are predisposed to contribute in social dilemmas, but become frustrated by free riders and punish them by withholding future contributions. Conditional cooperation predicts the type of gradual decline in contributions seen in many public goods experiments where players stay in the same group for the entire experiment (i.e. the *partners* protocol).

However, conditional cooperation makes little sense when groups are randomly reshuffled after each period (i.e. the *strangers* protocol) because it is not clear why people would punish future group members who, in all likelihood, will be different from those who free rode in earlier periods. That is, when players do not stay in the same group, there is no reason to punish future group members and therefore there is no dynamic reducing contributions. Yet, as seen in Fehr and Gaechter [2000a] and Fehr and Gaechter [2000b] the growth rates of free riding under three matching protocols, partners, strangers and *complete strangers,* where players know they will never be in a group with the same people again, can be ordered from slowest to fastest growth, partners < strangers < complete strangers.

Conformity, on the other hand, predicts equally well under any matching protocol. If naïve participants search for clues from their fellow group mates and make decisions partially on the payoff benefit a strategy returns and partially on trying to take advantage of what others have learned by imitating them, it matters little who is the group next period. In addition, while conditional cooperation has a hard time explaining the decline in contributions under different matching protocols, the conformity explanation is straightforward. Recalling figures 1 and 3, and the data of Keser and van Winden [2000], Fehr and Gaechter [2000b] and Fehr and Gaechter [2000a], free riding grows faster when players are less likely to meet each other in the future because there is more initial free riding when interactions are less likely to be repeated.

Participant Instructions (Monitor Treatment)

You have been asked to participate in an economics experiment. For participating today and being on time you have been paid $5. You may earn an additional amount of money depending on your decisions in the experiment. This money will be paid to you, in cash, at the end of the experiment. By clicking the begin button you will be asked for some personal information. After everyone enters this information we will start the instructions for the experiment.

During the experiment we will speak in terms of Experimental Monetary Units, EMUs, instead of Dollars. Your payoffs will be calculated in terms of EMUs and then translated at the end of the experiment into dollars at the following rate: 30 EMUs = 1 Dollar

The experiment is divided into 10 different periods. In each period participants are divided into groups of 5. You will therefore be in a group with 4 other participants. The composition of the groups will change randomly at the beginning of each period. Therefore, in each period your group will consist of different participants.

Each period of the experiment consists of two stages. In the first stage you will decide how many EMUs you want to invest in each of two investment accounts. One account is a Private Account, which only you benefit from. The second account is a Public Account, the benefits of which are shared equally by all members of your group. In the second stage of the period you will be shown the investment behavior of the other members of your group.

Now we will explain the two stages in more depth.

Stage One

At the beginning of every period each participant receives an endowment of 20 EMUs. You have to decide how much of this endowment you want to invest in each of the two accounts mentioned above. You are asked to invest in whole EMU amounts (i.e. an investment of 5 EMUs is alright, but 3.75 should be rounded up to 4).

To record your investment decision, you will type the amount of EMUs you want to invest in the Public and/or the Private account by typing in the appropriate text-input box which will be yellow. Once you have made your decision, there will be a green submit button that will record your investment decision.

After all the members of your group have made their decisions, each of you will be informed of your earnings for the period. Your earnings will consist of two parts:

1) Your return on your Private Account. Your Private Account returns 1 EMU for each EMU invested. That is, for each EMU invested in the Private Account you get 1 EMU back.

2) Your return from the Public Account. Your earnings (and everyone else's in your group) is equal to 0.75 times the total investment by all members of the group to the Public Account.

Your Earnings can be summarized as follows:

$1\times$(Investment in Private Account) + $0.75\times$(Group Total Investment in Public Account)

The income of each group member from the Public Account is calculated the same way. This means that each group member receives the same amount from the total investment in the Public Account. For example, consider the case of groups with 5 members, if the total investment in the Public Account is 75 EMUs (e.g. first group member invests 15 EMUs, the second 20, the third 10 and the fourth and fifth 15 each) then each group member will receive $0.75\times 75 = 56.25$ EMUs. If the total investment was 30 EMUs then each group member would receive $0.75\times 30 = 22.5$ EMUs.

