Professional norms as incentives: experiments with professionals and students

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Abstract:
Do professional norms affect behavior and even override monetary incentives? We run incentivized experiments and provide evidence that this is the case. Purchasing professionals make decisions in an incentivized economic experiment that favor the passive recipients, Internal customers, more when the decision situation is framed to appeal to the professional norm of the Purchasing professionals than when making the same decision in the absence of the framing. Professionals sacrifice more money for the passive receiver when it is described as offering higher quality for the internal customer. As a robustness check, we find that the decision of student subjects is not affected by such framing. We also find that the length of the exposure to the profession explains the impact of the framing. The novices to the profession are not affected significantly, in contrast to the professionals with longer professional life. This is consistent with internalization of professional norms to be a long-term process.

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**Introduction**

Professional norms are behaviors that professionals adhere to, and they are expected by their profession to follow. They are specific to a profession, delineate acceptable conduct within a profession, and may be derived from the professional ethics (Blay, Gooden, Mellon, & Stevens, 2016). When this is the case, they stipulate what behavior within a profession is good, and will be appreciated; and/or what behavior within a profession is bad, and should be avoided. Often, professional norms are stipulated explicitly by associations of professionals, and spread around among members of the profession by means of professional training.

Hippocratic Oath ([Encyclopedia of Bioethics](https://www.encyclopedia.com/ethics-law-and-persistence-of-life/philosophy/hippocratic-oath), 2003) is probably the most prominent example of a professional norm, guiding the medical profession. Similar norms, if not in the content or the form, but in the intention to delineate an acceptable professional conduct, can be found for many other professions. Journalists, lawyers, auditors, bankers, just to name a few, have their own versions of professional norms, whether more or less known to the public beyond the profession. And even businesses formulate, and proclaim to adhere to, professional – or corporate ethics – norms (Craft, 2013; O’Fallon & Butterfield, 2005).

Professional norms might interact with other incentives in place. Similar to social norms, professional norms consist of behaviors expected by individuals in a profession, and involve some form of informal enforcement of the norm compliance. For example, professionals signaling their compliance with the professional norm might receive status and reputation rewards, and professionals in conflict with the norms could be exposed to naming and shaming. These non-pecuniary consequences of norm adherence might nevertheless indirectly feed into the pecuniary incentives of the professionals, for example by opening an access to networks of highly valued co-
professionals and their resources, or by enjoying high status and consequently to a high value on the labor market. Due to these indirect impact on pecuniary rewards, professional norms should be taken into account when designing incentives for professionals, next to pecuniary and other rewards.

Professional norms might be intertwined with intrinsic incentives (Kreps, 1997). Intrinsic incentives, just as professional norms, do not arise due to direct material rewards. Instead, they come with internalized rewards associated with the job performance. In contrast to intrinsic incentives, though. Professional norms do not arise within an individual, but due to a coordinated action of the profession, or its representatives. Professional norms are thus extrinsic to an individual, but may become internalized, especially when norm-driven behavior is sufficiently reinforced in the profession.

In this paper, we present experimental evidence on professional norms as incentives. We run incentivized economic experiments with purchasing professionals and with students, and in two treatments of our experiment, we use either a neutral framing of the decision problem, or a formulation designed to trigger the professional norms of the profession. The participants in our study make a one-shot decision that affects their own income from the experiment and the income of one other experiment participant.

We compare behavior of purchasing professionals in the treatment with and without the framing designed to trigger professional norms of the purchase professionals. We show that the professional norms significantly affect decisions of the professionals. As a robustness check, we confirm that the imposition of professional-norm framing on student subject pool has no impact on behavior.
Moreover, we confirm that professionals and students behave similar in the neutral treatment.

**Theory and experimental design**

A social norm is a description of a behavior that is acceptable by a group of individuals, is mutually expected in this group, and enforced in case of deviations (C. Bicchieri, 2002; Cristina Bicchieri & Muldoon, 2011). Social norms arise by the bottom-up habituation and subsequent internalization of behaviors common in a group. But even externally imposed rules may become norms when there is a possibility for top-down indoctrination, or when frequent interactions of group members – some of the favoring the rule - allow for lateral peer pressure to establish the behavior as a norm (Cristina Bicchieri & Chavez, 2010).

