

A simulation of moral behavior within marketing exchange relationships

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Abstract This investigation uses a simulated business-to-business sales context to examine five individual moral philosophies (*true altruists*, *true egoists*, *realistic altruists*, *tit-for-tats*, and *realistic egoists*). The simulation is based on the Iterative Prisoner's Dilemma and its associated payoffs, employing computer-generated sales agents that represent different companies and industries. The agents were selected randomly across 1,000 rounds, and interacted with exchange partners according to the moral philosophies noted. In some cases, various corporate cultures were added to determine their impact on the evolution and final mix of philosophical orientations of agents within firms. Simulation results indicate the importance of ethical behavior on the long-term financial success of companies as well as the larger industries in which they participate.

Keywords Prisoner's dilemma · Ethics · Sales · Simulation · Morality

“Morality” refers to thinking patterns followed by actions, which are driven by norms about right versus wrong associated with certain rewards and/or punishments (Brinkmann

2002). Ultimate responsibility for good or bad moral conduct requires identification of the person(s) involved as well as the freedom of choice to engage in these actions or activities (O'Boyle and Dawson 1992). Such decisions may lead to important changes in individual beliefs regarding appropriate behaviors under various conditions, causing fundamental shifts in our moral reasoning over time. The accumulation of these thought-action combinations is likely to influence the moral rules within a society (Gick 2003).

One's values, attitudes, perception filters, and other factors that determine cognitive moral development influence our recognition of and reaction to a particular dilemma (Kelley and Elm 2003). Nonetheless, the body of research on moral decision-making posits an interactionist frame within which our individual choices are embedded. For example, Reed (1999) suggests that people seek self-clarification about appropriate or inappropriate behaviors within the context of various times and places they share with important others. The groups and organizations to which a person belongs dominate these contexts, and such collectives often implicitly or explicitly direct their members to conform to a set of common moral principles (Gick 2003).

Approval or disapproval that we receive from influential others may be used to ensure a high degree of conformity on ethical matters (Ryan and Ciavarella 2002). Scholarly research on this topic shows that people seek positive approbation and shun negative feedback (Klein 2003). This power of the many over the few occurs when moral rules dominate other directives so that the survival of the group becomes the most important overarching goal (Grcic 1985). Nevertheless, individuals who deviate from organizational norms but are successful at meeting or exceeding the larger goals and objectives of the company may permanently change ethical dictates. Their successes are often inspired by the ebb and flow of cooperation and competition within and

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outside the focal group's domain, which modify the nature of our perceptions and interactions (Schroeder 2000).

Morality in marketing

As described above, organizational settings may exert a strong positive as well as negative influence on employees such as salespersons (Kelley and Elm 2003). In fact, the force of institutional context is so powerful it may dominate freewill under certain circumstances (Bruce and Stephens 1998). The internal culture of a corporation often operates to socialize new members and to ensure the continued efforts of current members toward specific outcomes (Kelley and Elm 2003). This conformity is caused by our most basic needs for belonging and support from other human beings, especially our professional colleagues, and by our desire for the material rewards of these associations (Brinkmann 2002). Singhapakdi and Vitell (1991) propose that the organizational climate orients salespeople's understanding of and reactions to ethical dilemmas that occur during interactions with customers.

The application of business ethics to marketing contexts often concentrates on the beliefs, attitudes, and behaviors of individuals in boundary-spanning roles. Under optimal conditions, marketplace activities are characterized as equitable, transparent, and productive, with a judicious mix of cooperation and competition (Brinkmann 2002). Furthermore, the fundamental concept of exchange in marketing implies stable (and sometimes long-term) relationships that are mutually advantageous, requiring trust among trading partners in each other's inherent morality (Klein 2003). Nevertheless, ethical hazards may occur during marketing transactions when sales agents are able to make decisions or perform actions that affect customers without their knowledge, consent, or oversight (Kurland 1995).

Such self-centered behavior is described as *egoism*, which is in stark contrast to *altruism* whereby marketers operate with the intention to develop or to maintain linkages with customers that are satisfying in the longer run (Sommers 1997). Goolsby and Hunt (1992) summarize research that suggests persons who are more sensitive to the needs and desires of the publics with whom they interact will be more successful. The American Marketing Association offers an alternative perspective that requires both sellers and buyers to exchange items of equal value that require obligations of equal cost (O'Boyle and Dawson 1992). This middle ground provides for an evenhanded set of rewards and responsibilities and is best characterized as *reciprocal altruism*, which values the long-term benefits of give-and-take among trading partners (Klein 2003).

The practice of relationship marketing notwithstanding, ethical dilemmas may be caused or exacerbated by the

boundary-spanning nature of this activity (see Valentine and Barnett 2002). Once again, Goolsby and Hunt (1992) posit that moral problems may arise because of the role marketing plays in assimilating the wants and needs of various constituencies, especially when their demands, desires, and/or expectations are in conflict with one another. Such problems are particularly germane within the sales profession because of the intense pressures on selling agents (Dubinsky 1998). Commission-based compensation packages that are tied to revenue generation may lead to a focus on short-term results that require closing the deal without regard for the best interest of all parties involved (Kurland 1995).

One possible solution is strong company leadership that places moral directives on par with other performance expectations (Wright 1995). Scholarship on this topic reveals that a managerial orientation toward ethical practice may have a significant influence on the actions of employees (DeConinck 1992). Nonetheless, management may be less likely to impose negative sanctions on individuals with solid records of achievement who also violate moral dictates since their own compensation is advanced significantly by the productivity of these subordinates (Bellizzi and Hite 1989). Hence, successful sales agents may receive less disciplinary action, even if unethical behaviors were employed to accomplish their goals and corporate standards to punish such activities without prejudice were in place (Bellizzi and Hasty 2003).

Research objectives

Fiske (1991) provides an organizing framework that can be applied to marketing contexts that includes four distinct models individuals use to comprehend, manage, and evaluate social relationships. These models allow persons to anticipate future actions of relevant others and to plan their own responses accordingly. The three that have particular significance to our study include *communal sharing*, *equality matching*, and *market pricing*. Communal sharing involves relationships that are characterized by a sense of common identity and purpose. As a result, interactions have a strong element of trust based on an ethic of kindness and generosity. This prototype is similar to altruism in marketing exchanges where the superordinate goal of buyers and sellers is to meet the expressed needs of all parties with the same vigor.