For each EMU you invest in the Private Account you get 1 EMU back. Suppose however you invested this EMU in the Public Account instead. Your income from the Public Account would increase by $0.75\times 1 = 0.75$ EMUs. At the same time the earnings of the other members of your group would also increase by 0.75 EMUs, so the total increase in the group's earnings would be 3.75 EMUs. Your investment in the Public Account therefore increases the earnings of the other group members. On the other hand your earnings increase for every EMU that the other members of your group invest in the Public Account. For each

EMU invested by another group member you earn $0.75 \times 1 = 0.75$ EMUs.

Stage Two

In stage two you will be shown the investment decisions made by the other members of your group. You will be shown how much each member of your group invested in both the Public and Private Accounts. Your investment decision will also appear on the screen and will be labeled as 'YOU'. Please remember that the composition of your group will change at the beginning of each period and therefore you will not be looking at the same people all the time.

When you have finished viewing the decisions made by the other people in your group click the blue done button. When everyone is done, the experiment will proceed to the next period starting with stage one.

If you have any questions please raise your hand. Otherwise, click the red finished button when you are done reading.

This is the end of the instructions. Be patient while everyone finishes reading.

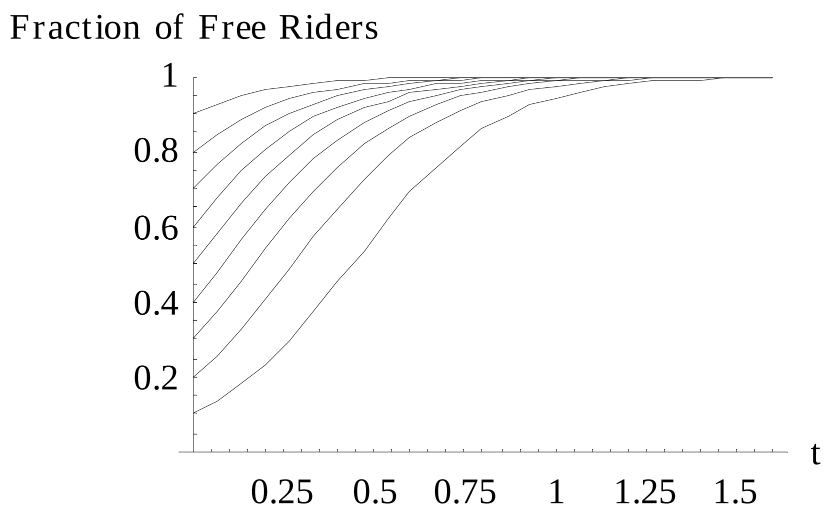

Figure 1 - The Evolution of Free Riding According to the Replicator Dynamic

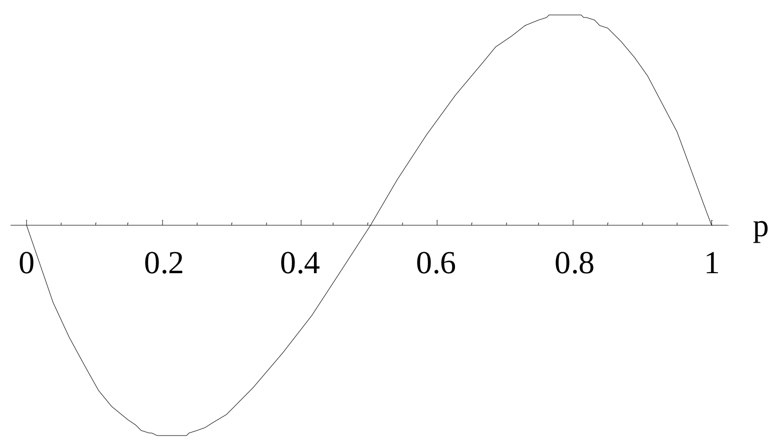

Figure 2 - A Cubic Conformist Dynamic

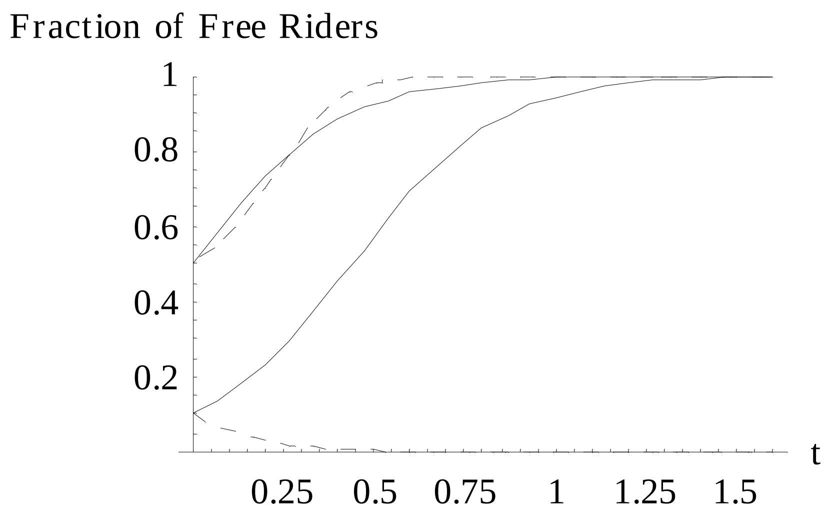

Figure 3 - Evolution under the Conformist Dynamic (α=0.5, dashed curves indicate conformity, solid curves are reproduced from figure 1)