Professional norms represent a special case of social norms, where the group is defined by belonging to the specific profession, and behaviors specified by the norms pertain to the profession-specific behaviors. Professional norms may arise bottom-up, as response to integration of costly profession practices into the normative requirement in a profession. For example, journalists’ norms might require to forego the publication of news that harm the privacy of young children, event though such news might yield high exposure and thus high professional rewards. A norm that obliges all members of the profession to refrain from publishing such news imposes the same costs on all members of the profession in terms of foregoing benefits from publishing such news, when available. Members of the profession thus might feel internally motivated to uphold the norm and/or punish its violation.

At the same time, professional norms might be established top-down; especially when the profession has an authoritarian representative. An example in
Moral hazard problems arise when monitoring or measurement costs preclude provision of direct momentary incentives to perform a task. We propose that professional norms can serve as incentives, and even give rise to behavior that cannot be incentivized by monetary incentives. When decisions are properly framed, the frames crowd in intrinsic incentives associated with the following of the professional norms and standards. Strengthening the association between tasks performed and professional standards might provide a nonexpensive and effective way for firm managers attempting to provide incentives in situations when moral hazard problems are pervasive.

We implement an economic experiment to test whether professional norms affect behavior. In particular, we focus on the professional norms of purchasing professionals. Purchasing professionals procure goods and services for firms (for-profit or public) and this profession is characterized by severe moral hazard problems. The birth of the profession of purchasing is associated with the economies of scale in purchasing, and specialization(Turner, Taylor, & Hartley, 1995). At the same time,
with such internal hierarchization of a firm, a new level of complexity arises, where
the firm manager has to align incentives of the purchasing professionals with the
incentives of profit maximization. This is largely prevented due to the monitoring
costs.

While Internal customers of the purchasing departments within firms produce
output which is directly observable by the firm managers, the inputs into this
production, as codetermined by the purchasing departments, are not observed by the
firm managers. Accordingly, the firm managers attempt to set incentives for the
Purchasing departments in terms of targets that are easy to measure – costs reductions
– while the Internal customers are affected by a wide range of aspects of inputs
provided by the purchasing departments, which we in a summary term refer to as
quality. This quality, on one hand, is difficult to assess by the outsiders (e.g. firm
managers), and difficult to quantify. It is a multidimensional aspect of the inputs
provided, including the timely delivery of the goods/services, the best choice of the
external supplier in the current conditions, the length of the contract and hence the
commitment of the external supplier etc..

A professional norm, requesting from the professional purchasers to put a
sufficient weight on the quality of own services to the internal customer, rather than
paying only attention to the pecuniary incentives of cost minimization, might
represent a countervailing force on the cost minimization. If that is the case, firms
would benefit from strengthening of the professional norms. We test whether
professional norms of purchasers have an impact on their behavior by using an
incentivized economic experiment.

We have implemented a dictator game in two treatments. The dictator game is
an allocation task where one experiment participant chooses a division of resources
between oneself and one other anonymous participant in the experiment. We implemented this game in two treatments. In one of them the allocation decision is simply a division of money between two individuals which we referred to as “production unit”. In the other treatment, the same allocation decision takes place, with an added framing. The decision-maker is referred to as purchaser and the recipient is referred to as Internal customer. Each allocation feasible for the purchaser is now represented not only as monetary consequence but is also associated with a quality level, labeled as A1, A2, B1… up to E2. The highest quality A1 corresponds to a division of the money that gives the lowest payoff for the decision-maker and the highest possible payoff for the recipient. As the quality decreases, the payoff to the decision-maker increases. When the decision-maker wants to pursue own material self-interest only, s/he has to sacrifice the (abstract) notion of quality. Choosing higher amount of money for oneself now implies not only low amount of money for the recipient – just as is was in the control treatment – but also implies low quality for the recipient. The recipient is thus harmed in material terms, while the decision-maker benefits in material terms. At the same time, if providing low quality is constrained by avoiding the breaking of the professional norm, then we expect that professionals will be more generous in the professional treatment, due to the activation of their professional norms.