Equality matching provides a middle ground approach to relationships, whereby individuals are regarded as coequal but distinct entities that seek to accomplish their own goals and objectives. Transactions are exemplified by turn taking and a narrowly defined and reciprocal quid pro quo. Thus, individuals are rewarded or punished by exchange partners based on the quality of what they give up, resulting in a tit-for-tat mentality. Market pricing

represents the opposite end of the spectrum from communal sharing as individuals lose their sense of identity with others and become nothing more than economic commodities. Under these circumstances, exchange partners may act in an adversarial and/or self-centered manner that focuses on extracting the maximum gain from a transaction while minimizing what they must provide in an egoistic fashion.

Given this discussion, our research objective is to investigate the influence of personal moral philosophies of sales agents and their organizational ethical cultures on corporate and industry-wide sales success. The philosophies examined embody the extremes of the moral/relationship marketing spectrum as well as several intermediate positions. At the ends of the continuum are communal sharing and market pricing, captured for the purposes of this research by the monikers *true altruists* and *true egoists*, respectively. The midpoint is equality matching with the label *tit-for-tats*, along with two hybrids that bisect the gap between the prototypes and the middle ground of *realistic altruists* and *realistic egoists*. Operational details on these moral philosophies and their defined impact on marketing exchanges is provided in the next section.

The ethical orientations of firms have a similar foundation, with two endpoints and a middle ground. One extreme is designed to motivate persons to act in a more communal fashion and is described as the *ethical paradigm*, while the other extreme functions to move agents to embrace market pricing/commoditization of others and is referred to as the *unethical paradigm*. Once again the midpoint is similar to equality matching, which involves a corporate culture that seeks to reward successful sales agents on an individualistic basis and is termed the *neutral paradigm*. Our expectation is that ethical cultures and altruistic behaviors will lead to greater sales success in the long run relative to unethical cultures and immoral behaviors. The choice of a simulated sales environment and the use of computer-generated sales agents are described in greater detail in the following section.

Simulating morality in business-to-business relationships

The simulation of marketing morality in business-to-business relationships is based on the Iterative Prisoner's Dilemma (IPD), where two computer-generated sales agents from different companies and industries conduct transactions by cooperation or defection, and trading partners are unaware of the other's decision until the exchange is completed (Axelrod 1984). Money is awarded after each transaction using the IPD strategies of $T > R > P > S$ and $R > T + S/2$ (Bazaan and Bordini 2002). Operationally, if only one agent selects defection (T) that agent receives three dollars while the other receives none (S); if both agents choose cooperation (R) they

each receive two dollars; if both agents opt for defection (P) one dollar is awarded to each. In our model, the income of simulated sales agents is allocated based on this formula and is tied to their personal moral philosophies and firm ethical cultures (see Watkins and Hill 2005).

Personal moral philosophies and ethical cultures

The simulated sales agents exhibit personal moral philosophies based on our literature review that include: True Altruists (TAs) who cooperate with trading partners regardless of the results from previous exchanges; Realistic Altruists (RAs) who cooperate if trading partners or their firms cooperated at least two times during the last five transactions but they defect otherwise (if there is insufficient history sales agents cooperate); Tit-for-Tats (TFTs) who copy the last moral decision of trading partners or their firms; Realistic Egoists (REs) who defect when trading partners or their firms have defected at least two times over the last five interactions but cooperate in all other circumstances (except with inadequate history sales agents defect); and Egotists (Es) who defect regardless of the past history of exchanges with trading partners.

The IPD application contains two distinct industries that represent potential business-to-business (B2B) trading partners, with each industry divided into five separate firms composed of 100 agents. The moral philosophies across sales agents within companies vary from unitary (100 of the same type) to balanced (20 of each type) to imbalanced (60 of one and ten of the other four types). Additionally, firms may have an ethical climate based on: Neutral Paradigm (NP) which allows sales agents to change moral philosophies to that of successful agents; Ethical Paradigm (EP) where sales agents change philosophies to that of successful agents but in the direction of True Altruists; or Unethical Paradigm (UP) which represents the opposite with sales agents changing morality toward successful peers in the direction of True Egoists.

Our previous discussion demonstrates the importance of the individual as well as the group in determining the ethical character of marketing exchange relationships. What may be less clear is how personal moral philosophies evolve or adapt over time as a function of the organizational climate. Some models posit that changes in morality within companies can only take place on an ethical path rather than in both directions (Marnburg 1991). However, several scholars provide alternative approaches that suggest firms “with weak characters lack a clearly envisioned future and the collective will to sustain momentum for moral progress” (Petrick and Quinn 2000, p. 5). Others note that a self-selection bias may operate to keep ethical employees from joining or staying with unethical employers and vice versa (Mason and Mudrack 1997).