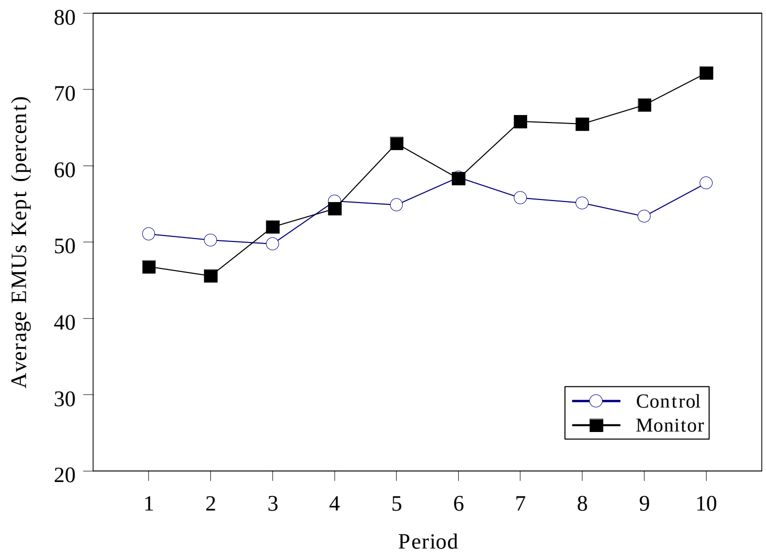

Figure 4 - Average Free Riding Levels in the VCM Experiment

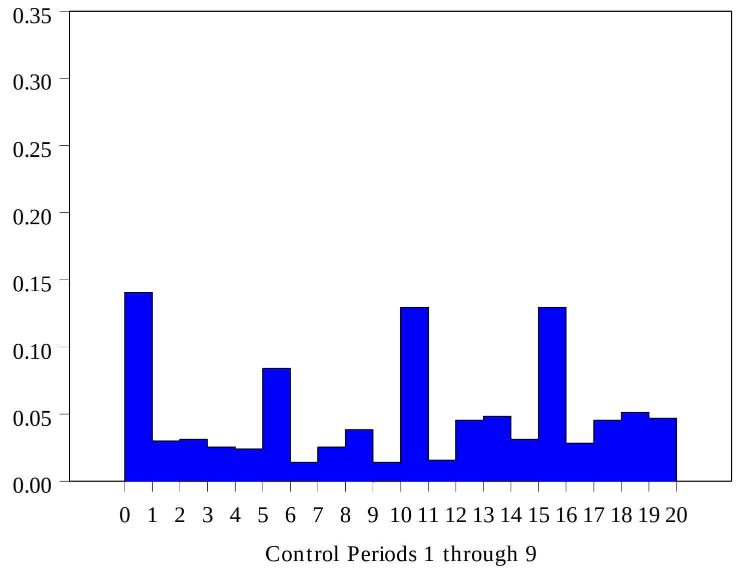

Figure 5a - Distribution of EMUs kept in the first 9 periods of the Control