Materials and methods

The experiments with professionals took place during the conference of NEVI association of the Dutch Purchasing Professionals, at the Business school Nyenrode, the Netherlands. Participants were informed about the experiments by an e-mail, and
could join a session before or after a plenary meeting of the conference. In this way, we could exclude a spillover of information about the experiments between the sessions. We run two framed treatment sessions before the plenary, organized back to back, and one neutral session after the plenary. In total, 55 professionals participated, 36 in the framed sessions, and 19 in the neutral session. We chose to over sample the participants into the framed sessions to obtain richer dataset on participants of various backgrounds.

The experiments with students took place at Radboud University Nijmegen, the Netherlands. Students were recruited the online recruitment system ORSEE (Greiner, 2015) and assigned to one of the treatments. All pen-and-paper sessions were planned back to back to avoid spillovers. In total 40 students participants, 20 in the framed session and 20 in the neutral session. The session table can be found in Table 1.

In all sessions, subjects were seated in isolation, preventing any interaction with other participants. Instructions were read aloud by the experimenter, and subjects were allowed to ask questions privately, if they needed clarification. Subjects were informed that they will be able to collect their earnings immediately after the experiment, in a sealed envelope. In that way, the experimenter distributing the earnings would not be aware the other earnings of the specific participant collecting his/her earnings based on own participant number. After making a decision, the experimenter collected the decision-sheets and implemented the random assignment of roles to the decision-maker and in front of the participants. Subjects filled in a short questionnaire and the experiment was finished. Instructions an questionnaire can be found in Appendix 1-3.
Table 1. Session table.

<table>
<thead>
<tr>
<th>Session</th>
<th>Treatment</th>
<th>Participants</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1</td>
<td>Framed</td>
<td>Professionals</td>
<td>12</td>
</tr>
<tr>
<td>S2</td>
<td>Framed</td>
<td>Professionals</td>
<td>16</td>
</tr>
<tr>
<td>S3</td>
<td>Neutral</td>
<td>Professionals</td>
<td>9</td>
</tr>
<tr>
<td>S4</td>
<td>Framed</td>
<td>Students</td>
<td>20</td>
</tr>
<tr>
<td>S5</td>
<td>Neutral</td>
<td>Students</td>
<td>20</td>
</tr>
<tr>
<td>S6</td>
<td>Framed</td>
<td>Professionals</td>
<td>8</td>
</tr>
<tr>
<td>S7</td>
<td>Neutral</td>
<td>Professionals</td>
<td>10</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>95</strong></td>
</tr>
</tbody>
</table>

Data analysis and discussion

The variable to explain is the decision what allocation of money among oneself and the passive recipient to choose. Subjects could choose one of 10 values of this variable, announced as A1, A2, B1, B2, C1, C, D1, D2, E1 and E2. The payoff table referred to the variable as announcing the quality of a product provided to the receiver, and the decision-makers were attended in the instructions that the value of this variable “quality” captures a simple tradeoff between quality and implied costs. The higher was the value of the quality (with highest possible value attained at choice A1), the lower was the payoff for the decision-maker, but the higher was the payoff for the recipient.

Let us first focus on the decisions of the professionals. The main explanatory variable is the treatment variable Framed which equals to 1 in the Framed treatment, and equals to 0 in the Control treatment without framing. Other explanatory variables that we use to control for our results are Male, Experiences (category of years of experience in the profession), PriorityHighQ (answer to the question about priority for high quality above low price, in Likert scale), Type of education as another important
vehicle for professional indoctrination (NEVI 1, 2, 3, other; introduced as indicator variables).

Figure 1 summarizes decisions made by purchasing professionals in both treatments. The allocations made by the professionals in the framed sessions differ clearly from those made in the neutral sessions. We observe that the distribution is shifted towards keeping more for oneself in the Neutral treatment. Indeed, while nobody chooses to make the most extreme self-favoring decision in the Framed treatment, this is the modal choice in the Neutral treatment. In contrast, no subject chooses the most favorable allocation to the other person in the Neutral treatment, while some participants do so in the Framed treatment.