Simulating business-to-business exchanges

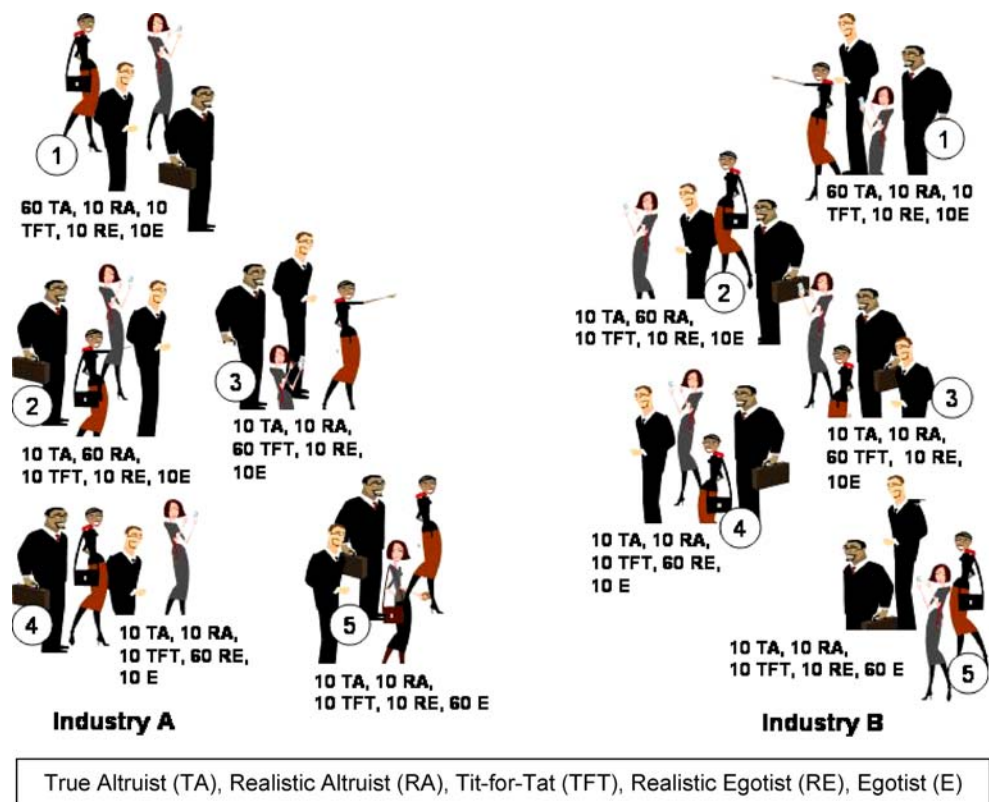
Sales agents generate revenue as they complete transactions, acquiring income that is consistent with the IPD point scale. For example, one possible scenario (for explanation purposes only) involves two identical industries that transact with each other over time (there are no intra-set exchanges). The test simulation under consideration includes an imbalance of personal moral philosophies, with each organization dominated by one particular moral perspective (see Fig. 1). The first round opens with the random selection of one sales agent from each industry. They interact according to their individual morality as shown by the Egoist and the Realistic Altruist in Fig. 2. Since RA has no historical data on E or its firm, RA cooperates while E defects. The first round ends when all sales agents, still selected at random, have an opportunity to enter a business-to-business exchange.

Figure 3 shows the total revenue for companies as well as the mean income for sales agents by moral philosophy after a single test round. This simulation is influenced by the cultural shift of EP, where sales agents change types when the average income of those with a more ethical approach is higher than their own. Although sales agents compare their incomes up by two levels (e.g., TFTs focus on RAs and

TAs), each agent is only allowed to move one level. The simulation ends after 1,000 rounds, and Fig. 4 reveals the final sales agent distribution. Of interest is Firm 5, which began dominated by egotists and ended with the most money. Many of these Egotists migrated in the first 100 rounds towards a more ethical paradigm, allowing the remainder to earn more revenue in an increasingly altruistic setting. (The algorithm is given in Appendix.)

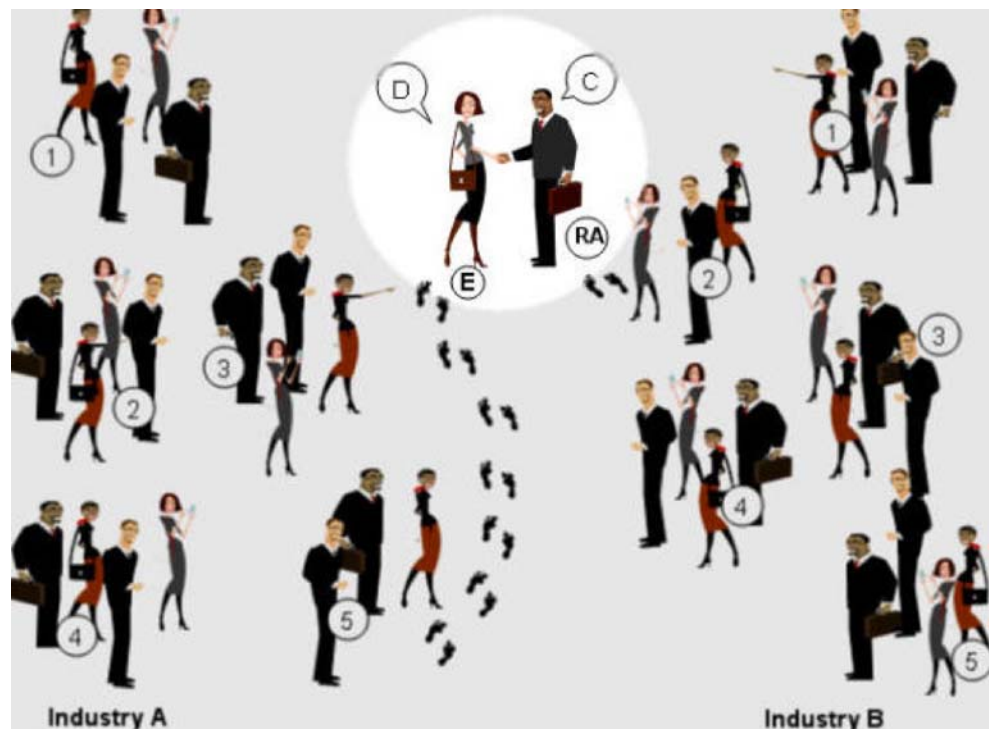
In summary, our investigation employs the Iterative Prisoner’s Dilemma game within a computer-generated simulation of marketing transactions to determine the impact of personal moral philosophies and corporate cultures on firm and industry financial performance. The five distinct moral philosophies are embedded within companies as the primary determinant of individual exchange behavior, and the mix of philosophies changes over time based upon corporate cultural dictates. Expectations derived from the literature review and study context are: (1) *Individual moral philosophies toward the altruistic end of the spectrum will result in greater long-term financial performance than individual moral philosophies toward the egoistic end of the spectrum;* and (2) *Corporate cultures reflective of ethical expectations will result in greater long-term financial performance than corporate cultures reflective of unethical expectations.*

Figure 1 The model contains two identical industries of five companies with 100 sales agents.



Note. In this demonstration, each company has a dominant moral philosophy; for example, company 1 has 60 True Altruists (TA) and 10 each of the other four types.

Figure 2 Round begins with the random selection of a sales agent from each industry.



Note. Each agent decides whether to cooperate (C) or defect (D) based on their individual moral perspective and any historical data available on the opposing agent or company. A round concludes when all agents have the chance to participate. The simulation concludes after 1000 rounds. The action shown is an early round, and the Realistic Altruist (RA) has yet to learn the tendency of the Egotist (E) to defect.