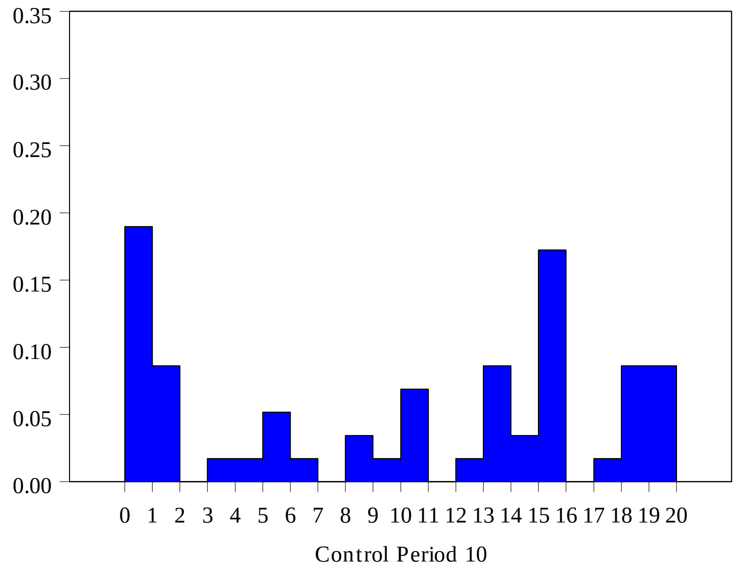

Figure 5b - Distribution of EMUs kept in period 10 of the Control

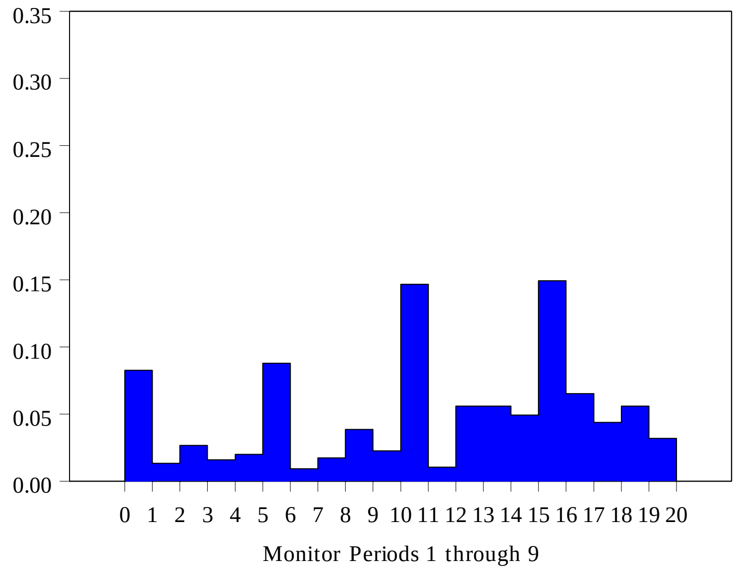

Figure 5c - Distribution of EMUs kept in the first 9 periods of the Monitor Treatment