Overall, these observations suggest that the participants as decision-makers favor act more selfishly, without regard for the other participant, in the Neutral treatment, and the introduction of the framing into the decision problem shifts their attention to other decisions, and increases their willingness to benefit the recipient.

Importantly, the majority of all decisions in the framed sessions favors the passive receiver, in the framed text the Internal Customer. That means, the Decision-Makers choose actions that are associated with high quality, an aspect of a professional standard that Purchasers in the profession are expected to uphold according to the most prominent theories of the profession. This, despite the fact that such “high quality” decisions are costly for the Decision-maker. From the perspective of monetary allocations, the Decision-makers thus behave “altruistically”, they benefit the passive receiver.

When we test the directional hypothesis that the mean decisions will be less selfish under a framing that allows for activation of professional norms targeting the
provision of high quality to the Internal customers (Mann-Whitney U test, one-sided test, p=0.024).

**Observation 1:** Professional Purchasers make decisions that favor the Internal Customers significantly more - disadvantaging oneself in the decision - when the decision problem is framed as providing high quality to the Internal customer rather than as a pure distributional decision.

**Figure 1: Decisions in both treatments by professionals.**

We now further investigate whether there is evidence that professional norms of purchasing professionals in as incentive in the Framed treatment. In order to assess the impact of professional norms on behavior of the subjects, we use a couple of objective and subjective variables.

**Experience** is the number of years in the profession measured in six categories, starting from 0-2 years as category 1 up to more than 10 years as category 6. We expect that indoctrination by professional norms takes some time, and therefore
expect a link between the length of the professional occupation and the willingness to prioritize high quality at the cost to oneself.

Professional education is also expected to serve as a vehicle for promoting professional norms. We use variable NEVAny set equal to 1 if the participants has NEV1, NEV2, or NEV3 level professional education, and set to 0 otherwise. Given that the professional education could be used as a tool to indoctrinate the professionals, we propose the professional norms could be linked to the professional education.

Note that these two variables, Experience and NEVAny, provide an objective measure of to what extent the professional can be seen as someone who belongs to “the profession”. Next to these objective variables, we ask a series of questions targeting the participant’s exposure to the professional norm of the profession in a subjective way. In particular, we ask questions dealing with the tradeoffs between quality improvement and price/cost reduction. The answers to the qualitative questions are obtained on a 5- Likert scale from Fully disagree to Fully agree.

Question FamiliarPortfolio elicits an answer to the question “I am familiar with the portfolio theory with regards to goods/services with high profit impact and high supply risk (few suppliers/ high switching costs)”. While the professional education might serve as a vehicle to implement professional norms; but we also ask whether subjects are acquainted with a specific theory that might apply in the context in which they make their distributional decision.

UnderstandingPQ elicits an answer to the question “I understand the essence of the theory for Price and Quality”. And next, UseinLife measures the subjective assessment of the participant whether s/he applies the relevant theory in actual decision-making (“I use this theory when ever possible in real life”).
All these three questions FamilarPortfolio, UnderstandingPQ and UseinLife are highly subjective and they might deliver biased answers due to various sources of biases, for example self-enhancement effect, experiment demand effect and social desirability of certain answers. For example, participants might be unwilling to admit that they are not acquainted with a theory that might be considered a core of the professional behavior, or even unaware that their knowledge is incomplete. Also, they might be delivering desirable answer for many other reasons, trying to please the experimented or to provide the expected answer. Because of that, these subjective questions actually might serve as a measure of bias in the perceptions of the professionals over their consistency with the theories proposed to be central for the profession.

In an attempt to assess subject’s awareness of the complex theoretical and practical considerations in the price/quality tradeoffs, we ask one more question, referring to a specific scenario. This question TruePQ serves as an objective measure of the participant’s revealed knowledge of the theory that would apply in the particular context by using answers to the question. We coded the variable TruePQ as equal to 1 in cases when the answer provided would be given by a participant aware of the theory, and as equal to 0 otherwise.

Table 2 reports the Pearson correlation coefficients (N=55, p-values for two-sided test) for the professionalism variables discussed above. We find that the subjective answers on the own familiarity with theory, understanding of the theory relevant to price/quality tradeoffs, and application of the theory in professional life, are highly correlated. This is unsurprising, given that subjects are likely to give internally consistent answers, but cannot be used as an evidence for actual objective adherence to the relevant theory.
Table 2: Pearson correlation coefficient for professionalism variables (N=55).

<table>
<thead>
<tr>
<th></th>
<th>Experience</th>
<th>Familiar Portfolio</th>
<th>Understanding PQ</th>
<th>Use in life</th>
<th>True PQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experience</td>
<td>1</td>
<td>.176 (0.200)</td>
<td>.033 (0.810)</td>
<td>.010 (0.940)</td>
<td>.016 (0.909)</td>
</tr>
<tr>
<td>Familiar Portfolio</td>
<td>1</td>
<td>.745 (0.000)</td>
<td>.615 (0.000)</td>
<td>-.084 (0.543)</td>
<td></td>
</tr>
<tr>
<td>Understanding PQ</td>
<td>1</td>
<td>0.73 (0.00)</td>
<td>-.230 (0.092)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use in life</td>
<td>1</td>
<td></td>
<td>-.344 (0.010)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

To assess the actual impact of the professional theory on behavior, we look at the correlation between the variable TruePQ with the above discussed subjective variables. This correlation is only found among UseinLife and TruePQ. Familiarity with the theory and subjective evaluation of own understanding of the theory is not correlated with the actual revealed understanding of the theory. We therefore conclude that the participants overestimate their own familiarly with the theory and its implications, but those that asses that they use the theory in life are more likely to actually be aware of the implications of the theory.

We will now explain the decisions in the experiment, by controlling for the exposure to the norms, and demographic variables like gender. The variable we will explain is the level of quality associated with the chosen alternative, that implies a payoff distribution amount the decision-maker and the passive recipient. Subjects choose from among 10 ranked alternatives with equally distanced payoffs. We run a Tobit regression, allowing for censoring of the value at the lower and upper range of the available alternatives, somewhat neglecting that the variable of interest is not continuous, see Table 3. Model 1 contains data from both treatments. Model 2 is restricted to decisions in the Framed treatment. In the table, we drop the additional
demographic variables because they do not contribute to the model. As a robustness check, we also run an ordered conditional logit model on the same data (see Appendix).

Table 3. Tobit regression explaining dictator’s decision in the dictator game

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
<th></th>
<th></th>
<th>Model 2</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coeff</td>
<td>Std.Err.</td>
<td>Coeff</td>
<td>Std.Err.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experience</td>
<td>-.214</td>
<td>.175</td>
<td>-.354*</td>
<td>.170</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treatment Framed</td>
<td>-1.735</td>
<td>.763*</td>
<td>n.a.</td>
<td>n.a.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>6.887</td>
<td>1.013</td>
<td>5.786</td>
<td>.835</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>55</td>
<td>36</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PseudoR2</td>
<td>0.0260</td>
<td>0.0278</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* = significant at 0.05

We find that the treatment dummy Framed explains the decision made by the decision maker is the treatment variable: subjects give more to the recipient in the Framed treatment compared to the Neutral treatment. In terms of the variables capturing the exposure to professional, only variable Experience, measuring the time spent in the profession, marginally contributes to explaining the decision in the experiment: In the overall sample, only treatment variable is significant. In the subsample, constrained to the observations in the Framed treatment, the variable is significant at 5% level.

In Figure 2, we summarize the link between the decisions in the experiment and the years of professional experience. The average decision, depending on professional experience in years, is plotted against three categories: beginners with less than 2 years of experience, professionals with 2 to 10 years of experience, and established professionals with more than 10 years of experience. Due to the small number of observations in the Neutral treatment, we only state that on average, the decisions
seem to be independent of the years of experience. More importantly, in the Farmed treatment, we observe that longer experience to the profession results in decisions that seem to be more driven by the norm (taking into account quality not only pecuniary payoff to oneself).

Figure 2. Dictator’s decision and professional experience in years by novices (less than 2 years of experience), professionals (between 2 and 10 years of experience) and established professionals (more than 10 years of experience).

Observation 2: Purchasers that are for a longer period in the profession are affected by the framing appealing to the professional norm. They choose allocations that favor more the Internal customer (by higher quality), despite the monetary costs to oneself.

Observations 1 and 2 summarize that the decisions of professionals are affected by their professional norms to the extent that they forego material incentives in order to satisfy the norm and pay attention to the quality framing in the treatment. In the experiment, providing higher quality amounts to sacrificing more monetary
payment for oneself, and to provide higher monetary amount to the participant representing the Internal Customer. In order to assess the robustness of this observation, we run additional session with students.

In these sessions, we use the same instructions as with professionals. We expect, given that the students are not likely to be exposed to the purchasing professional norms to the extent that the professionals were, that there will be no impact of the professional farming on the behavior of the students. Indeed, this is exactly what we find. On one hand, the behavior of the students in the neutral and framed treatment are indistinguishable from each other. Additionally, students behave similar to the professionals in the neutral tetramer, save for the exchange rate that gives three times as much payoff to the professionals as to the students, in order to account for their higher opportunity costs of time. Figure 3 contains the distribution of decisions in the student sessions.

**Figure 3: Decisions in both treatments by students.**
Conclusions

Professionals are affected by professional norms, and comply with them even if it is costly in monetary terms. We provide evidence from incentivized experiments supporting this contravening force of professional norms on monetary incentives. In our study, professionals and students allocated resources between oneself and one other experiment participant. In one treatment, this allocation was formulated as providing a quality for the receiver. This context is well known and relevant for the purchasing professionals who participated in the experiments. In their profession, providing quality is costly and purchasing professionals face a moral hazard problem. Their professional norms, however, stress the importance of quality considerations, as oppose to pursuing pure money-maximization (or cost minimization) goals. In the experiment, high quality was associated with lower payoffs for the deciding participant. Participants decided anonymously, and received their earnings without the scrutiny of the experimenters. In this way, we eliminated the demand effects for upholding professional norms, and allowed that the participants to allocate freely the money in any way they desired.

We find that purchasing professionals allocate more money to the receiver when such allocation is associated with providing quality. Decisions associated with high quality, however, are more costly to the decision-makers, and professionals earn less when their decisions are framed around providing quality. This in contrast to the same decisions, however, made without reference to quality. We verify that this treatment effect is not due to the quality wording rather than due the professional norms. Students exposed to the same framing - while obviously lacking the professional norms of the purchasing profession- are not affected. They make the
same decisions with and without the reference to quality. Moreover, students and professionals deciding without framing make similar decisions, up to the point that we provide three times as high earnings for professionals than for students. This is due to the salience of earnings in the experiments.

Our observations have important implications for the managers of firms aiming to resolve moral hazard problems. We propose that the professional norms could play an important role in incentivizing professionals, and possibly replace pecuniary incentives in tasks burdened by monitoring and enforcement costs. Professional associations or education programs could play an important role in acting such social welfare objective, by formulating and disseminating professional norms that would decrease costs associated with other forms of incentives.

We propose that professional norms should be on the list of norms able to combat narrow self-interest, or to power down – at least partially – the extrinsic pecuniary incentives. More research is required in this relatively small field (Andersen, 2009; Burau & Andersen, 2014) to identify the scope and interactions of professional norms with other incentives. We also observe that professional norms may take time to become ingrained, and questions arise on the most effective ways of supporting the process of their internalization.

References


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Appendix 1: Instructions for the participants – Framed treatment

Welcome Purchasing Professionals!
You will now participate in an experiment on economic decision-making. In this experiment, you will be randomly matched into groups of two. You will never learn the identity of the other person matched to you. At the end of the experiment, you will be paid out in cash in anonymity for the outcome of the interaction between you and the person matched to you. Your earnings depend on the decisions made in the experiment.