Simulation results and findings

The description of our results begins with simple comparisons and closes with complex combinations along with model parameter changes. The first subsection presents results that involve firms composed entirely of True Altruists, Realistic Altruists, Tit-for-Tats, Realistic Egoists, or Egoists and without the influence of corporate ethics. The second subsection provides findings that examine a balance of moral philosophies embedded within three company postures of Ethical Paradigm, Unethical Paradigm, and Neutral Paradigm. The third subsection is similar to the previous simulations except that the moral philosophies are imbalanced. The final two subsections show results from changes to the payoff schedules and decision-making heuristics. Statistics include mean income by philosophical orientation, company, and industry as well as significance tests and final sales agent totals.

Unitary moral philosophies without ethical cultures

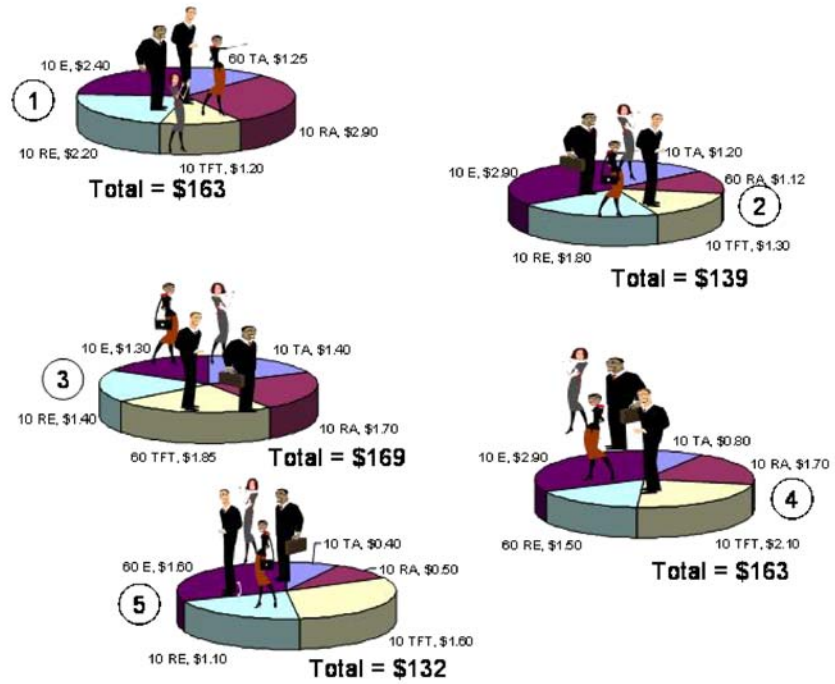
Analysis of variance (ANOVA) statistics reveal significant differences in total revenue across 1,000 simulation runs by individual moral philosophy ($F=154$, $df\ 4/495$, $p<0.001$). Additionally, all ten pair-wise comparisons show real

differences among these philosophies when compared to one another. (See Table 1 for a complete listing of the Tukey tests, which were chosen because the family-wise error rate is exactly equal to the assumed value of alpha [Huck 2003]). Interestingly, the income figures are highest for the RAs (\$164,528), followed by the TAs (\$160,084), TFTs (\$149,931), TEs (\$140,003), and REs (\$134,361). These findings demonstrate the relative effectiveness of altruistic/cooperative selling behavior contrasted with egoistic/selfish treatment of trading partners. While this simulated sales context provides for an important evaluation, increasing levels of realism require a more dynamic environment influenced by the ethical nature of the corporation.

Balance of moral philosophies with ethical cultures

A balance of individual moral philosophies requires that companies originate with 20 True Altruists, Realistic Altruists, Tit-for-Tats, Realistic Egoists, and Egoists apiece. Since each firm has identical sales agents at the beginning of the simulation, differences in total revenue across companies is inconsequential regardless of the embedded ethical culture. Results corroborate the obvious, and the three F statistics of the ANOVAs are at or below 1.0 and individual significance tests have p values greater than

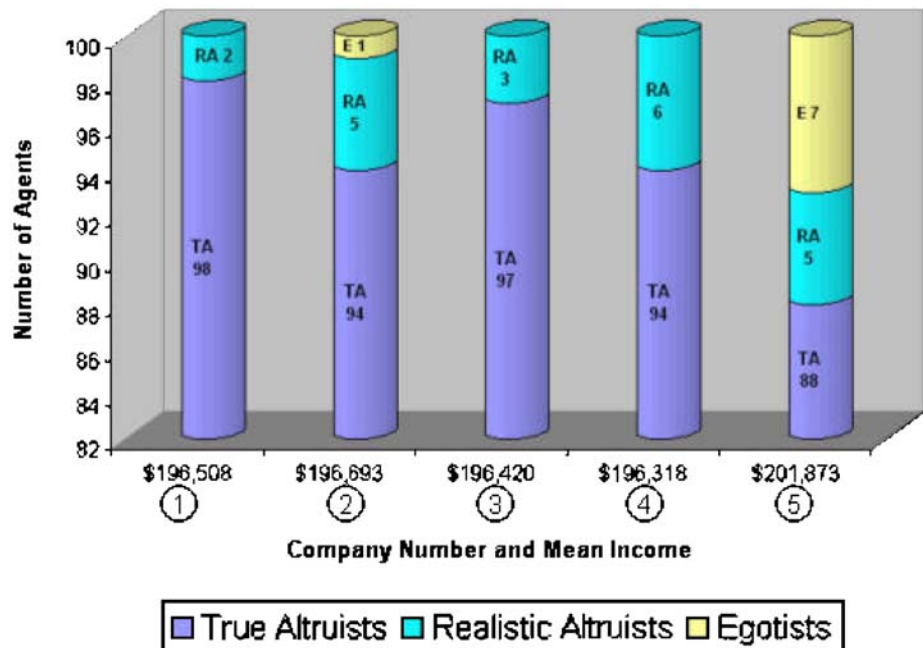
Figure 3 Total income by company and mean income by moral type is calculated after each round.



True Altruist (TA), Realistic Altruist (RA), Tit-for-Tat (TFT), Realistic Egotist (RE), Egotist (E)

Note: The mean income is used to assess whether an individual sales agent may wish to switch personal moral philosophies.