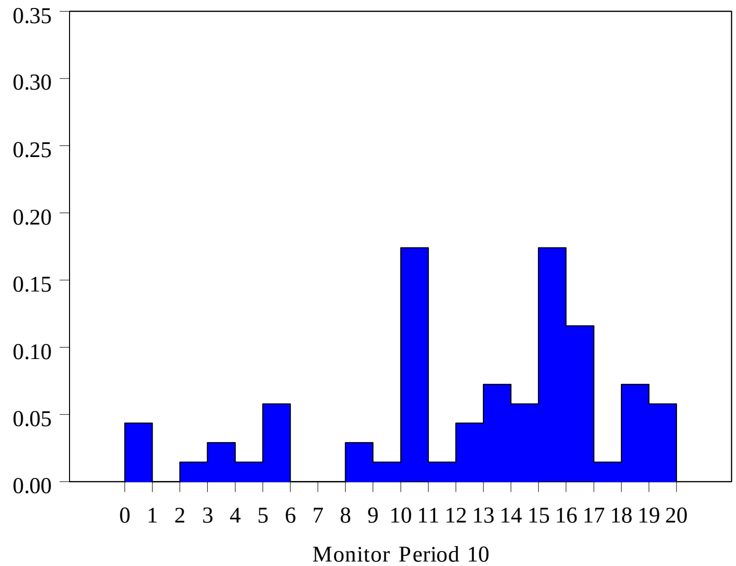

Figure 5d - Distribution of EMUs kept in period 10 of the Monitor Treatment

Dependant Variable = EMUs Kept $_{i,t}$ (all results are tobit and include random effects)			
	Definition of Free Riding		
	Contribute 1/4 or less	Contribute 1/3 or less	Contribute 1/2 or less
(Frequency of Free Riders) $_{i,t-1}$	4.24*** (0.83)	4.92*** (0.80)	4.62*** (0.90)
(Mean FR Profit – Mean Overall Profit) $_{s,t-1}$	0.03 (0.05)	0.08 (0.05)	0.06 (0.09)
EMUs Kept $_{i,t-1}$	0.32*** (0.04)	0.31*** (0.04)	0.33*** (0.04)
Constant	6.37*** (0.56)	5.89*** (0.65)	4.90*** (0.79)
Wald χ^2	118.51	130.18	118.84
Prob > χ^2	<0.01	<0.01	<0.01

Notes: standard errors in parentheses.
i is individual, s is session, and t is period.
*** significant at the 0.01 level.
** significant at the 0.05 level.
* significant at the 0.10 level.

Table 1 – Does Conformity Exist?

Dependant Variable = Number of EMUs Kept $_{i,t}$ (all results are tobit and include random effects)			
	Definition of Free Riding		
	Contribute 1/4 or less	Contribute 1/3 or less	Contribute 1/2 or less
(Frequency of Free Riders) $_{t-1}$	4.27***	4.75***	4.39***
	(1.07)	(1.03)	(1.25)
(Mean FR Profit – Mean Overall Profit) $_{s,t-1}$	0.13	0.19**	0.35***
	(0.09)	(0.06)	(0.14)
EMUs Kept $_{i,t-1}$	0.32***	0.30***	0.32***
	(0.04)	(0.04)	(0.04)
(Frequency of Free Riders) $_{i,t-1}$ × Monitor	0.21*	0.25**	0.48***
	(0.13)	(0.12)	(0.18)
(Mean FR Profit – Mean Overall Profit) $_{s,t-1}$ × Monitor	0.37	0.16	0.42
	(1.55)	(1.17)	(1.68)
Monitor	-0.14	-0.22	-0.16
	(1.11)	(1.09)	(1.43)
Constant	6.43***	5.98***	4.78***
	(0.83)	(0.82)	(1.12)
Wald χ^2	123.24	136.45	128.38
Prob > χ^2	< 0.01	< 0.01	< 0.01

Notes: standard errors in parentheses.
i is individual, s is session, and t is period.
*** significant at the 0.01 level.
** significant at the 0.05 level.
* significant at the 0.10 level.

Table 2 – Does Monitoring Elicit More Conformity?

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