Let us now explain the experiment.
The two people matched to a group will form a production unit. One of them, the Decision-maker (Purchaser) represents a purchasing department and the other, the Recipient (Internal Customer) represents an internal customer for this purchaser.
In this experiment, only the Decision-maker (Purchaser) will make a decision. This decision will affect the earnings of both participants! The Decision-maker (Purchaser) will choose the costs and quality of the inputs for the Recipient (Internal Customer).
To make this decision, the Decision-maker will select one from among 10 possible actions. Each action represents a combination of cost and quality which affect the payoffs of the two participants. The lower the cost – the lower the payoff for the Decision-maker, and the lower the quality for the Recipient, and vice versa, the higher the cost for the Decision-maker, the higher the quality for the Recipient. The decision-maker (Purchaser) is buying a product (not a service) that has impact on the profit of the organization. There are not many suppliers able to supply this product and the buying volume is relevant in the eyes of the supplier as well.

On the last page of the instructions, you find a table that summarizes the earning consequences of each action for both participants in one production unit. They capture in a simplified way the tradeoff between low price and high quality. The highest quality delivers the highest benefit to the Recipient (Internal customer), and at the same time the highest costs – and associated lowest earnings – for the Decision-maker (Purchaser).

At the top of the earnings table, you will find information you that you will now make a decision as a Purchaser. That means that all participants will make a decision as a Purchaser. After that, please fold your decision sheet, and we will collect them.
We will then in front of you, at random, assign one half of the participants to fulfill the role of the Decision maker and the other half the role of the Recipient. This implies that each of you has 50% chance to be indeed the Decision-maker that will affect the payoff of one Recipient. At the end, the decision of each participant assigned at random the role of the Decision-maker will determine the payoff of one participant assigned the role of Recipient.

Please note that ONLY the decision of the Decision-maker (Purchaser) will determine the earnings of the pair of the two people matched together into a group.
Finally, we will ask you to answer a few questions on a questionnaire. Then, the experiment is finished. You will be able to collect your earnings in a sealed envelope, in complete anonymity from the experimenter in the next coffee break. Even when you come with more people at the same time, we will make sure that you will be the only person aware of your payments in the experiment.

In order to collect your earnings, you will need your participant number, that you received when entering this room. Please keep it with you until the payment. We will inform you true NEVI-Kring Noordwest about when and how we will provide feedback on this experiment, in a fully anonymized form.

Thank you for your attention.

Research team,

University Groningen
Radboud University Nijmegen

<table>
<thead>
<tr>
<th>My role is: PURCHASER (Decision-maker)</th>
</tr>
</thead>
<tbody>
<tr>
<td>My earnings are in the grey column; the earnings of the other person are in the white column.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ID</th>
<th>Level of quality = action chosen</th>
<th>Earnings to the Purchaser = Decision-maker</th>
<th>Earnings to the Internal customer = Recipient</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>1</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>A2</td>
<td>6</td>
<td>27</td>
<td></td>
</tr>
<tr>
<td>B1</td>
<td>9</td>
<td>24</td>
<td></td>
</tr>
<tr>
<td>B2</td>
<td>12</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>C1</td>
<td>15</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>C2</td>
<td>18</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>D1</td>
<td>21</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>E1</td>
<td>27</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>E2</td>
<td>30</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

I choose the following action (level of quality). Circle one: A1 - A2 - B1 - B2 - C1 - C2 - D1 - D2 - E1 - E2
Appendix 2: Instructions for the participants – Neutral treatment

Welcome Purchasing Professionals!
You will now participate in an experiment on economic decision-making. In this experiment, you will be randomly matched into groups of two. You will never learn the identity of the other person matched to you. At the end of the experiment, you will be paid out in cash in anonymity for the outcome of the interaction between you and the person matched to you. Your earnings depend on the decisions made in the experiment.

Let us now explain the experiment.
The two people matched to a group. One of them is assigned the role of the Decision-maker and the other the role of the Recipient.
In this experiment, only the Decision-maker will make a decision. This decision will affect the earnings of both participants! The Decision-maker will select one from among 10 possible actions. Each action represents payoffs of the two participants.

On the last page of the instructions, you find a table that summarizes the earning consequences of each action for both participants in one group.

At the top of the earnings table, you will find information you that you will now make a decision as a Decision maker. That means that all participants will make a decision as a Decision maker. After that, please fold your decision sheet, and we will collect them.
We will then in fornt of you, at random, assign one half of the participants to fulfill the role of the Decision maker and the other half the role of the Recipient. This implies that each of you has 50% chance to be indeed the Decision-maker that will affect the payoff of one Recipient. At the end, the decision of each participant assigned at random the role of the Decision-maker will determine the payoff of one participant assigned the role of Recipient.

Please note that ONLY the decision of the Decision-maker (Purchaser) will determine the earnings of the pair of the two people matched together into a group.

Finally, we will ask you to answer a few questions on a questionnaire. Then, the experiment is finished. You will be able to collect your earnings in a sealed envelope, in complete anonymity from the experimenter in the next coffee break. Even when you come with more people at the same time, we will make sure that you will be the only person aware of your payments in the experiment.

In order to collect your earnings, you will need your participant number, that you received when entering this room. Please keep it with you until the payment. We will inform you true NEVI-Kring Noordwest about when and how we will provide feedback on this experiment, in a fully anonymized form.
Thank you for your attention.

Research team,

University Groningen
Radboud University Nijmegen
Appendix 3: Post-experimental questionnaire

Additional Questions Economic Experiment

<table>
<thead>
<tr>
<th>N r.</th>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Gender m/f</td>
<td>□ Male</td>
</tr>
<tr>
<td></td>
<td></td>
<td>□ Female</td>
</tr>
<tr>
<td>2.</td>
<td>Education (highest)</td>
<td>□ MBO</td>
</tr>
<tr>
<td></td>
<td></td>
<td>□ HBO</td>
</tr>
<tr>
<td></td>
<td></td>
<td>□ WO</td>
</tr>
<tr>
<td>3.</td>
<td>Purchasing related Education</td>
<td>□ NEVI 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>□ NEVI 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>□ NEVI 3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>□ Other</td>
</tr>
<tr>
<td>4.</td>
<td>Experience as BUYER</td>
<td>□ 0 – 2 jaar</td>
</tr>
<tr>
<td></td>
<td></td>
<td>□ 2 – 4 jaar</td>
</tr>
<tr>
<td></td>
<td></td>
<td>□ 4 – 6 jaar</td>
</tr>
<tr>
<td></td>
<td></td>
<td>□ 6 – 8 jaar</td>
</tr>
<tr>
<td></td>
<td></td>
<td>□ 8 – 10 jaar</td>
</tr>
<tr>
<td></td>
<td></td>
<td>□ &gt; 10 jaar</td>
</tr>
<tr>
<td>5.</td>
<td>Dominant sector-experience</td>
<td>□ Public sector</td>
</tr>
<tr>
<td></td>
<td></td>
<td>□ Private sector</td>
</tr>
</tbody>
</table>
Consider please the following description of a relationship between a Purchaser and an Internal Consumer:

- The decision-maker (Purchaser) is buying a product (not a service) that has impact on the profit of the organization. There are not many supplier able to supply this product and the buying volume is relevant also in the eyes of the supplier. In this situation, the Purchaser has to choose what price and quality to aim for, and there is a tradeoff between them: the highest quality (for the Internal customer) implies the highest costs (for the Purchaser).

Please answer the following questions, related in this context to the relationship between a Purchaser and Internal Customer.

<table>
<thead>
<tr>
<th>Question</th>
<th>Fully disagree</th>
<th>disagree</th>
<th>Neutral</th>
<th>agree</th>
<th>Fully agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.</td>
<td>I am familiar with the portfolio theory with regards to goods/services with high profit impact and high supply risk (few suppliers/ high switching costs)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>I understand the essence of the theory for Price and Quality</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>I use this theory whenever possible in real life</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>Would this mean priority for low price and high quality?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>Does this theory have a name?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>What is the essence of that theory?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>