Figure 4 Final mean agent distribution by company and moral philosophy.



Note: Each simulation ends after 1000 rounds, and total income for each company and number of sales agents of each moral type is counted. The simulation is run 100 times, and shown here is mean income and agent distribution for all companies in Industry A under Ethical Paradigm (EP). In an EP cultural shift, sales agents change types when the average income of those with a more ethical approach is higher than their own.

Table 1 Mean income for unitary moral philosophies where each company consists of 100 sales agents with the same moral philosophy

Company's moral philosophy	Mean	Standard deviation	Standard error of mean
True altruists	160,084	488	49
Realist altruists	164,528	14,109	1,411
Tit-for-tat	149,931	13,531	1,353
Realistic egotists	134,361	12,336	1,234
Egotists	140,003	447	45

ANOVA results indicate that the variation among company mean incomes is significant at the 0.001 level ($F=154$, $df=4/495$). Tukey Test reveals that there is no real difference between the highest earners, True Altruists and Realistic Altruists. However, there is a significant difference between these two companies and the remaining three at the 0.001 level.

0.05. However, the relevant significance test is an examination of the mean industry incomes, which reveals that total revenue across the three organizational ethical postures has substantial variation ($F=439,647$, $df 4/495$, $p<0.0001$). With the unitary philosophies results, these findings indicate that individual moral philosophies and corporate cultures influence overall performance.

Tukey test results of pair-wise comparisons demonstrate that the Ethical Paradigm corporate condition (\$989,204) realized significantly higher industry revenue than either the Unethical Paradigm (\$500,576) or the Neutral Paradigm

(\$500,532), while these latter two conditions are almost identical. The EP led to a preponderance of TAs (mean number of 94) and the UP resulted in mostly TEs (mean of 97). Surprisingly the NP, with its *lack* of moral influence except a preference for the bottom-line, caused a seemingly random set of agent totals, with firms 1, 2, and 5 dominated by RAs (92, 94, and 86, respectively), Firm 3 controlled by TFTs (91), and Firm 4 taken over by TEs (72) (see Table 2 for more details). Together these findings lend credence to the relationship marketing literature, suggesting the long-term viability of developing cooperative and trusting relationships.

Imbalance of moral philosophies with ethical cultures

The first imbalanced simulation runs (60 of one particular type and ten of the four other types) were conducted without a firm cultural influence since each company was governed by a different individual moral philosophy and its implied ethical paradigm. The ANOVA statistics confirm variation in performance across the five companies ($F=1,053$, $df 4/495$, $p<0.0001$), and Tukey tests verify that all pair-wise comparisons are significantly different (see top of Table 3). The total revenue amounts show that accumulated income is highest for True Altruists (\$167,473), and that it flows downward from Realistic Altruists (\$161,352) to Tit-for-Tats (\$149,945) to Realistic Egoists (\$137,437) to True Egoists

Table 2 The mean income from 100 runs under a balanced moral philosophy where each company consists of 20 sales agents of each moral type

Industry moral paradigm	Mean income by moral philosophy					Total	Total by industry ^b
	True altruist	Realistic altruist	Tit-for tat	Realistic egotist	Egotist		
None ^a	20,080	29,863	29,963	30,103	39,817	149,826	
	20,107	29,877	29,973	30,096	39,877	149,930	
	20,223	29,880	30,047	30,149	39,907	150,206	
	20,196	29,888	29,997	30,213	39,849	150,143	
	20,085	29,889	29,923	30,141	39,869	149,907	750,012
Ethical ^a	183,212	7,556	269	0	6,999	198,036	
	183,337	7,361	207	80	6,894	197,879	
	182,384	8,135	167	0	7,123	197,809	
	182,499	8,333	103	41	6,835	197,811	
	182,818	7,483	248	83	7,326	197,958	989,493
Neutral ^a	0	42,049	32,172	2,372	23,564	100,157	
	0	46,864	25,211	2,584	25,435	100,094	
	0	47,954	27,633	2,346	22,174	100,107	
	0	52,547	20,961	2,640	23,936	100,084	
	0	51,795	24,868	2,857	20,602	100,122	500,564
Unethical ^a	0	0	21	3,366	96,691	100,078	
	0	0	74	3,396	96,647	100,117	
	0	0	75	3,247	96,820	100,142	
	0	0	21	3,363	96,661	100,045	
	0	0	63	3,210	96,849	100,122	500,504

^aThere are no significant differences among companies in the same industry and moral paradigm.

^bComparisons of total mean income between industries show significance at $p<0.001$ ($F=439,647$, $df 4/495$). Tukey tests reveal that the Ethical Paradigm is significantly higher than the others at the 0.001 level.

(\$132,545). These results provide additional support for our previous claims regarding the impact of personal morality and its positive synergies with a similar organizational ethic.

Nonetheless, this impact of individual moral philosophies on performance is unable to prevail under the influence of a distinct corporate culture. In the case of the Ethical Paradigm, there was a dramatic shift in all firms to True Altruists (mean of 94) that is consistent with the balanced philosophies results, and final revenue totals are highly similar (about \$196,500) except that Firm 5 is significantly higher (\$201,873). Once again, the Unethical Paradigm mirrors the balanced findings, and total firm income is just about identical across companies (approximately \$100,000 apiece), with the vast majority of sales agents becoming True Egoists (average of 97). The Neutral Paradigm also supports our previous conclusions since revenue figures are highly similar (about the same as the UP), while sales agent distribution is more mixed (see Table 3 for firm income and agent totals).

Our analysis also examined differences among industries to determine the larger impact of corporate ethical culture. Statistics support the balanced results, even with the inclusion of the industry based on an implied ethical paradigm (IP) led by different moral philosophies. ANOVA statistics across industries are significant ($F=21,592$, $df=4/495$, $p<0.0001$),

and Tukey tests also are significant for all pair-wise comparisons except when the NP industry is judged against the UP industry. The EP industry (\$987,814) again finished with considerably more revenue than the IP (\$748,754), the UP (\$500,776), or the NP (\$500,657), and the latter two industries have highly similar total incomes. These results provide corroboration that the organizational ethical environment has an important impact upon the level of financial success of companies as well as industries.

