

**The effect of employer incentives and peers on the relationship between
employee intrinsic and extrinsic motivation**

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Abstract

The paper aims to investigate empirically how employer incentives and peer effects, namely productivity spillovers and inequity aversion, affect the relationship between employee intrinsic and extrinsic motivation. Bounded rationality in employees means that employers struggle to predict the influence of incentives and peer effects on employee motivation and they need to be cognisant of the potential to crowd out intrinsic motivation. Data was collected from an online survey sent to knowledge workers in South Africa. Scenarios were based on the gift exchange game and tested incentives such as base pay, bonuses, and sanctions as well as peer effects. This research found a positive correlation between intrinsic and extrinsic motivation and therefore contributes empirically to research where incentives and motivation act as complements. Monetary incentives that are perceived as fair will increase employee motivation and effort. Employees are inequity averse and pay discrepancies will significantly reduce motivation. Productivity spillovers from peers will increase employee motivation even at lower compensation levels. This study contributes empirically to Self-determination theory and Behavioural agency theory by investigating the relationship between intrinsic and extrinsic motivation.

Keywords

Intrinsic motivation; extrinsic motivation; incentives; peer effects; fairness

Declaration

I declare that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University. I further declare that I have obtained the necessary authorisation and consent to carry out this research.

Ilse Gey van Pittius-Bergh

7 November 2018

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Definitions

Abbreviation	Definition
BAT	Behavioural agency theory
SDT	Self-determination theory
OIT	Organismic Integration Theory
MWMS	Multidimensional work motivation scale

Cover letter

7 November 2018

Dear GIBS Project Publish marking committee,

RE journal selection motivation - The Journal of Economic Psychology

The Journal of Economic Psychology is published by Elsevier and is categorised as Psychology (General) by the Association of Business Schools academic journal guide 2018 with a ranking of 2. According to the Clarivate Analytics Journal Citation Reports the journal had an impact factor of 1.338 in 2017. Furthermore, the journal is indexed by Scopus, PsycINFO, ABI/Inform, Journal of Economic Literature, Current Contents/Social & Behavioral Sciences, COREJ, International Bibliography of the Social Sciences, and RePEc.

The Journal of Economic Psychology specialises in Economic psychology and Behavioural Economics. Research in this journal explores new approaches to understanding economics and investigates the psychological mechanisms that underpin economic behaviour. The journal explores factors that influence economic decision-making at an individual decision-making level (microeconomics). Furthermore, the journal includes empirical studies on economic behaviour.

The research article included in this research project investigates how incentives and peer effects affect the relationship between an employee's intrinsic and extrinsic motivation. This research is a departure from neo-classical economics and falls within the domain of Behavioural Economics as it investigates how psychological factors influences decision-making. The research contributes original empirical research to literature in order to gain deeper insight into individual decision-making in the labour market. Therefore, the Journal of Economic Psychology was best suited for the publication of this research. The article follows the journal's author guidelines and I will be listed as lead author followed by my supervisor.

Yours sincerely,

Ilse Gey van Pittius-Bergh

1 Introduction

Neoclassical economics assumes that agents are rational value maximizers and therefore incentives are used to minimize agency costs in organisations (Jensen & Meckling, 1976). However, research has shown that agents have bounded rationality and that motivation is both intrinsic and extrinsic (Thaler, 2016; Cerasoli, Nicklin, & Ford, 2014). An employee that is intrinsically motivated will act because they enjoy a task as opposed to an extrinsically motivated employee that will act because of external pressure such as monetary reward, ego enhancement or self-endorsed goals. The problem facing employers is that because employees are not purely motivated by monetary rewards, introducing incentives does not always reduce agency cost. Pepper and Gore (2015) Behavioural agency theory (BAT) aims to better explain the micro-foundations of agency theory by focusing on agent performance and motivation. BAT argues that agents will perform if they have the ability (the necessary knowledge, skill, and aptitude), the motivation (intrinsic and extrinsic), and the right opportunities (including the necessary work structures and business environment) (Pepper & Gore, 2015, p. 1051). This research focused on employee motivation and gaining a deeper understanding of the relationship between intrinsic and extrinsic motivation.

Employers need to design compensation packages with motivation in mind because incentives can have negative effects on performance (Frey & Jegen, 2001). Incentives send signals to employees about appropriate behaviour and can compromise an individual's autonomy (Bowles & Polanía-Reyes, 2012). With the advent of Behavioural economics, researchers now recognise the importance of understanding the underlying psychological mechanisms that influence individual decision-making. Therefore economic literature is building upon well-established psychology theories in order to produce richer models. According to Self-determination theory (SDT), a well-established psychology theory of human motivation, people have an innate psychological need for competence and autonomy (Deci & Ryan, 2000). Monetary incentives and punishment that communicate distrust and an attempt to control agents can crowd out intrinsic motivation; on the other hand, incentives that communicate positive messages such as value and appreciation can crowd in intrinsic motivation (Falk & Kosfeld, 2006). The first objective of this research was to investigate empirically the relationship between intrinsic and extrinsic motivation as employer incentives change, as there is a growing demand

for empirical research in this area (Van den Broeck, Lens, De Witte, & Van Coillie, 2013; Gerhart & Fang, 2015; Kuvaas, Buch, Weibel, Dysvik, & Nerstad, 2017).

Furthermore, traditional agency theory does not consider fairness, however, agents will become indignant when treated unfairly and will avoid companies that do not treat employees fairly (Kahneman, Knetsch, & Thaler, 1986). Agents will retaliate and are willing to punish unfair actions even at a cost to themselves and even if they will not benefit from it in the future (Fehr & Fischbacher, 2002). Agency theory describes agents and principals as %undersocialized+assuming that they act only to maximize their utility and are therefore not affected by social relationships (Tomer, 1998; Göbel, Vogel, & Weber, 2013). However, agents are inequity averse and care about their pay-offs when compared to others even though this might be irrational when there are no material spillovers between agents (Gächter, Nosenzo, & Sefton, 2013; Fehr & Schmidt, 1999). The second objective of this research was to contribute to the micro-foundations of BAT by empirically investigating how an agent's intrinsic and extrinsic motivation will change when peer effects are prevalent.

The practical implications of this research are to assist practitioners in designing incentive and compensation packages that will motivate agents effectively and efficiently. This research found a positive correlation between intrinsic and extrinsic motivation and therefore contributes empirically to research where incentives and motivation act as complements. Monetary incentives that are perceived as fair will increase employee motivation and effort. Furthermore, employees are inequity averse and pay discrepancies will significantly decrease motivation. Finally, productivity spillovers from peers increase employee motivation even at lower compensation levels. This article commences with the rationale for revising traditional Agency Theory, followed by an overview of the theoretical base and hypotheses that this research tested in Section 3, and finally Section 4 describes the method employed in the study.

2 The need to revisit traditional Agency theory

An agency relationship is said to occur %between two (or more) parties when one, designated as the agent, acts for, on behalf of, or as representative for the other, designated the principal, in a particular domain of decision problems+(Ross, 1973, p.

134). The agency problem is said to occur when these parties have conflicting interests and risk preferences. Jensen and Meckling (1976) posits that because both parties are utility maximizers that the agent will not always act in the best interest of the principal. Incentives are used by the principal in an attempt to align the agent with their interests. Furthermore, it is difficult and expensive for the principal to confirm whether the agent has acted appropriately (Eisenhardt, 1989). Agency cost is the sum of the monitoring expenditures by the principal, the bonding expenditures by the agent, and the residual loss+(Jensen & Meckling, 1976, p. 310). Monitoring costs are for example management costs, bonding costs are the other employment opportunities foregone by the employee, and residual costs are the costs of divergence despite monitoring and bonding. According to Jensen and Meckling (1976) agency costs depends on laws and how well a contract can be written and the assumption is that strong incentives for individuals will minimize agency costs.

Agency Theory Overview

Key idea	Principal-agent relationships should reflect efficient organization of information and risk-bearing costs
Unit of analysis	Contract between principal and agent
Human assumptions	Self-interest Bounded rationality Risk aversion
Organizational assumptions	Partial goal conflict among participants Efficiency as the effectiveness criterion Information asymmetry between principal and agent
Information assumption	Information as a purchasable commodity
Contracting problems	Agency (moral hazard and adverse selection) Risk sharing
Problem domain	Relationships in which the principal and agent have partly differing goals and risk preferences (e.g., compensation, regulation, leadership, impression management, whistle-blowing, vertical integration, transfer pricing)

Figure 1: Agency theory overview

(Eisenhardt, 1989, p. 59)

According to Thaler (2016) the assumptions that define *Homo Economicus* are as follows:

- i. Agents are unbiased in their beliefs and expectations and they are certain about their preferences
- ii. Agents always make the best decisions meaning they are very intelligent and perfectly informed. They are also very disciplined and only select what is best and not what is tempting at a particular moment in time.
- iii. Agents might act altruistically towards close friends and family but they are fundamentally motivated by self-interest (p. 1578)

Therefore, the key underlying assumption of agency theory is that agents are rent-seeking and rational. Also that their effort and motivation will increase as reward increases. However, individuals have bounded rationality which means they deviate from the neoclassical model of *Homo Economicus*. In terms of motivation *Homo Economicus* is described as having no nonpecuniary motivation, however, the Behavioural economic man is described as being intrinsically as well as extrinsically motivated. Recently economists have become more interested in the behavioural approach to economics in order to understanding the actual behaviour of individuals and are steering away from traditional normative models. The table below gives an overview of how the more recent Behavioural Economic man differs from the traditional *Homo Economicus* (Economic man).

Assumption	Economic Man	Behavioral Economic Man
Principals' risk preference	Principals are risk neutral	As for agency theory
Agents' utility function	Agents are rent seeking; agents' utility is positively contingent on pecuniary incentives and negatively contingent on effort	As for agency theory, but subject to constraints relating to rationality, motivation, loss, risk, uncertainty, and time preferences
Agents' rationality	Agents are rational	Agents are boundedly rational, i.e., subject to neurophysiological rate and storage limits on the powers of agents to receive, store, retrieve, and process information without error
Agents' motivation	There is no nonpecuniary agent motivation	Motivation is both intrinsic and extrinsic; intrinsic and extrinsic motivation are neither independent nor additive
Agents' risk preference	Agents are risk averse	Agents are loss averse below a gain/loss inflection point; otherwise risk averse
Agents' time preferences	Agents' time preferences are calculated according to an exponential discount factor	Agents' time preferences are calculated according to a hyperbolic discount factor
Agents' preference for perceived equitable pay	Not defined	Agents are inequity averse

Figure 2: Assumptions about the nature of man under positive agency theory and behavioral agency theory

(Pepper & Gore, Behavioral Agency Theory: New Foundations for Theorizing About Executive Compensation, 2015, p. 1050)

The relationship between the agent and principal is governed by a contract and a firm can be seen as a complex set of contracts, both written and unwritten, between various parties (Pepper & Gore, 2015, p. 1047). One of the main problems of agency contracts is that they are incomplete and information is asymmetrical (Eisenhardt, 1989). If principals could create complete contracts then there would be no need for incentives in order to align the interests of principals and agents.

The hidden cost of reward was initially theorised by Titmuss in 1970 when he argued that paying for blood would undermine social values and therefore reduce the amount of blood donated (Titmuss, 1970). Since then the theory has been generally accepted and there is a significant body of empirical research that has concluded that monetary incentives do under certain conditions crowd-out intrinsic motivation (Frey & Jegen, 2001; Cerasoli, Nicklin, & Ford, 2014; Deci, Koestner, & Ryan, 1999; Frey & Oberholzer-Gee, 1997). Therefore principals are challenged when trying to design effective and efficient incentives for firms that motivate agents and do not crowd out intrinsic motivation resulting in decreased levels of effort.

Agency theory is an imperative element of the modern theory of the firm (Roberts, 2004) and within the firm managers must coordinate the actions of large groups of people and motivate them to complete the necessary work. However, agents deviate from the neoclassical model of agency theory. There is a recent trend in economic and management research that aims to better predict the reality of decisions and their outcomes. Following on from the recent Behavioural theory of the firm (Gavetti, Greve, Levinthal, & Ocasio, 2012) an updated model that is also behaviourally grounded was developed for agency theory. BAT makes agent performance central to the agency model and argues that agent and principal interests can be aligned with proper motivation that does not crowd out intrinsic motivation (Pepper & Gore, 2015). The BAT is a modern theory of the firm that tries to connect incentives and agent behaviour in reality. Pepper and Gore (2015), calls for their model to be empirically tested and the purpose of this research was to employ deductive research and contribute to theory empirically by testing the intrinsic motivation, extrinsic motivation and inequity aversion aspects of Behavioural agency theory.

Agents' Job Performance and Work Motivation Cycle

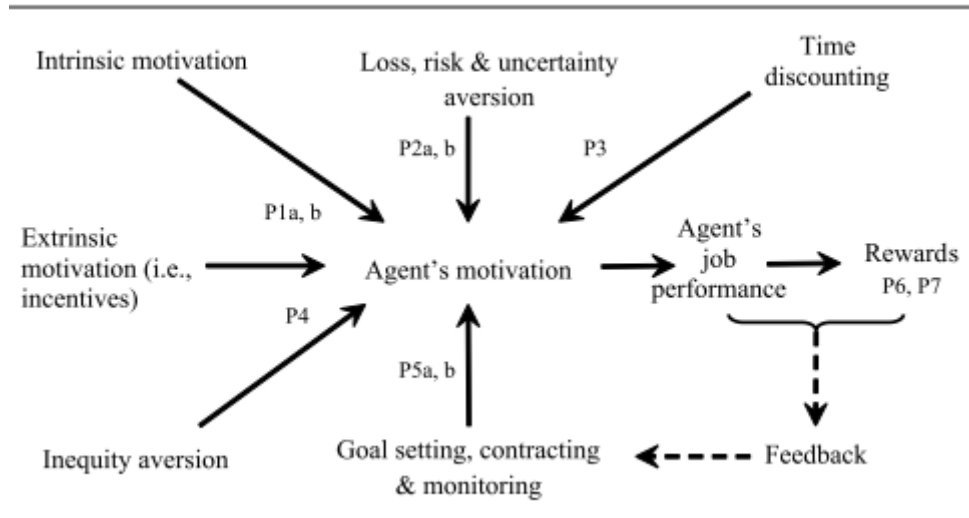


Figure 3: Agents' job performance and work motivation cycle

(Pepper & Gore, 2015, p. 1057)

3 Theory and hypotheses

3.1 Incentives and its effect on the relationship between intrinsic and extrinsic motivation

The puzzle of human motivation has occupied researchers for many years. From McGregor's polar X and Y theories where managers assume employees either dislike work and must be coerced into performing or managers assume employees are internally driven and seek out responsibility (McGregor, 1960). To more recent theories such as Deci's Self-determination theory (SDT) and continuum of extrinsic motivation where people are motivated by autonomy and competence (Ryan & Deci, 2000; Gagné & Deci, 2005).

Agents have intrinsic (self-determined behaviours) and extrinsic motivation (control determined behaviours) (Deci & Ryan, 1985). Intrinsic motivation is when an agent does something because of the inherent satisfaction rather than an external reward. An individual acts out of intrinsic motivation when they act because of enjoyment and because they find the task interesting, rather than because they were pressured into a situation or driven by reward or punishment. Extrinsic motivation is when an agent is

motivated by a reward offered by another party such as a principal (pressured compliance). Deci and Ryan (1985) created a sub-theory to SDT called Organismic Integration Theory (OIT) which includes the continuum of extrinsic motivation (p. 61). Extrinsic motivation does not only include financial rewards but also ego enhancement from peers or avoiding guilt or shame from peers, self-endorsed goals (for example, proving to oneself that one can complete a specific task), and completing tasks because it aligns with personal values such as being a good person (Ryan & Deci, 2000).

Table 1: A taxonomy of human motivation

Regulatory styles	Amotivation	Extrinsic motivation				Intrinsic motivation
		External regulation	Introjection	Identification	Integration	
Associated process	Low perceived competence. Non-relevance.	Saliance of extrinsic rewards or punishment.	Ego involvement. Focus on approval from self or others.	Conscious valuing of activity. Self-endorsement of goals.	Hierarchical synthesis of goals. Congruence.	Interest/ Enjoyment. Inherent satisfaction.
Perceived locus of causality	Impersonal	External	Somewhat external	Somewhat internal	Internal	Internal

(Ryan & Deci, 2000, p. 61)

On the left of the scale above (Table 1) a person is said to be amotivational, in the middle a person passively complies, and on the right a person is said to have active personal commitment. The more a person moves to the right of the scale, the more internalisation has taken place meaning that there is greater engagement and persistence because this person is intrinsically motivated. The external regulation category is the least autonomous form of extrinsic motivation, where an individual feels controlled and will perform an action just to get a reward. Introjection is where a person will perform an action because they want to avoid guilt or anxiety or to attain ego-enhancements or pride+(Ryan & Deci, 2000, p. 62). Identification is a more autonomous form of extrinsic motivation because a person has identified the action as personally important. Integration is the most autonomous form of extrinsic motivation and is when identified regulations have been fully assimilated to the self (Ryan & Deci, 2000, p. 62)+. This happens when an individual has brought the new regulations into congruence with their own values and needs. The more an individual internalises the reasons to perform an action, the less extrinsically motivated and more self-determined the individual becomes. Integrated motivation does share qualities with intrinsic motivation, however, it still falls

under extrinsic motivation because tasks are still performed for their instrumental value in achieving another outcome, such as receiving a reward (Ryan & Deci, 2000). The scale does not necessarily constitute a sequence because a person may move further to the left of the scale if their sense of autonomy is undermined.

SDT theorises that all employees have three innate psychological needs, namely competence, autonomy, and relatedness (Deci, Olafsen, & Ryan, 2017). An individual can be intrinsically motivated by competence when driven to complete a task that they are good at. An individual can be intrinsically motivated by autonomy when afforded the freedom to decide how they will perform a task because they are trusted and not monitored. It is important to note that a person will only feel competent when they have autonomy, because they must feel that the source of their competence was self-determined (internal locus of control).

On the other hand, economists Bowles and Polanía-Reyes (2012) define social preferences as motives such as altruism, reciprocity, intrinsic pleasure in helping others, inequity aversion, ethical commitments, and other motives that induce people to help others more than would an own-material-payoff maximizing individual (p. 370). There is a body of research that suggests that these social preferences have an important influence on economic behaviour (Fehr & Rockenbach, 2003; Fehr, Gächter, & Kirchsteiger, 1997). According to Bowles and Polanía-Reyes (2012), when people work they do not just want to receive things, such as monetary rewards, they also want to be seen in a specific way by themselves and others. Thus when a compensation offer by an employer is perceived negatively, such as an exploitative fine, a person will retaliate because they want to be seen as a dignified individual that is treated fairly by others (p. 418). Therefore, social preferences and incentives can be substitutes or complements depending on the signal that the incentive communicates (Bénabou & Tirole, 2003; Bowles & Polanía-Reyes, 2012).

Incentives provide information to the agent, for example, that the principal values them or that the principal does not trust them or is trying to control them (Falk & Kosfeld, 2006; Bowles & Polanía-Reyes, 2012). The relationship between intrinsic and extrinsic motivation is theorised to be dynamic and when an incentive is changed there will be a trade-off or substitution effect between these two constructs (Pepper & Gore, 2015).

Cerasoli et al. (2014) found in their meta-analysis that when incentives were present intrinsic motivation had a weaker effect on performance, and that extrinsic motivation was a stronger predictor of performance quantity. It must be noted that quality of performance falls outside the scope of this study. Incentives and financial rewards can have positive, negative or no effect on intrinsic motivation, depending on whether the message the incentive communicates supports the employee's autonomy or comes across as controlling (Deci, Olafsen, & Ryan, 2017). Incentives and motivation are said to be complements when there is a positive correlation between the two constructs. Intrinsic and extrinsic motivation are separate motivational dimensions and can have a negative relationship (Kuvaas, Buch, Weibel, Dysvik, & Nerstad, 2017). However, it is also important to empirically investigate the circumstances that could result in a positive relationship between intrinsic and extrinsic motivation (Gerhart & Fang, 2014) as SDT has always maintained that incentives can have differing outcomes on intrinsic motivation (Deci, Olafsen, & Ryan, 2017). Therefore, a compensation offer by an employer can be perceived as positive and fair which could increase motivation and effort, or an offer can be perceived as negative and unfair which could decrease motivation and effort. This led to the first hypothesis:

Hypothesis 1. Monetary incentives that are perceived as fair positively influence intrinsic and extrinsic motivation. Also, intrinsic and extrinsic motivation correlate positively with each other and influence effort positively.

3.2 Peer effects and motivation

3.2.1 Peer effects contribution to microfoundations

BAT contributes to the microfoundations of agency theory by adding behaviourally grounded elements about the individual to the theory. However, it is a misconception that microfoundations are exclusively about individuals because this would ignore the interaction between individuals. The interactions between individuals are not simply additive but are complex, and outcomes are hard to predict when solely looking at the basic elements, namely the individual (Barney & Felin, 2013; Göbel, Vogel, & Weber, 2013). Most individuals work in organisations where they are dependent on others and the success of an organisation cannot be directly attributed to one individual. In addition, the performance of an individual has positive spillovers on the rest of the organisation due to social pressures and pro-social behaviour. Because individuals care about how

others see them they will hold themselves accountable to their peers resulting in more cooperation and will thus limit free-riding behaviour (Mas & Moretti, 2009). Therefore, reducing the BAT to the individual is micro but not microfoundational. The foundations portion of microfoundations is important as it places emphasis on the need to specifically understand the unique, interactional, and collective effects that are not only additive but also emergent+ (Barney & Felin, 2013, p. 2013). This research thus investigated how employee intrinsic and extrinsic motivation changed when a peer was introduced.

3.2.2 Cooperation in single shot and repeating games as it relates to employment

The dominant strategy in a single shot economic game, such as a prisoner's dilemma game, would be to defect; however, contrary to neoclassical agent theory, individuals often cooperate in single period games which constitutes a form of altruism because the individual is sacrificing gains that they might have taken (Axelrod & Hamilton, 1981). In finitely repeated games, research has shown that individuals will conditionally cooperate until a threshold round when they believe a game might come to an end and this will result in the breakdown of cooperation as predicted by backward induction (Embrey, Fréchette, & Yuksel, 2018).

In infinitely repeating economic games an individual that cooperates in the first round can be described as a conditional cooperator that is adopting a nice tit for tat+strategy whereby in the following rounds, the conditional cooperator will adopt the strategy of the other player (Bowles & Gintis, 2011). Equilibrium is maintained with a trigger strategy where a player will only defect when the other player has defected. Trigger strategy is associated with folk theorem and describes a strategy whereby players cooperate until any deviation from the equilibrium path occurs, which results in the breakdown of cooperation and punishment of the defector by other players (Breitmoser, 2015; Friedman, 1971). However, folk theorem assumes that players only want to maximise pay-offs and this research subscribes to a more evolutionary point of view, such as generous tit-for-tat+ whereby the players will stop cooperating if a player cheats but would give the defector the opportunity to return to cooperation if the cheater reverts (Hilbe, Traulsen, & Sigmund, 2015; Axelrod, 1984). Therefore, permanent employment can be seen as infinitely repeating games utilising generous tit for tat cooperation.

Research has found that implementing extrinsic incentives such as bonuses or fines does lower the pay-offs for the principal (Frey & Jegen, 2001; Deci, Koestner, & Ryan, 1999; Frey & Oberholzer-Gee, 1997). Fehr and Rockenbach (2003) theorised that principals would implement incentives regardless of lower pay-offs because of their preferences for strong reciprocity. A strong reciprocator is willing to sacrifice resources for rewarding behaviour that is perceived as kind or fair and for punishing behaviour perceived as hostile or unfair, even if reciprocation is costly and provides no present or future material benefits whatsoever (Fehr & Rockenbach, 2003, p. 139). Individuals are willing to sacrifice their own pay-offs in order to cooperate with others, to reward the cooperation of others, and to punish free-riding, even when they cannot expect to gain from acting this way (Bowles & Gintis, 2011, p. 20; Fehr & Gächter, 2002).

Consequently, employees will implement a generous tit-for-tat strategy in employment and want to cooperate and reward the cooperation of others. Strong reciprocators are extrinsically motivated because they cooperate for the future rewards of continued cooperation. In the same vein employees build social capital to advance their careers (Seibert, Kraimer, & Liden, 2001). Social capital can be defined as the goodwill that is engendered by the fabric of social relations and that can be mobilized to facilitate action (Adler & Kwon, 2002). Social capital reduces the need for formal controls and therefore reduces agency cost. It takes mutual cooperation to build social capital and defection by a party will destroy the capital built up to that point (Adler & Kwon, 2002, p. 22). When defection occurs extrinsic motivation is reduced as future gains can no longer be realised. Agents act intrinsically because they are willing to punish even if they will not gain from the action in future as they are more concerned with the perceived fairness of a situation (Douglas & Phillips, 2016; van der Weele, Kulisa, Kosfeld, & Friebe, 2014; Fehr & Gächter, 2000). However, intrinsic motivation according to the measurement instrument employed in this study will decrease because once the employee has been scorned they no longer enjoy cooperation with the employer. Therefore, when an employee is confronted with a situation where the employer has been perceived to defect or act unfairly, the employee's extrinsic motivation will decrease as future rewards from cooperation will not be realised. In addition, intrinsic motivation will decrease as employees will disengage and reduce work effort as a means to retaliate and punish the principal for defecting.

3.2.3 Fairness and inequity aversion

Research by Gächter et al. (2013) found that an agent's effort choices were influenced by the choices of another agent even though there were no material spillovers between the two agents. This peer effect deviates from the neoclassical *Homo Economicus* because the agent should act purely out of self-interest. The reasoning behind this behaviour is that people are concerned with fairness and they dislike an inequitable distribution of material resources (Fehr & Fischbacher, 2002, p. C3). A person is said to exhibit social preferences if the person not only cares about the material resources allocated to her but also cares about the material resources allocated to relevant reference agents (Fehr & Fischbacher, 2002, p. C2). Research has found a correlation between relative income and job satisfaction, whereby payment under the reference point leads to job dissatisfaction (Card, Mas, Moretti, & Saez, 2012). Employees were also found to give less effort when their wages were lowered compared to a peer (Cohn, Fehr, Herrmann, & Schneider, 2014). Furthermore, individuals are inequity averse and concerned with distributive justice especially concerning monetary pay or salary (Adams, 1963; Folger & Konovsky, 1989). Therefore, an unfair situation such as unequal pay will be seen as a breach of cooperation and will thus decrease extrinsic motivation. This research hypothesises that intrinsic motivation will also decrease as the employee will no longer enjoy cooperation with the employer and will punish the employer with lower levels of effort. Building on the argument made in Section 3.2.2, accordingly the following hypothesis was formulated:

Hypothesis 2. In an unfair scenario involving a pay discrepancy when compared to a peer, the employee's intrinsic and extrinsic motivation will decrease. Also, intrinsic and extrinsic motivation will influence effort negatively.

3.2.4 Productivity spillovers

Recently, researchers have started to investigate peer effects in order to show to what extent people are influenced to behave more pro-socially when they are observed by a peer. Individuals are said to act pro-socially when they are concerned with acting in a way that is considered socially appropriate and they will look to the behaviour of others to decide what is considered appropriate in a given situation (Gächter, Nosenzo, & Sefton, 2013, p. 549). Research has found a positive and systematic correlation between

peer effort levels (Gächter, Nosenzo, & Sefton, 2013; Dahl, Løken, & Mogstad, 2014; Cornelissen, Dustmann, & Schönberg, 2017).

Mas and Moretti (2009) deduced from their field experiments that the behaviour could be a result of social pressure, pro-social preferences, and knowledge spillovers. Social pressure is defined as "encompassing cases where workers have preferences over how they are perceived by their co-workers" (Mas & Moretti, 2009, p. 134). Workers lose utility when they are observed by peers behaving uncooperatively. Individuals care about how their peers perceive them because of "shame, sanctions, or reputational concerns which could arise in repeated interactions" (Mas & Moretti, 2009, p. 134). This peer pressure is considered extrinsic motivation as it falls in the External regulation category on Ryan and Deci's (2000) continuum of extrinsic motivation. This informs Hypothesis 3, that peer pressure will increase extrinsic motivation and increase efforts. Furthermore, intrinsic motivation will increase as job demands increase because employees' autonomy has not been compromised and employees want to be seen to cooperate (Van Yperen & Hagedoorn, 2003).

Hypothesis 3. Social pressure from a more productive peer increases an agent's extrinsic motivation and intrinsic motivation. Also, intrinsic and extrinsic motivation will influence effort positively.

4 Research methodology and design

4.1 Choice of methodology

BAT (Pepper & Gore, 2015) advocates for the amendment of neoclassical agency theory because individuals have bounded rationality which means they deviate from the traditional *Homo Economicus* model. Recently researchers have become more interested in understanding the reality of decisions and their outcomes. This research was approached from a critical realism philosophy because it was attempting to understand reality as it actually exists (Given, 2008). The nature of reality that is not immediately apparent (Saunders & Lewis, 2012) overrides the neoclassical agency theory predispositions. This research also took an explanatory approach in order to gain a deeper understanding of the relationships between intrinsic motivation, extrinsic motivation and effort levels as it relates to real behaviour.

Thaler (2016) advocates that behavioural economic theories should abandon inductive reasoning that was core to neoclassical theories and rather adopt a deductive approach in which hypothesis are based on observations of actual human behaviour. Thaler (2016) describes the future of research in economics as evidence-based economics, where the discipline should embrace empirical research that is theoretically grounded but not restricted by traditional normative models. In this sense Economics should develop theory by studying humans rather than economists. Furthermore, Pepper and Gore (2015) call for Behavioural agency theory to be empirically tested. Therefore this research was deductive and empirical. The literature review produced 3 testable hypothesis (Hypothesis 1, 2 and 3) and this research used a structured methodology in order to understand the relationships between variables and to contribute empirically to theory (Saunders & Lewis, 2012).

A well-established method of data collection in economics is the use of economic games such as the prisoner's dilemma or the gift exchange game. These games simulate naturally occurring process and allows researchers to control for certain elements in order to understand the underlying mechanisms of decision-making (Plott, 1982). This research was based on a two-person and three-person gift exchange game (Gächter, Nosenzo, & Sefton, 2013; Charness, Frechette, & Kagel, 2004). A common method employed as an alternative to lab experiments is to write vignettes based on economic

games and then to ask respondents to self-report responses to these scenarios (Pepper, Gosling, & Gore, 2015).

Furthermore, self-report scales are an established methodology used by psychologists to measure intrinsic and extrinsic motivation. Self-report scales are used to gather personal information that cannot be objectively observed for example an individual's thoughts or feelings (Salkind, 2007). As the selected respondents were in full-time employment it may be assumed that they have an informed view of what affects their level of effort and motivation in the workplace (Pouliakas & Theodossiou, 2012). Falk & Kosfeld (2006) found that self-reported work motivations delivered results consistent with those found in lab experiments. Furthermore, a recent study by Kuvaas, Buch, Weibel and Nerstad (2017) used employee questionnaires to measure intrinsic and extrinsic work motivation as it relates to work performance.

Therefore this research will implement a multimethod approach by combining a labour market scenario (gift exchange vignette) with a self-report scale. Combining these two quantitative methods allows for the observation of real behaviour as well as a deeper insight into the internal rationale for decision-making. A similar multimethod approach was implemented by Gächter et al (2013) when they asked individuals to self-report on how socially appropriate they thought a decision was as part of a computer-based Trilateral Gift-Exchange Game (Gächter, Nosenzo, & Sefton, 2013).

Finally, this research will be a cross-sectional study as it aims to identify patterns and correlations between variables in a population (Allen, 2017). Although social preferences can change over time it falls outside the scope of this research.

4.2 Population

BAT is a behavioural approach to agency and labour markets that stresses the importance of work motivation and agent performance. Pepper and Gore (2015) posit that senior executive teams have a major impact on firm performance and they define top manager % as the group of very senior executives who are responsible for defining and executing a firm's strategy, who through their actions are capable of affecting the

company's profits, share price, reputation, and market positioning+ (Pepper & Gore, 2015, p. 1050).

Although BAT focuses on top management teams based on the upper echelons approach (Hambrick & Mason, 1984), there is more recent research that suggests that CEOs have different levels of impact on company performance in different industries. In an industry where the CEO will have little impact on the performance of a company changing the CEO incentives will have little effect on the performance of the company because no matter what the CEO does it will have little effect on company performance (Wasserman, Nohria, & Anand, 2010; Quigley & Hambrick, 2013; Waldman, Ramirez, House, & Puranam, 2001).

Furthermore, Henrich, Boyd, Bowles, Camerer, Fehr, Gintis, McElreath (2001) found that deviation in behaviour from the neoclassical *Homo Economicus* could not be explained by variation in individual-level economic and demographic attributes such as sex, age or relative wealth+ (Henrich, et al., 2001, p. 74). Henrich et al posit the behaviour rather points to universal patterns of behaviour (Henrich, et al., 2001).

Therefore this research rather focussed on knowledge workers in South Africa whether they were in a managerial position or not as more generalizable patterns of behaviour regarding the effects of incentives on all employees was the objective. Finally, a knowledge worker can be described as an employee whose job involves developing and using information (Drucker, 1999).

4.3 Sampling method and size

Non-probability purposive sampling was used in this study. Typical case sampling was used to illustrate a typical case and was not intended to be definitive (Saunders & Lewis, 2012). Furthermore, individual-level economic and demographic behaviour such as sex, age, [and] relative wealth+ (Henrich, et al., 2001, p. 74) does not explain behaviour. The only factors that this study controlled for was knowledge workers in fulltime employment in South Africa. Therefore the questionnaire was only sent to knowledge workers in full-time employment at mostly large corporate institutions. Managers were selected from

the author's professional network and the questionnaire was distributed by them to employees working in their corporate institutions.

Regarding sample size for a correlation and repeated measures ANOVA, the research will require a minimum of 50 participants plus 8 times the number of independent variables. This research has one independent variable namely Compensation and therefore a minimum of 58 participants was required.

4.4 Unit of analysis

As per traditional agency theory and BAT the unit of analysis was the contract between principal and agent (Pepper & Gore, 2015; Eisenhardt, 1989). Pepper and Gore (2015) models an agent's performance as a function of their ability, motivation, and opportunity. This research specifically focussed on the motivation aspect of agent's performance.

The agent-principal contract must be both effective and efficient when taking into account the bounded rationality of agents. Contrary to neoclassical agency theory, ambitious incentives are not always an efficient and effective way of motivating agents. A contract is efficient when it causes inputs to be minimized for a given set of outputs or outputs maximized for a given set of inputs+ (Pepper & Gore, 2015, p. 1049). A contract is effective when %it is capable of achieving its intended objectives+(Pepper & Gore, 2015, p. 1050).

4.5 Measurement instrument

4.5.1 Research model

The research model below was tested and is based on Pepper and Gore's (2015) model of %Agent's job performance and Work motivation cycle+ (p. 1057). However, this research focussed on how intrinsic and extrinsic motivation relates to agent's total motivation and agent's job performance. The other aspects theorised by Pepper and Gore (2015) to influence agent's motivation such as time discounting and goal setting etc. falls outside the scope of this study.

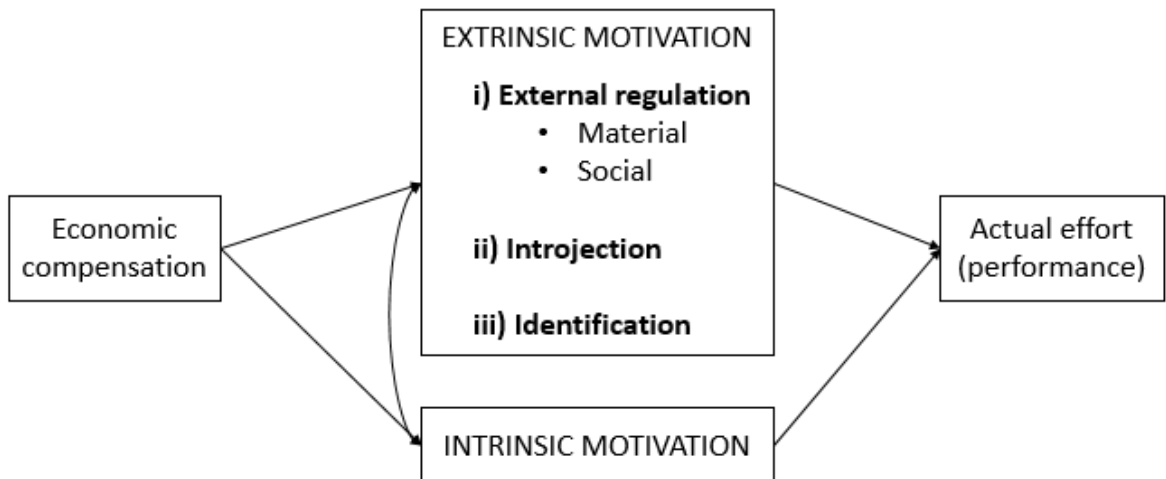


Figure 4: Research model

4.5.2 Economic compensation and agents' actual effort

BAT defines compensation as the sum of all incentives and rewards, pecuniary and nonpecuniary, arising from the agency relationship+ (Pepper & Gore, 2015, p. 1053). Economic compensation was measured in order to draw participants' attention to opportunities foregone. When employees decide to give more effort at work and increase hours spent at the office they are sacrificing time with their family or time that could have been spent studying or working at another job. In each of the six labour market scenarios (See section 4.5.3.1) participants were offered a set wage and incentives that varied per scenario. Participants were required to select a level of effort given the scenario and because effort was costly to participants it would reduce their economic income. Please see Table 2 for agents' effort cost function (Fehr & Schmidt, 2007, p. 178).

Table 2: Agent's effort cost function

e	1	2	3	4	5	6	7	8	9	10
c(e)	0	1	2	4	6	8	10	13	16	20

The formula used to calculate agent income was as follows (Fehr & Schmidt, 2007):

- (1) $\text{Income} = \text{Wage} - \text{Cost of effort} + \text{Bonus}$, if actual effort delivered matched or is above effort demanded
- (2) $\text{Income} = \text{Wage} - \text{Cost of effort} + \text{Bonus} - \text{Wage deduction}$, if actual effort delivered is below effort demanded

Throughout the questionnaire participants were reminded that effort is costly to them and that they should consult the agents' cost effort function table when selecting their level of effort and when calculating their income.

4.5.3 Job performance (actual effort) measure

The gift exchange game models an experimental labour market and investigates how incentives in incomplete employment contracts interact with agents' cooperation (Fehr, Gächter, & Kirchsteiger, 1997). In short, a group of individuals are divided into two groups where one set of subjects are the employers and another set are the employees. The employer sets a contract that specifies a wage and a desired amount of effort. The employee who agrees to the terms receive the wage and supplies a level of effort that does not have to be the level of effort stated in the contract. The pay-offs to employees are subject to an increasing cost of effort function (opportunity cost as discussed above). The gift exchange game was also selected because it was described by Bowles & Polanía-Reyes (2012) as an experiment that investigates the information mechanism that can result in crowding out of intrinsic motivation (Please see Figure 5).

BAD NEWS: INCENTIVES PROVIDE INFORMATION ABOUT THE PERSON WHO IMPLEMENTS THE INCENTIVE (I)

Citation	Subjects (number)	Games or activities	Institutional environments (treatments)	Results relevant to separability	Comment (quotes are from the cited paper)
[04] Fehr and Schmidt (2007)	German students (70)	Gift-Exchange Game	<ul style="list-style-type: none"> Two internal forms of enforcement: The principal (employer) can choose to rely on <ul style="list-style-type: none"> - an announced unenforceable bonus contract - a combination of the bonus contract with a fine 	Most principals do not use the fine. The joint surplus under the pure bonus contract is 20 percent greater than under the combined contract. Wages are 54 percent higher in the pure bonus contract. Profits are not significantly different in the two contracts.	"Explicit and implicit incentives are substitutes rather than complements" (p. 3). Agents perceive that principals who are less fair are more likely to choose a combined contract and less likely to pay the announced bonus. The effect of effort on the bonus paid is twice as great in the pure bonus case.

Figure 5: Gift exchange game
(Bowles & Polanía-Reyes, 2012, p. 391)

4.5.3.1 Labour market scenarios

The labour market scenarios which participants were asked to respond to in this study are based on the gift exchange game (Fehr, Kirchsteiger, & Riedl, 1993; Charness, Frechette, & Kagel, 2004). Simulating a gift exchange game gave the researchers the

ability to simulate how employees would react to incomplete employment contracts while at the same time allowing control over factors that could influence respondents' motivation such as incentives and peer effects. The gift exchange scenarios were specifically framed as employment offers, as participants would not see employment as a one shot-game meaning that respondents would be more likely to cooperate and responses would more closely mimic participants' behaviour in the workplace. In each scenario the principal offer was controlled in order to gain deeper insight into participants' reactions to that particular scenario and how the scenario affected their intrinsic and extrinsic motivation. In each scenario one element was changed, such as effort level demanded, incentives offered or peer interactions, in order to isolate the mechanism that could influence results. The study deliberately avoided using monetary amounts as the significance of these amounts would differ substantially for respondents given their financial standing, which could skew results. A points system was used with low numbers to make the calculations easily accessible to participants. Participants could select a level of effort between 1 and 10 that was associated with an opportunity cost (see Table 2: Agents' effort cost function). Furthermore, because the wage offered to the participants in the different scenarios remained the same, it became the reference point and an effective mechanism to control for bias in terms of differences in participant earnings. Each scenario built on the next in terms of the use of control and explicit incentives. Intrinsic motivation increases or decreases in these scenarios, depending on whether the participant experiences the incentive to communicate positive or negative impressions of themselves and their work.

In the last two scenarios a peer was introduced to study the effect of peers on motivation compared to other monetary incentives. Gächter, Nosenzo, & Sefton (2013) also used a computer based three-person gift-exchange game to test social preferences and peer effects.

4.5.3.1.1 Labour market scenario 1

An employer offers you a fixed wage of 20 points and demands an effort level of 4. Effort is costly to you. Please select a level of actual effort that you deem appropriate given the scenario. (See Table 1.)¹

¹ This phrase was repeated after each scenario and for brevity has been omitted from the discussion when reporting the scenarios: *Effort is costly to you. Please select a level of actual effort that you deem appropriate given the scenario. (See Table 1.)*

The first scenario in this study was used to establish a fair level of effort because it is perceived as not costing more in points than the level of effort. Moreover, it cost the employee 20% of their salary which is comparable to a tax rate and would not be seen as an unfair deduction. If the participant delivered the level of effort demanded, their income would be calculated as follows: $\text{Income} = 20 \text{ points (wage)} - 4 \text{ points (cost of effort)} = 16 \text{ points}$. As there is no bonus or wage deduction included in this scenario these terms are equal to zero. This scenario forms a baseline from which the change in intrinsic, extrinsic and total motivation can be measured.

4.5.3.1.2 Labour market scenario 2

An employer offers you a fixed wage of 20 points and demands an effort level of 6.

This scenario was created to be slightly unfair because the level of effort demanded is perceived as costing more in points than the level of effort. The participant therefore makes less economic income than in scenario 1 if they deliver the level of effort demanded. The unfair scenario should reduce intrinsic and extrinsic motivation.

4.5.3.1.3 Labour market scenario 3

An employer offers you a fixed wage of 20 points and demands an effort level of 6. The employer also offers you a bonus of 10 points if you deliver an actual effort level of 6.

A bonus reward was offered in this scenario if the participant selected the level of effort demanded. If participants saw the reward as controlling it should crowd out intrinsic motivation; if they did not see the reward as controlling it would increase intrinsic and extrinsic motivation (Ryan & Deci, 2000). The 50% increase in economic income should increase extrinsic motivation significantly.

4.5.1 Labour market scenario 4

An employer offers you a fixed wage of 20 points and demands an effort level of 6. The employer also offers you a bonus of 10 points if you deliver an actual effort level of 6. However, there is a 33% chance that the employer will add a wage deduction of 6 points if you do not deliver an actual effort level of 6.

This offer included a sanction or wage deduction if the participant did not deliver the level of effort demanded. There was a 33% chance that the wage deduction would be applied because of asymmetrical information. In this scenario expectancy comes into play

because the participant must make a decision about whether or not they believe the wage deduction will be imposed (Steel & König, 2006). As per Prospect theory (Kahneman & Tversky, 1979) people overweigh low-probability events and underestimate high-probability events. This offer is the most controlling scenario included in this study and the prediction is that this will reduce intrinsic and increase extrinsic motivation.

4.5.1.1.1 Labour market scenario 5

You and a colleague work in the same department and you both do the same job. Your employer decides to pay you 20 points and your colleague 20 points. Your employer demands an effort level of 4 from each of you. Your colleague selected an actual effort level of 6.

Productivity spillovers from peers were tested in this scenario (Mas & Moretti, 2009; Cornelissen, Dustmann, & Schönberg, 2017). The participant received exactly the same offer as in scenario 1, however, a peer was introduced that gave a higher level of effort for the same wage. The level of effort delivered by the peer is the same as was demanded from the participant in scenario 2. In scenario 2 this level of effort could be perceived as unfair, however, introducing a peer that works at that level could be seen as competition and could increase intrinsic and extrinsic motivation.

4.5.1.1.2 Labour market scenario 6

You and a colleague work in the same department and you both do the same job. Your employer decides to pay you 20 points and your colleague 40 points. Your employer demands an effort level of 4 from each of you. Your colleague selected an actual effort level of 6.

The scenario tested inequity aversion because a peer will become dissatisfied and demotivated with their compensation if a peer doing the same job receives a higher salary (Pepper & Gore, 2015; Cohn, Fehr, Herrmann, & Schneider, 2014; Card, Mas, Moretti, & Saez, 2012). As this situation is very unfair it should reduce intrinsic and extrinsic motivation.

4.5.1.1.3 Labour market scenarios summary table

Table 3: Summary table of elements tested per scenario

Scenario	Monetary incentives			Compensation fairness regarding effort level demanded		Peer effects	
	Base pay	Bonus	Sanction	Fair	Unfair	Productivity spillover	Inequity aversion
1	X			X			
2	X				X		
3	X	X		X			
4	X	X	X	X			
5	X			X		X	
6	X			X			X

4.6 Measures for intrinsic and extrinsic motivation

Intrinsic and extrinsic motivation were measured using the Multidimensional work motivation scale (MWMS) (Gagné, et al., 2015). This measure was selected because it is based on Deci (1985) SDT theory and aims to measure motivation in a work context. Gagné and Deci (2005) also collaborated on research that related SDT to work motivation which shows that Gagné could be considered an expert in the field alongside Deci. Furthermore, studies that have used the scale have produced results largely consistent with SDT (Deci, Olafsen, & Ryan, 2017).

Questions relating to amotivation were not used as they do not form part of the constructs this study aims to investigate. A limitation of using the MWMS is that it does not include an integrated regulation subscale because the authors could not statistically separate it from identification and intrinsic motivation, however, to date no research has found that integration accounts for additional variance in results after including identification or intrinsic motivation (Gagné, et al., 2015).

Items were scored on a 7 point Likert scale ranging from 1 (not at all) to 7 (completely). Gächter et al (2013) adapted the Gift exchange game in order to investigate peer effects

and created a Trilateral Gift-Exchange Game. In the second part of their game they introduced a self-report scale where agents had to report how socially acceptable they thought an action was which is similar to the treatment this research employed with the multidimensional work motivation scale.

Participants were asked to reflect on the actual level of effort that they selected and then to complete the questions below. Questions were prefaced with: I selected the actual level of effort...

Extrinsic regulation . social	
Ext-Soc1	To get others' approval (e.g. supervisor, colleagues, family, clients, etc.)
Ext Soc2	Because others will respect me more (e.g. supervisor, colleagues, family, clients, etc.)
Ext-Soc3	To avoid being criticized by others (e.g. supervisor, colleagues, family, clients, etc.)
Extrinsic regulation . material	
Ext-Mat1	Because others will reward me financially only if I put enough effort in my job.
Ext-Mat2	Because others offer me greater job security if I put enough effort in my job.
Ext-Mat3	Because I risk losing my job if I don't put enough effort in it.
Introjected regulation	
Introj1	Because I have to prove to myself that I can.
Introj2	Because it makes me feel proud of myself.
Introj3	Because otherwise I will feel ashamed of myself.
Introj4	Because otherwise I will feel bad about myself.
Identified regulation	
Ident1	Because I personally consider it important to put efforts in this job.
Ident2	Because putting efforts in this job aligns with my personal values.
Ident3	Because putting efforts in this job has personal significance to me.
Intrinsic motivation	
Intrin1	Because I have fun doing my job.
Intrin2	Because what I do in my work is exciting.
Intrin3	Because the work I do is interesting.

The scale is 1 = "not at all", 2 = "very little", 3= "a little", 4 = "moderately", 5 = "strongly", 6 = "very strongly", 7 = "completely". (Gagné, et al., 2015, p. 196)

4.6.1.1 Summary of measures

Construct	Type of variable	Variable dependence	Measurement instrument	Field name in raw data
Compensation	Continuous data	Independent variable	Economic income calculated using income offered and agent cost function table.	CompEarned
Extrinsic motivation [Comprising of External regulation (material), External regulation (social), Introjection, Identification]	Ordinal data	Dependent variable	MWMS	External regulation material = Ext-Mat1, Ext-Mat2, Ext-Mat3. External regulation social = Ext-Soc1, Ext-Soc2, Ext-Soc3. Introjection = Introj1, Introj2, Introj3, Introj4. Identification = Ident1, Ident2, Ident3.
Intrinsic motivation	Ordinal data	Dependent variable	MWMS	Intrin1 Intrin2 Intrin3.
Actual effort/Agent's job performance	Ordinal data	Dependent variable	Self-report effort on a scale of 1-10 (effort is costly to agents)	ActualEffort

4.6.1.2 Pilot study

A pilot study was conducted to make sure that all the instructions were clear and that participants understood what was expected of them. Based on the feedback a video was created to explain to participants how the survey should be approached. A link to the video is available in Appendix A. The pilot study also gave an indication of how long participants would take to complete the questionnaire which was roughly 30 minutes.

4.7 Validity and Reliability

Validity refers to the extent to which a measure can be shown to measure what it purports or intends to measure (Cramer & Howitt, 2004). This research is mostly concerned with predictive validity whereby a variable predicts or is related to another variable which is measured subsequently (Cramer & Howitt, 2004).

Confirmatory factor analysis and corresponding goodness of fit indices were used to establish reliability and validity of the scales (Hu & Bentler, 1999). Cronbach's alpha was used to measure the MWMS's internal consistency and whether the scale is internally reliable. A Cronbach alpha above 0.7 was considered acceptable (Nunnally & Bernstein, 1994). Construct convergence was validated with statistically significant factor loadings on all items and R-squared values above 0.3 (Gerbing & Anderson, 1988). Also, Composite reliability (CR), Average variance extracted (AVE) and Maximum shared variance (MSV) were calculated using James Gaskin's master validity stats tool (2016). Regarding reliability a CR score above 0.7 was deemed acceptable (Hair, Black, Babin, & Anderson, 2010). In terms of convergent validity an AVE score above 0.5 was accepted and finally for discriminant validity MSV was required to be smaller than AVE (Hair, Black, Babin, & Anderson, 2010).

Furthermore, the labour market scenarios or experimental vignettes were based on established protocols for the gift exchange games and an email questionnaire meant that the validity risk of social-desirability response could be mitigated (King & Bruner, 2000).

4.8 Data gathering process

A web-based questionnaire was created using Google forms. The link was emailed to contacts in the author's professional network as well as colleagues in the GIBS MBA class. These managers then distributed the link to other employees in their corporate institutions. The link was only sent to knowledge workers in full-time employment at corporate institutions in South Africa. Considering the limited timespan to complete this research sending the questionnaire via email meant that data could be collected quickly (Schaefer & Dillman, 1998).

4.9 Analysis approach

The unit of analysis is the contract between principal and agent. A contract must be efficient, i.e. produce maximum results from minimum inputs, and effective, i.e. achieve the desired objectives (Pepper & Gore, 2015). More specific to this research, an employer aims to achieve the maximum level of motivation from their employees at minimum cost and does not want incentives to crowd out intrinsic motivation.

The data was analysed in two stages. Firstly, a Confirmatory factor analysis (CFA) was performed using EQS 6.4 for Windows in order to validate the factor structure of the MWMS measurement instrument and to determine the loadings on the latent variables (Lewis-Beck, Bryman, & Liao , 2004). In order to assess reliability and validity the Composite reliability (CR), Average variance extracted (AVE) and Maximum shared variance (MSV) (Hair, Black, Babin, & Anderson, 2010) were calculated using James Gaskin's master validity stats tool (2016). Furthermore, the labour market scenarios were based on established gift exchange protocols and the questionnaire used is based on an established model which assisted in building validity and reliability.

Secondly, inferential statistics were performed using IBM SPSS Statistics version 25 to test the hypotheses and to describe the relationships between variables. Correlations and regressions were calculated to test the relationships between constructs and to test the effectiveness of incentives and peer effects in terms of influencing motivation and actual effort (performance of employees). Additionally, a repeated measures ANOVA was performed as this was a within-subjects design, and the aim was to determine whether or not there was a significant difference in motivation levels given the different scenarios, and to compare and contrast the resulting motivation from each of the scenarios. Furthermore, the study tested the same dependent variables using the same measurement instrument with the same subjects but considering different scenarios. Therefore, the repeated measures ANOVA that measures the effect size per subject effectively mitigates inflated results that could be caused by common method bias using other statistical tests (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003).

4.10 Limitations

This research employed non-probability sampling and the sample was reasonably small although still large enough to produce statistically significant results. However, this means that the sample does not statistically represent the population of knowledge workers in South Africa. Many of the respondents have MBA qualifications and are senior managers which will skew the results. The aim of the sample is not to be definitive but rather to demonstrate a typical case. Replication studies will be required to make results more generalizable. Furthermore, future research could perhaps investigate the effects of incentives and peers on blue-collar workers to investigate whether the results might be any different.

Some researchers argue that field experiments are more representative of the real world and will be more accurate when observing behaviour. However, an online questionnaire allows for a greater level of control in terms of isolating underlying mechanisms of decision-making and the findings should be further investigated by other researchers. Future research could investigate the incentives applied in each scenario in field experiments and gather more data on perceived fairness and desire to compete for future gains.

Furthermore, individuals' willingness to cooperate with each other and their desire for autonomy are also influenced by macro factors such as cultural norms and sub-cultures (Henrich, et al., 2001; Deci, Olafsen, & Ryan, 2017), however, this falls outside the scope of this research. Future research could investigate the same constructs employed in this study but in different national, community and firm cultures.

The nature of work done for example creative, complex or repetitive, fell outside the scope of this study and future research could empirically investigate how incentives and peer effects affect intrinsic and extrinsic motivation as the nature of work differs. Also, the rate of motivation attrition and the ability to rebuild motivation after defection as in generous tit for tat could be further investigated.

Finally, the other factors that influence agent motivation according to BAT (Pepper & Gore, 2015, p. 1057) such as Loss, risk & uncertainty aversion, Time discounting and Goal setting, contracting and monitoring fall outside the scope of this research but does warrant further empirical research.

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6 Appendix A: Decision-making questionnaire

The following questionnaire that was created using Google forms was sent to respondents. Respondents are presented with 6 labour market scenarios and after each scenario respondents are asked to reflect on their effort selection and then to complete the Multidimensional Work Motivation Scale (MWMS) (Gagné, et al., 2015, p. 196) which measures their intrinsic and extrinsic motivation. For brevity the MWMS scale is only listed once after the first labour market scenario.

6.1 Questionnaire pre-amble

Dear Participant,

In an effort to better understand economic decision-making in the labour market, you have been selected to participate in a survey. The survey aims to understand how your actual effort levels and motivation might change as employer incentives change. Please consider how your behaviour would change in general. Your income and the employer's income will be dependent on the actual level of effort that you select given the scenario. Please feel free to watch the "Survey explanatory video" below for a brief overview of how the survey works.

This survey will start with 3 examples that will explain how your employee income will be calculated considering factors such as your actual level of effort, bonuses and wage deductions. In each scenario the employer will offer you an income of points and the other factors such as cost of effort, bonuses and wage deductions will also be represented by points.

These examples will be followed by the survey that consists of 6 labour market scenarios where you will be asked to select an actual level of effort based on the scenario presented to you. You will also be asked to reflect on the actual level of effort selected in the scenario and then to answer a series of questions based on your selection.

Your completion of this survey is voluntary and you may withdraw from the process at any time. Your responses and participation are however valuable to us and we would appreciate your assistance. The collated results of the study are part of ongoing research being undertaken at the University of Pretoria's Gordon Institute of Business Science. While the collated results of the study may be published, your individual responses will be kept anonymous and confidential at all times.

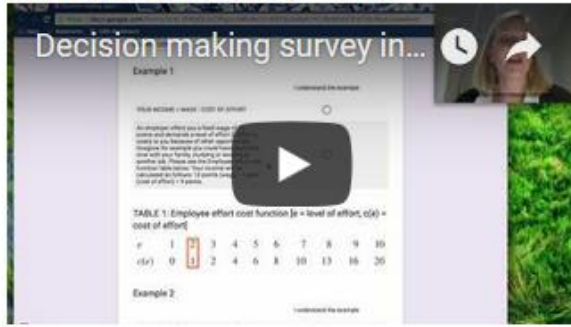
The questionnaire should take approximately 30 minutes to complete.

Thank you for your time and contribution to this research study. If you have any concerns, please contact myself or my supervisor. Our details are provided below:

Ilse Bergh
25054717@mygibs.co.za

Mike Holland
082 495 1283

Survey explanatory video



The survey explanatory video is available at this link
<https://www.youtube.com/watch?v=aU2tOgx59v0>

Example 1

I understand the example

YOUR INCOME = WAGE - COST OF EFFORT

An employer offers you a fixed wage of 10 points and demands a level of effort 2. