

TEACHING NOTE

Using the Prisoners' Dilemma for Business Ethics Teaching

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1. Case Summary

The Prisoners' Dilemma (PD) illustrates how people may fail to cooperate even though they would benefit from cooperation. Offering a precise explanation for a wide range of problems we observe in cooperative societies, the PD belongs to the standard curriculum in economics programs.

In addition to its "classic" use, the PD is also relevant for many issues discussed in (business) ethics courses. It is a suitable analytical tool to address questions of human interaction, the evolution of morals, and norm violation. The purpose of this teaching note is to explain the use of the PD as a case study in the context of business ethics classes.

2. Target Audience, Case Usage, and Objectives

The case can be used flexibly and in a variety of teaching contexts. I have taught this case in courses with students at the Bachelor and the Masters levels, as well as in executive education programs. Given how lively the story is and how well it can be applied to real-life situations, participants tend to be very involved in this case. The focus of the case discussion will vary with the specific course objectives and the participants' educational background. Economics and business students typically know the PD; if you teach the case to a philosophy or sociology audience, you might want to spend more time on explaining the model. Broadly speaking, the case can be used for discussing two topics.

The first topic concerns the *reasons* for failed cooperation and immoral behaviors in business. Examples of such behaviors include managers who manipulate their performance data; salespeople who engage in questionable sales techniques, organizational corruption, environmental pollution, and poor labor standards in the supply chain. Why do these and other examples of immoral behavior occur?

While people often think that bad behavior is the result of bad character, the present case proposes a very different answer: Sometimes, good people do bad things. The Prisoners' Dilemma is an analytical tool that helps understand why sometimes, people behave immorally not because of their bad character, but because they are trapped in social dilemmas. Accordingly, one goal of this case is to discuss the extent to which instances of immoral behavior can be explained in terms of social dilemmas.

The second topic that can be analyzed with the PD concerns *ways to sustain* ethical behavior. It can be applied to subject areas such as:

- Responsible Leadership: If (un)ethical behavior is a result of social dilemmas, what are the implications for responsible leadership?
- *Organizational Culture*: Which role does organizational culture play in enabling ethical behavior? How can a culture be established to overcome social dilemmas?
- *Institutional Design*: How can incentives within an organization be designed so that immoral behavior becomes less likely in the future?
- *Corporate Responsibility*: How can companies develop CSR strategies to overcome social dilemmas on the industry level?

The extent to which these questions can be addressed depends on the time available and on the composition of the class. When participants are very diverse in their educational and professional backgrounds, and if the case study is their first introduction to the PD, it is probably best to focus on the first topic: Why do people behave immorally? If most of the participants are familiar with the PD already, the instructor will have more time for the second topic: How can cooperation and ethical behavior be promoted?

3. Teaching Plan

Assuming a session of 120 minutes, I usually structure the case into five parts (for an overview, see Figure 1). In a 90 minutes session, you can drop section 4 and shortly discuss ways out of social dilemmas during the closing section.

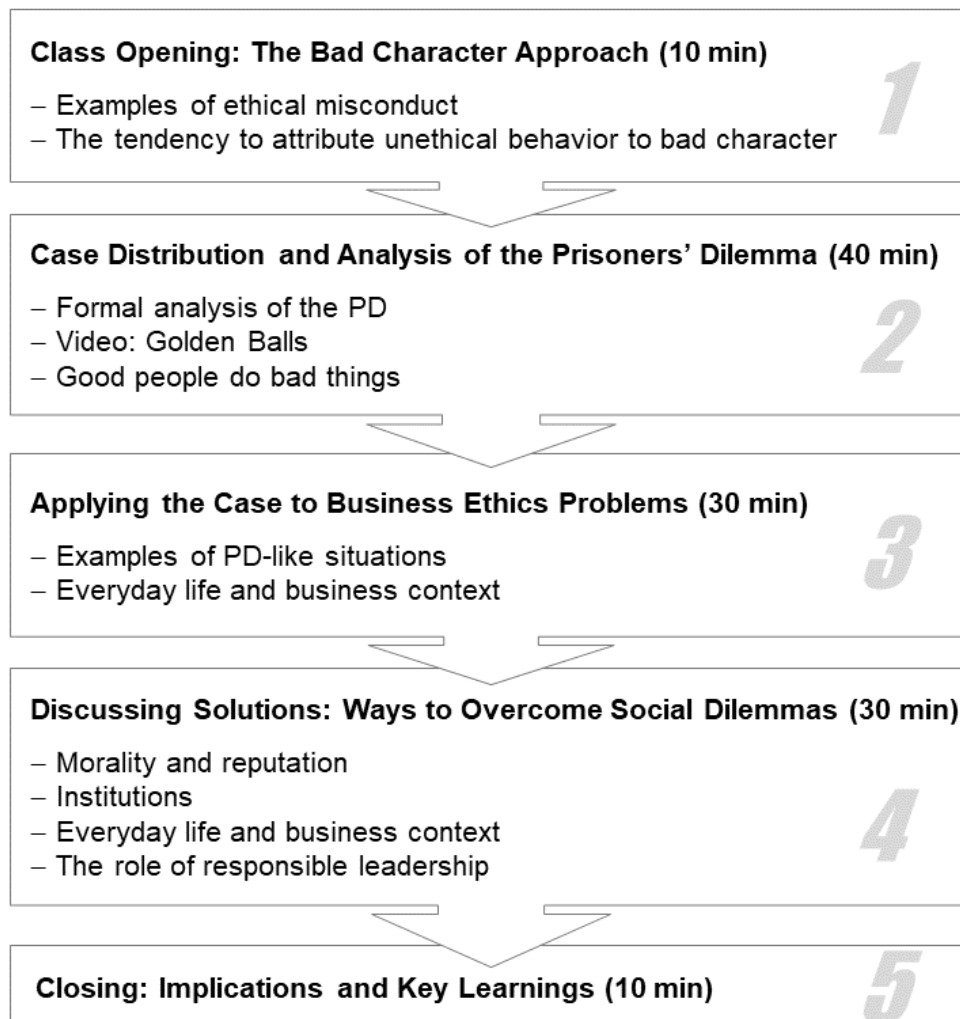


Figure 1: An overview of the teaching plan.

3.1. Class Opening: The Bad Character Approach to Immoral Behavior

After welcoming the class and before distributing the case, a short introduction is useful for framing the class discussion in a business ethics context. To this aim, the instructor should

present some examples of ethical misconduct and ask whom participants believe to be responsible for this misbehavior.

The overall goal of this section is that participants become aware of how most business ethics scandals are typically discussed in public discourse. In newspaper articles, for example, it is often the protagonist's personality that is made responsible for his or her immoral behavior. The main argument is that people—or even corporations as a whole—behave badly because of their bad character and intentions: they are said to be greedy, evil-minded, and reckless. In the following, I will refer to this view as the *bad character approach*.

Most instructors will easily find a recent example of ethical misconduct in business that has been discussed in the local media in terms of the bad character approach. Additionally, Appendix 1 includes some examples that I have used in the past. If time permits, the instructor may also ask the audience to write down one example they became aware of through media reports or through their own experience in their organizations.

The instructor should conclude with the statement that often, we tend to attribute a person's bad behavior to his bad character, and that we label this view as the bad character approach.

3.2. Case Distribution and Analysis of the Prisoners' Dilemma

Once everybody agrees that immoral behavior can be explained within the bad character approach, the next step is to present a very contrasting view—the bad context approach. At this point I often show a slide reading “And now for something completely different,” and use this famous Monty Python quote to make participants aware that I'll introduce an entirely different view on immoral behavior now. This contrast will form the basis for discussing which of the two views is more appropriate for analyzing business ethics problems: the bad character or the bad context approach.

This second part (Section 3.2) proceeds in two steps: First comes the case distribution and analysis; second comes a YouTube clip from *Golden Balls*, a TV series that illustrates the PD.

3.2.1. Case distribution

After the introductory discussion in class, the goal of the next step is to reconstruct the problem of immoral behavior in terms of the Prisoner's Dilemma. The case should now be distributed amongst participants who typically need 5-10 minutes to read the comic strip.

The story told in the comic strip is a version of the Prisoners' Dilemma. The PD is a classic game theoretical model the origin of which is commonly attributed to Merrill Flood and Melvin Dresher. Albert Tucker devised the associated tale of the prisoners to convey the game theoretical problem in 1950 (Poundstone, 1992). The PD has been developed to illustrate a coordination problem of human interaction: sometimes, even though humans may want to cooperate, the situation forces them into self-defeating behavior. The model has also been used in (business) ethics to illustrate why decision makers often fail to adhere to social norms even though the norm is socially desirable (Gauthier, 1986, p. 79; Greene, 2013; Homann & Blome-Drees, 1992). A concise description of the PD can be found in Poundstone (1992, p. 21) [numbers adjusted]:

“Two members of a criminal gang are arrested and imprisoned. Each prisoner is in solitary confinement with no means of communicating with the other. The prosecutors lack sufficient evidence to convict the pair on the principal charge. They hope to get both sentenced to three years in prison on a lesser charge. Simultaneously, the prosecutors offer each prisoner a bargain. Each prisoner is given the opportunity either to betray the other by testifying that the other committed the crime, or to cooperate with the other by remaining silent. The offer is:

- *If A and B each betray the other, each of them serves 5 years in prison*
- *If A betrays B but B remains silent, A will serve 1 year and B will serve 10 years in prison (and vice versa)*
- *If A and B both remain silent, both of them will only serve 3 years in prison (on the lesser charge).“*

The following matrix formalizes the structure of the decision problem (Figure 2). While the participants are reading the case, the instructor can use the time to draw an empty matrix on the flipchart; the numbers can be filled in later, during the case discussion.

		B	
		Cooperation (remain silent)	Defection (confess)
A	Cooperation (remain silent)	3 ; 3	10 ; 1
	Defection (confess)	1 ; 10	5 ; 5

Figure 2: A Formal Illustration of the Prisoners' Dilemma

After having read the case, participants should fill in the matrix on their worksheet (see *assignment question 1* on the worksheet). If the case is taught to undergraduates, the instructor should briefly discuss questions of understanding with the audience (“What is this

case all about?”), before letting participants do assignment 1. Once participants are done with this task, the instructor can fill in the numbers together with the class on the flipchart.

The next question participants should answer is: How will both prisoners decide (see *assignment question 2* on the worksheet)? The standard prediction in the PD is that both prisoners will defect and betray each other. Many students have encountered the Prisoners' Dilemma in economics, ethics, or political science courses, so often the instructor will not need to spend too much time on explaining it. Nevertheless, the instructor should ensure that everyone fully understands the decision problem involved in the PD, and that they understand why according to the standard prediction, both thieves will defect.

Some participants in class will disagree intuitively and argue that the prisoners will cooperate because it is in their best interest to do so. But this is exactly the crux: because of the incentives to defect—irrespective of what the other prisoner chooses—the dominant strategy of both prisoners is to defect, even though both would be better off if they *both* cooperated. At this point, the challenge for the instructor will be to reveal the logic of the PD so that all discussants see why mutual betrayal (i.e., failed cooperation) is the systematic result of PD-like situations if both prisoners are strictly self-interested.

For a detailed discussion of the game, please refer to Kuhn (2017) as just one example of the abundant in-depth treatments of the PD. For the purposes of our case, it is sufficient to stress the following aspects of the PD:

- A and B have a common interest: They would be best off if both of them cooperated and remained silent.
- At the same time, A and B have conflicting interests: Irrespective of which action B chooses, A will always be better off when defecting. If B remains silent, A can betray B in order to get free after only one year. In this case, A would exploit B's willingness to cooperate. If, however, B betrays A, A can also confess and avoid being in prison for ten years.
- Both players know that if they choose to cooperate, they can be betrayed and exploited by the other player. The only way to protect oneself against being exploited is to defect.
- As a result, both individuals will defect for one of two reasons. Either because they want to betray the other player; this interpretation fits the bad character approach. Or because of the very desire to protect themselves from being exploited (quadrant IV). This interpretation fits the bad context approach. None of the actors wants that result, but none of them can escape it.

As becomes evident from this short description, bad intentions may, but need not be involved for participants to choose the “immoral” defection. If a decision-maker in the PD assumes the other will try to exploit her, she has to defect in order to protect herself from exploitation. This defensive motivation is why Karl Homann, a prominent German business ethicist, has called the defective strategy “preemptive counter-defection” (Homann & Suchanek, 2005, p. 32, own translation).

3.2.2. The Golden Balls Video

To further illustrate the two reasons for defection—betrayal or self-defense—the formal analysis of the PD can be complemented by a video that has been viewed several million

times on YouTube. The clip shows a sequence of *Golden Balls*, a British TV gameshow which involves a variant of the PD at the end of the show. The sequence offers an informal, but very intuitive and emotional way to convey to students the incentives of and problems involved in the PD.^{1, 2}

<https://www.youtube.com/watch?v=p3Uos2fzIJ0>

Usually, I pause the video right before Sarah and Steven, the two players in the game show, pick one of the two balls. I introduce this break to ask the class participants how they believe the two will decide. Right after having watched the video, the two following questions can be used to start a short discussion [Note: Make sure to halt the video before the two short interviews with both players at the end]:

- *First, what do you think about Sarah's behavior?* Note that the answers to this question can be very emotional and even aggressive at times. If you want to get an idea of what some participants may think, just read the comments below the video at YouTube. You can even ask participants to write down one single word on a piece of paper to characterize Sarah's character—but be prepared to get answers very similar to the YouTube comments.
- *Second, how does Steven explain Sarah's behavior; how does she justify it?* Now it's time to show the two short interviews at the end of the video. During the interview, Steven says that the game has taught him that “greed knows no boundaries.” In contrast, Sarah justifies her behavior as a response to a past experience that she apparently had in an earlier sequence of the TV show: “Having been stabbed in the back last time, I just couldn't put myself through it again.” That is exactly the question to be discussed: Did she act out of greed (betrayal), or did she try to protect herself from being “stabbed in the back” again (self-defense)? Discussing this question leads over to the central theme of the class: Do people behave immorally because of their bad characters, or because the structure of interaction forces them into this kind of behavior?

3.3. Applying the Case: Business Ethics Problems Seen Through the Lens of the Prisoners' Dilemma

After having explained and discussed the logic of the PD, the instructor's task is to translate the abstract conclusions of the PD model to very specific examples of immoral behavior. To this aim, s/he should discuss examples that may be representative of the structural conditions as illustrated in the PD. If time permits, the instructor can ask participants to build groups of two or three and discuss one example of immoral behavior that may be explained in terms of a dilemma structure (preferably, participants find an example from their own experience).

¹ The TV show is a good field experiment for the study of cooperation in a PD-like situation and has already been subject to scientific research (Van den Assem, Dolder, and Thaler, 2012).

² The German TV show “Hart aber Unfair” featured a similar game:
<https://www.youtube.com/watch?v=VW-W3lmledY> (game starts at minute 10:38).

Most of the times (especially in executive classes), participants will be able to come up with their own examples. If not, Appendix 2 includes a few examples the instructor may want to suggest in order to stimulate the discussion. The main argument in all of these examples is that one single company in highly competitive markets will find it difficult to individually enforce higher ethical standards. As long as individual efforts to act morally can be exploited by less scrupled competitors, the firm will suffer competitive disadvantages without actually improving the situation. After having presented that argument for one example, the instructor can moderate a discussion to assess the validity of this argument as well as its limitations.

At this point, it is important to note that although the agents in a social dilemma seek mutual cooperation, such cooperation need not be morally good or socially desirable. Often, communities deliberately institutionalize competition (i.e., dilemma structures) to prevent cooperation among competitors. Similarly, the prosecutor in the original story of the Prisoners' Dilemma induces competition among the suspects in order to be able to convict them of thievery. Collusion is another case in point: in modern market economies, the participants are not allowed to cooperate when setting their prices, because price competition is believed to yield socially desirable results. More drastic examples include criminal organizations: to pursue their illegal and immoral goals, members of the Mafia need to cooperate. Such examples show that not every form of cooperation is ethically valuable, and social dilemmas can have socially desirable effects.

3.4. Discussing Solutions: Ways to Overcome Social Dilemmas

The last major part of the class should be used to discuss specific strategies that may help overcome social dilemmas. It is useful to begin with ways out of the classic PD, which can be discussed in the formal model or by using the example of the Golden Balls TV show. But importantly, any strategy should also be transferred to the business ethics examples discussed earlier in class.

3.4.1. Individual Strategy: Tit for Tat

Solutions to the PD problem generally presuppose that some of the core assumptions of the theoretical model will be relaxed. More specifically, most solutions require that the interacting parties can credibly commit themselves to cooperation, e.g., via a contract; and/or that they interact repeatedly.

One famous strategy to reach cooperation in the PD is the *Tit for Tat* strategy. It became famous through the work of Robert Axelrod (1981; 1984) who conducted a computer prisoners dilemma tournament and found that amongst many strategies, Tit for Tat was the most successful. Tit for Tat is a reciprocal strategy defined as follows: Start with cooperation and thereafter do what the other player did in the previous round. As Axelrod (1984, p. 20) notes, "four properties ... tend to make a decision rule successful:

- Avoidance of unnecessary conflict by cooperating as long as the other player does,
- provocability in the face of an uncalled for defection by the other,
- forgiveness after responding to a provocation, and
- clarity of behavior so that the other player can adapt to your pattern of action."

If the PD is played repeatedly, participants in an interaction can gain the reputation to be Tit for Tat players. If a rational player knows the partner plays Tit for Tat, he is best off if he cooperates (although technically, it may be optimal to defect towards the end of the series of interactions). This is because he knows that a Tit for Tat partner will not exploit him, but will punish defection by defecting himself.

Transferred to real world examples, playing Tit for Tat requires a repeated interaction so that players can gain a reputation and can punish defectors. In the *Golden Balls* show, for instance, participants would need to know about each other before the show to be able to assess the credibility of their promises to cooperate. If they wanted to credibly threaten with punishment in case of defection, they would need to be able to interact after the TV show. In market economy interactions, these conditions are often met. Companies can try to gain a reputation for being responsible, and they can exert pressure on other companies with questionable ethical standards. If time permits, real world examples for such behavior should be discussed. In particular, the class should discuss whether Tit for Tat may be a strategy to overcome the problems that participants identified earlier (section 3.3.).

3.4.2. Collective Action

A second strategy to overcome the PD is to establish collectively binding *institutions* that make cooperation the rational choice. North (1991) defines an institution as a set of constraints (rules) that guide behavior, thus reducing uncertainty and creating social order to the mutual benefit of a group's members. That is, group members voluntarily restrict their set of available actions (for example, by excluding the option to defect) because they know that if everybody does that, this collective commitment will make everybody better off. If, for example, members of a community decide that contracts be backed up by various institutions (law, courts, etc.), breaching a contract should no longer be an option, which, in turn, will ease beneficial transactions.

Put generally, institutions facilitate cooperation when they solve the problem of competitive exploitation. That is, when they change the incentives that a particular context offers to the participants in a way that cooperators do not bear the risk of being exploited by free-riders. Either because cooperation is rewarded or because free-riding is punished (not necessarily in monetary terms). Examples of *formal* institutions include law, industry regulations, DIN norms, and enforceable contracts. Examples of *informal* institutions include social norms, customs, traditions, and organizational cultures.

In a business ethics context, companies have begun to engage in initiatives that are aimed at establishing institutions by agreeing to new, collectively binding standards. A case in point is the standard that the Forest Stewardship Council (FSC) prescribes in order "to promote environmentally sound, socially beneficial and economically prosperous management of the

world's forests.”³ Examples from other industries include Siemens’ “collective action program” or the B20 Collective Action Hub.⁴

The discussion in class will be most interesting when focusing on few examples. With every example, the class should discuss how collectively binding agreements may overcome a social dilemma by solving the problem of exploitability.

3.5. Closing the Case: Implications and Key Learnings

At the end of the session, the instructor should summarize a few key learning points such as the following:

- Often, we think of immoral behavior in terms of the bad character approach.
- The bad context approach is an alternative, often superior approach to the bad character approach when it comes to explaining and dealing with immoral behavior.
- The prisoner’s dilemma is a stylized tool to understand why even good people may sometimes be driven into bad behavior.
- Seen from this perspective, the main reasons for immoral behavior are: incentives and competition between the interacting partners; the exploitability of moral behavior (cooperation); the inability to change the situation individually.
- One strategy to overcome social dilemmas is the Tit for Tat strategy. Note that this strategy presupposes the possibility to build a reputation and to punish non-cooperation (defection).
- Another strategy to overcome social dilemmas is the establishment of collectively binding institutions. Such institutions solve the problem of exploitability in that they provide incentives which make cooperation the rational choice.

If time permits, the class can also discuss possible implications of these learnings for responsible leadership. For example, leaders who intend to ensure responsible behavior in their company will need to focus on organizational structures, rather than on individual employees’ characters. In this context, the class could discuss the role of incentive systems, compliance management systems, organizational culture, etc.

³ <https://us.fsc.org/en-us/what-we-do/mission-and-vision>

⁴ <http://www.siemens.com/about/sustainability/en/core-topics/collective-action/>; www.collective-action.com. Examples of theoretical and empirical research on the emergence of institutions through collective action include Ostrom (1990) and Brown, Treviño, and Harrison (2005).

4. Appendix

4.1. Appendix 1: Examples of Ethical Scandals Seen Through the Lens of the Bad Character Approach

Immoral behavior	Proposed explanations of immoral behaviors in terms of the protagonist's bad character
LIBOR manipulations	Tom Hayes, former trader for UBS and Citigroup, admitted to the <i>Serious Fraud Office</i> that he was motivated by greed. link to Reuters article
Corruption	"Fifa is a swamp of greed—Sepp Blatter claims to be taking lead on ethics but deserves nothing but strongest ridicule" link to Telegraph article "We believe [former Massachusetts Senator Brian] Joyce was greedy, plain and simple," says Harold Shaw, head of the Boston FBI office. link to Time article
Financial Crisis	Reports of greedy bank managers being responsible for the financial crisis. The Time magazine compiled a list of blameworthy people. link to Time list
Poor labor rights in the textiles industry	"At a (...) demonstration in front of a Gap store in Chicago, protestors held up placards saying 'Stop Corporate Greed'." link to a YaleGlobal Online entry
Volkswagen Diesel defeat devices	"...because of the terrible mistakes, made by only a few," Martin Winterkorn, Volkswagen CEO, said about the persons responsible for the emerging Diesel scandal. link to Winterkorn's video statement

4.2. Appendix 2: Examples of PD-like Situations

Appendix 2 includes a few examples the instructor may want to suggest in order to stimulate the discussion. For each example, the following tables juxtapose the standard elements of the PD and their equivalent in the real-world example. Of course, these analogies are oversimplified. Thus, there should be a critical discussion about the extent to which the PD offers a legitimate interpretation of such problems in business ethics.

4.2.1. Everyday Life Examples

Speed Limits Before a Traffic Jam. In case of an accident on a highway, authorities often lower the speed limit some kilometers before the accident scene to avoid a fast congestion formation. Let's assume that, as is often the case in such situations, there is no speed control.	
Interacting partners (trapped in the dilemma)	Car drivers who are still far away from the accident scene but who see the speed limit reduction.
Common interest	If everyone slows down, there will be no (or a shorter) traffic jam and the total loss of time will be minimized for everyone.
Conflicting interest	If everyone slows down, one car driver can freeride by overtaking everyone and thus being much faster than everyone else.
Exploitability	If one particular car driver slows down while the others don't, he will be even slower because there will be a traffic jam and he'll be the last to enter it.
Result	Nobody slows down (or everybody speeds up) and there will be a larger traffic jam, costing everybody more time.

Rhetoric in the Media. SPIEGEL ONLINE: "As a journalist, you are in a field of tension. You don't want to provide the forum for right-wing populists, but you also feel the need to inform about the AfD [<i>Alternative für Deutschland</i> , a right-wing populist party]. And at the latest when the rival newspaper has a report on their page you are under pressure. How do you escape from this dilemma?" (journalist Henriette Löwisch in an interview with SPIEGEL ONLINE ; September 26, 2017; own translation)	
Interacting partners (trapped in the dilemma)	Newspaper journalists who are asked not to devote too much attention and coverage to right-wing populists.
Common interest	If there are fewer newspaper articles on right-wing populists, these political movements are refused attention.
Conflicting interest	If one newspaper reports extensively on the latest provoking statements from right-wing populists, it may attract a lot of attention from readers.
Exploitability	Journalists who refuse to extensively report on populists will not be able to satisfy their readers' interest.
Result	Journalists write extensively on right-wing populists and, through their coverage, unintendedly offer them a platform for championing their ideas.

Writing E-Mails at night. Employees in a company answer e-mails from their boss late at night to leave a good impression.	
Interacting partners (trapped in the dilemma)	Employees/team members in a company.
Common interest	Keep work, including e-mails, to office hours.
Conflicting interest	If only one of the team members is willing to answer e-mails even at night, s/he will leave an impression on the boss that the others won't leave.
Exploitability	<i>Not</i> answering e-mails at night while other colleagues do that, may leave a bad impression on the boss.
Result	All team members answer their boss's e-mails even at night.

4.2.2. In a Business Ethics Contest

Corruption. In some markets, it is necessary to pay bribes to officials to pass customs (other examples: to open a business, to get permissions, or to win a contract).	
Interacting partners (trapped in the dilemma)	Companies who want to pass customs to import goods into foreign countries.
Common interest	If no one bribed, it would be useless for officials to ask for bribes and customs would be more efficient.
Conflicting interest	If no one bribed but one competitor, this company will pass customs faster than everybody else and gain a competitive advantage.
Exploitability	In order to avoid a competitive disadvantage vis-à-vis less scrupulous firms, even a company that condemns bribing has an incentive to bribe for reasons of self-protection.
Result	All companies bribe.

Labor Standards in the Textiles Industry. Western textile companies source from suppliers with very low social standards.	
Interacting partners (trapped in the dilemma)	Western fashion brands who can choose between different suppliers with varying social standards.
Common interest	If all companies sourced from suppliers with high social standards, factory workers would be better off; there would be no negative media coverage.
Conflicting interest	If one fashion brand sources from a low-standard supplier, it can save costs and gain a competitive advantage over the other companies.
Exploitability	Companies know that their decision to source to a high standard supplier can be exploited by the other company. The only way of protecting oneself against being exploited is to source to a low standard supplier.
Result	Companies (except those with profitable fair fashion brands, of course) source from low standard suppliers.

Tax Evasion. International corporations aggressively use legal but illegitimate ways to minimize their tax burden (e.g., the “Double Irish with a Dutch Sandwich”).	
Interacting partners (trapped in the dilemma)	Companies that hardly pay taxes in a country in which they sell their products and services.
Common interest	Taxes are necessary to maintain the infrastructure on which these companies depend (human capital, infrastructure, security, etc.)
Conflicting interest	If morally dubious tax evasion strategies are legal and lucrative, one company may use them to gain a competitive advantage in the industry.
Exploitability	If companies refuse to use these strategies while the majority of competitors does use them, the “moral” company will lose out.
Result	Most, if not all companies of that industry aggressively avoid taxes.

5. Literature

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6. Acknowledgements

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