Payoff strategy modifications

In order to examine the sensitivity of our previous results to the IPD payoff strategy, additional simulation runs were performed that varied this parameter. Previous research with the IPD model has utilized a variety of payoff options, but all follow the same formula: $T>R>P>S$, where T is payment to a sole defector, R to a cooperating pair, P to a defecting pair, and S to a sole cooperator (Johnson et al. 2002). However this rule was relaxed for our purposes, allowing P to vary between 0.8 and 2.4 and T to vary between 1.6 and 3.2, with R fixed at 2.0 and S fixed at 0.0. All runs were composed of RAs, TFTs, and REs, employing the unitary sales agent distribution and without a defined corporate culture. Analyses demonstrate that the breakpoint where the financial

Table 3 The mean income from 100 runs under unbalanced moral philosophies

Industry moral paradigm	Starting dominant agent	Mean income by moral philosophy					Total
		True altruist	Realistic altruist	Tit-for-tat	Realistic egotist	Egotist	
None ^a	True altruist	90,947	16,901	17,597	16,997	25,030	167,472
	Realistic altruist	12,469	94,502	16,221	15,819	22,339	161,350
	Tit-for-tat	10,056	14,962	89,957	15,033	19,935	149,943
	Realistic egotist	7,398	14,158	13,657	84,946	17,277	137,436
	Egotist	4,965	13,030	12,432	13,089	89,027	132,543
Ethical ^b	True altruist	189,644	2,918	243	59	3,644	196,508
	Realistic altruist	185,299	7,466	20	20	3,888	196,693
	Tit-for-tat	184,289	8,781	209	0	3,141	196,420
	Realistic egotist	182,333	10,817	188	105	2,875	196,318
	Egotist	169,998	11,879	395	63	19,538	201,873
Neutral ^c	True altruist	0	10	32	3,582	96,483	100,107
	Realistic altruist	0	32	74	5,403	94,633	100,142
	Tit-for-tat	0	10	96	4,721	95,370	100,197
	Realistic egotist	0	11	42	3,322	96,715	100,090
	Egotist	0	71	52	1,223	98,765	100,111
Unethical ^c	True altruist	0	49,731	18,286	2,669	29,439	100,125
	Realistic altruist	0	66,967	6,332	1,085	25,780	100,164
	Tit-for-tat	0	20,300	65,249	2,369	12,266	100,184
	Realistic egotist	0	41,831	26,051	9,194	23,091	100,167
	Egotist	0	33,307	19,873	2,082	44,867	100,129

^aANOVA results indicate there are significant differences among companies ($F=1,053$, $df=4/495$, $p<0.001$). Tukey Tests reveal significant differences for each dyadic comparison.

^bANOVA results indicate significant differences ($F=145$, $df=4/495$, $p<0.001$), and Tukey Tests reveal differences are between the Egotist-dominated company and the others.

^cANOVA results—not significant

success of realistic altruists is approximately equal to that of realistic egoists occurs when payoff values are approximately equal, in clear violation of the IPD format (see Fig. 5). Thus, the only way selfishness succeeds over cooperation is if its rewards are uncharacteristically high.

Decision making modifications

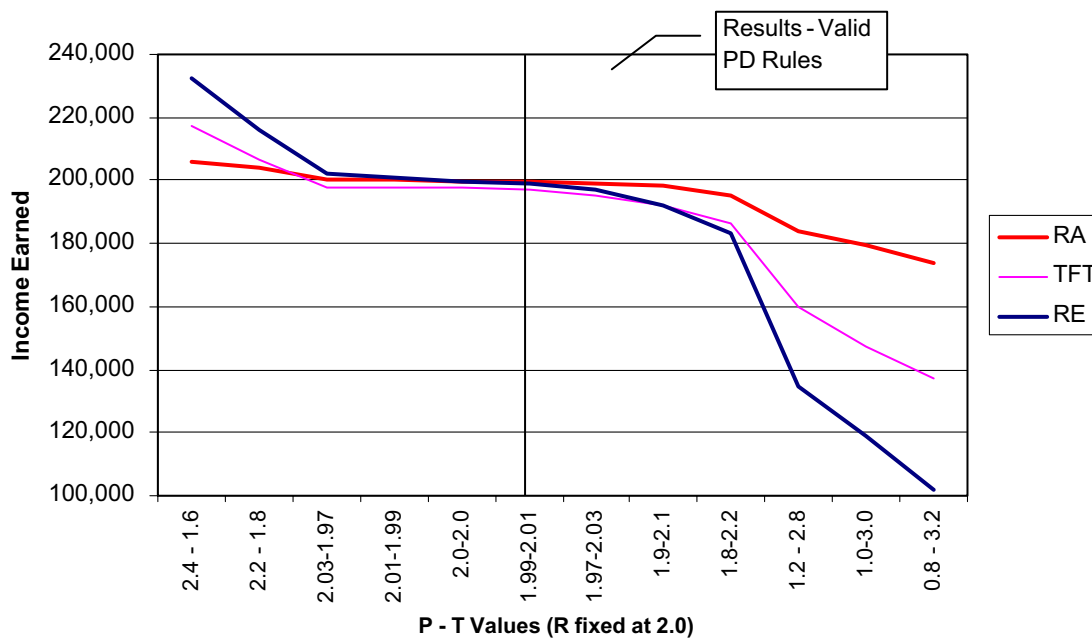
The IPD model posits distinct decision-making heuristics for different philosophical orientations of sales agents. The policies of TAs and TEs are simple as they always cooperate or always defect, respectively. TFTs review the last action of trading partners experienced personally or by their firms and mimic this last move. In contrast the memory of RAs and REs is longer and composed of lists which are consulted in the following order: (1) direct dealings with a sales agent, (2) direct dealings with a sales agent’s firm, and (3) my firm’s experience with the other firm. These sales agents continue to move from list to list until they find/do not find at least two cooperating (RAs) or two defecting (REs) exchange partners among the last five interactions to determine their strategies. This subsection examines the impact of changes to this last heuristic on the simulation results.

Table 4 shows income distribution by philosophical orientation and by list(s). Revenue differences across industries that employ various list combinations are not significant ($F=0.66, df=4/495, p>0.05$). However, our findings reveal that altruistic sales agents (TAs and RAs) are more successful than their more egoistic counterparts under most circumstances, with personal experience as a decision heuristic the only exception. Under this condition, sales agents take considerably longer to accumulate enough personal knowledge of exchange partners to avoid exploitation by true egoists, which requires simulation runs that exceed research limits. Nonetheless, these findings provide support for the positive impact of altruism and cooperation on financial success.

Marketing practice and theory

Summary of findings

This simulation examined B2B exchanges between sales agents, companies, and industries. Employing a version of the Iterative Prisoner’s Dilemma, different contexts were created with variations in personal moral philosophies, firm ethical



Note: The value paid to mutual cooperating sales agents (R) remains fixed at 2.0, while the amount paid to mutual defecting sales agents (P) varies from 2.4 to 0.8; and to sole defecting sales agents (T) varies from 1.6 to 3.2. Breakeven occurs when all three values are very close together. Scenarios where $P \leq 1.99$ and $T \geq 2.01$ are valid under the Prisoner Dilemma rules, which state that $T > R > P$. Under model parameters, the results to the right of the vertical line are valid and to the left are invalid.

Figure 5 Breakeven analysis of Realistic Altruists (RA), Tit-for-Tats (TFT), and Realistic Egotists (RE) sales agents to determine the effect of different reward structures on earnings.

Table 4 Mean income for unitary moral philosophies varying the combination of memory lists used by realistic altruists and realistic egoists

Type of list used ^a	Mean income by company					Total ^b	F value (df=4/495)
	True altruist	Realistic altruist	Tit-for-tat	Realistic egoist	Egotist		
All lists	159,908	167,196	147,370	136,044	140,064	750,582	206
Lists 2 and 3	159,980	167,754	148,211	133,416	139,964	749,325	175
List 3 only	160,023	163,984	148,553	134,285	140,036	746,881	146
List 2 only	159,101	152,757	149,137	149,815	140,845	751,655	24
List 1 only	120,376	150,036	149,820	150,019	179,550	749,801	2,704

List Composition: (1) direct dealings with a sales agent, (2) direct dealings with a sales agent's firm, and (3) my firm's experience with the other firm.

^aANOVA results among companies using the same list types are significant at $p < 0.001$.

^bANOVA analysis of total incomes earned by different list arrangements is not significant.

cultures, payoffs, and decision-making heuristics. Findings from unitary moral philosophies show the long-term benefits of altruism over egoism on simulated financial performance. Companies made up of altruists earned significantly more income than companies containing egoists. This conclusion is corroborated by the results from the first imbalanced simulations where individual morality also was allowed to dictate firm behavior. These runs demonstrate that economic success declined in perfect order from the most altruistic (i.e., True Altruists) to the least altruistic (i.e., True Egoists).

The more complex simulations include firm ethical paradigms that emphasized altruism, egoism, and/or monetary achievement. Both the balanced and imbalanced runs confirm that simulated organizational cultures caused a marked shift of sales agent morality in the appropriate directions, while the neutral paradigm ended with a more diverse sales agent population. These simulations also reveal that total revenue across the balanced and imbalanced runs was significantly higher for the True Altruists within Ethical Paradigms than for True Egoists within Unethical Paradigms. Taken together, our findings suggest synergies between individual and collective factors on the success of simulated companies as well as the composite industries. Finally, sensitivity analyses involving payoffs and decision-making heuristics show that results remain robust except under extraordinary circumstances that over-reward egoists relative to altruists or hide their selfishness from view for an extended period of time.

Implications and conclusions

The potential contributions of this study are partially a function of the underlying assumptions and operational details of the IPD as a simulation of a business-to-business sales environment. At the center of our model is marketing as exchange and the possible impact of individual moral philosophies and organizational ethical cultures on sales transactions. There is much research support for the proposition that personal morality significantly influences

professional behavior (see Singhapakdi et al. 1999), and that various forms of other-centered activities defined as altruistic and self-centered actions defined as egoistic play an important role (Watkins and Hill 2005). Research also concludes that dynamic elements of institutional culture are capable of guiding behavior in ethical or unethical directions (Kelley and Elm 2003).

Therefore the characteristics of our simulation seem representative of important aspects of sales/marketing transactions, and our attention now focuses on the outcomes of these exchange relationships. The use of 1,000 runs for each study simulation allows for discovery that imitates a lengthy time horizon and considerable firm and industry experience. Initial income distribution may favor selfishness in the face of selflessness (described here as defection), but results demonstrate that maintaining this perspective performs less well as negative experiences among potential customers or their firms accumulate. Over time, cooperative transactions based on trust provide the greatest return, consistent with the basic tenets of good marketing practice.

In his treatise on the natural roots and virtues and values of capitalism, Klein (2003, p. 394) asks: "Since it is uppermost in the minds of businesspeople to survive and preferably survive well, will not moral business activity put businesspeople at a competitive disadvantage?" Implicit to this question is the belief that customers, including business-to-business trading partners, are so incredibly naïve or other-centered that they are easy prey for the unscrupulous. However, assumptions imposed during our sensitivity analyses indicate that immorality only serves marketers who exchange with ill-informed customers or who receive unusually high compensation for their actions. Instead, our findings suggest that sales agents as well as others occupying boundary-spanning positions are more likely to gain and sustain financial success through cooperative and altruistic endeavors.

Assumptions of our model also support research that contends the ethical nature of corporations influences

individual morality and economic achievement. For example, organizational ethical postures resulted in changes to personal moral positions, causing increasing consonance with the dominant corporate culture over time. Additionally, our capitalistic “value-neutral” perspective based on income maximization produced a mixed assortment of sales agents and organizational productivity that was akin to the Unethical Paradigm. Along with this negative impact on individuals or their organizations, our findings show that mean income for industries as a whole is diminished under these conditions. In the final analysis, our results support the larger societal dictates that require individuals, corporations, and industries to adhere to strict ethical guidelines.

These insights notwithstanding, limitations of our study provide opportunities for other investigations of morality in marketing. Expanding the independent and dependent variables explored is an important next step. Causal factors that may affect morality include previous experiences, self-efficacy, gender, religiosity, extroversion versus introversion, and professional commitment. Further, moral behavior may drive, in part, emotional well-being, absenteeism and turnover, job satisfaction, and professional outlook. In order to examine such a wide range of possibilities, a variety of study settings and methods must be employed that utilize similar conceptualizations of individual morality and organizational ethics. The goal of this research stream is to enrich our understanding of the causes and consequences of ethical marketing practice.

Concluding comments

Of course, simulations are much better at predicting particular types of behavior and proclivities rather than the actions of specific individuals in unique situations. For example, a salesperson facing intense pressure to perform in the very short run may succumb to egoistic behavior even if her or his normal ethical posture or the corporate culture suggests otherwise. As a consequence, our model may best capture impact on exchanges over time rather than at a discrete point or for a specific transaction. However, the longer-term view has real importance at the firm as well as the macro level. Ethical marketing is built on mutual trust that exchange partners value each other’s satisfaction, leading to financial success. Additionally, the finding that moral choices enhanced industry performance has important societal and public policy implications.

Pragmatically, salespeople and sales managers may view exchange relationships from a different perspective. They are more likely to articulate tactics of themselves or their exchange partners as “cooperative,” “competitive,” or “predatory.” Cooperative actions are consonant with our discussion of altruism and the ideal of communal sharing; competitive actions are most similar to tit-for-tat and the

individuality of equality matching; and predatory actions suggest egoism and objectification or commoditization of others that is inherent in market pricing. Regardless of these monikers, the potential effects on firm profitability and industry revenues require serious consideration by marketers and policy makers. Such findings also support the value of mutual trust and consideration within exchanges, which are the cornerstones of relationship marketing.

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Appendix

Simulation rules and process

Number of industries There are two distinct industries representing potential business-to-business trading partners.

Divisions within industries Each industry consists of five companies.

Number of sales agents Each company contains 100 sales agents, for a total of 500 agents per industry.

Sales agent distribution among firms There are three distributions examined in the simulations.

1. Unitary Distribution: all 100 sales agents in a firm hold a single moral philosophy.
2. Imbalanced Distribution: there is one dominant moral philosophy held by 60% of the sales agents in the firm; the remaining 40% include ten each of the other types for a total of 100 sales agents.
3. Balanced Distribution: the firms consist of an even distribution of sales agents, which is 20% of each type for a total of 100 sales agents.

Individual moral philosophies There are five personal moral philosophies:

1. True Altruists (TAs): these sales agents always cooperate with other sales agents.
2. Realistic Altruists (RAs): these sales agents have a desire to cooperate, but recognize that their customer may defect. They maintain a series of lists where they record recent transactions with other sales agents and the agents’ companies. These lists are consulted in the following order:
 - a. Direct dealings with other sales agents: if at least two of the last five interactions were to cooperate, the sales agent cooperates; otherwise the sales agent

defects. If data is insufficient, the sales agent checks the next list.

- b. Dealings with the other sales agent's company: if at least three of the last five interactions were to cooperate, the sales agent cooperates; otherwise the sales agent defects. If data are insufficient, the sales agent checks the next list.
 - c. Company dealings with other sales agent's company: if at least four of the last five interactions were to cooperate, the sales agent cooperates; otherwise, the sales agent defects. If insufficient data are available, the sales agent always cooperates.
3. Tit-for-Tat (TFTs): depending on the availability of data, these sales agents mimic the previous moral decision of the customer, the customer's company or their own company, in that order. For example, if a sales agent has never met the customer or done business with the customer's company, the sales agent will check to see whether another sales agent in the company has completed a transaction. If so, the sales agent will mimic that action. If there is insufficient data, the sales agent will choose a random action.
 4. Realistic Egotists (REs): these sales agents have a desire to defect, but recognize that their customer may cooperate (the opposite of RAs). They maintain a series of lists where they record recent transactions with other sales agents or the sales agents' companies. These lists are consulted in the following order:
 - a. Direct dealings with other sales agents: if at least two of the last five interactions were to defect, the sales agent defects; otherwise the sales agent cooperates. If data are insufficient, the sales agent checks the next list.
 - b. Dealings with the other sales agent's company: if at least three of the last five interactions were to defect, the sales agent defects; otherwise the sales agent cooperates. If data are insufficient, the sales agent checks the next list.
 - c. Company dealings with other sales agent's company: if at least four of the last five interactions were to defect, the sales agent defects; otherwise the sales agent cooperates. If insufficient data are available, the sales agent always defects.
 5. Egotists (Es): this sales agent always defects.

Firm cultural orientation In some of the simulations, firms have an ethical culture. These moral paradigms (neutral, ethical or unethical) influence sales agents to switch from their original personal moral philosophy. However, the switch only takes place if the sales agents who are most closely aligned with the firm's culture are performing, on average, better financially. For example in an Ethical

Paradigm, Tit-for-Tat agents may look at the average income of the True Altruists in their company and determine that they are earning more. The Tit-for-Tat sales agent will then take one step closer to becoming a True Altruist by switching their moral philosophy to that of a Realistic Altruist, potentially becoming a True Altruist in subsequent rounds. A description of the paradigms follows:

1. Neutral Paradigm (NP): sales agents switch to the moral philosophy of those who are successful financially without regard to ethical direction.
2. Ethical Paradigm (EP): sales agents move towards more successful sales agents who behave in a more ethical fashion, i.e. towards True Altruists.
3. Unethical Paradigm (UP): sales agents move towards more successful sales agents who behave in a more unethical fashion, i.e. towards Egotists.

The simulation process

1. One thousand sales agents are distributed between two industries of five companies each. The moral philosophy of the sales agents is based on the agent distribution under test (unitary, balanced or unbalanced).
2. Play for 1,000 rounds—a round ends when all sales agents have the opportunity to participate.
 - a. Continue until all sales agents have the opportunity to participate:
 - i. One agent from each industry is selected at random and each decides whether to defect or cooperate as determined by their individual moral philosophy.
 - ii. If both sales agents choose to cooperate, they both receive \$2; if both defect, they receive \$1; and if only one agent defects, the defecting agent receives \$3 and the cooperating agent receives \$0.
 - b. If paradigm switch is enabled, sales agents may change their moral perspective based on their firm's orientation and the average income of those more closely aligned with the firm's moral philosophy.
3. Play concludes.

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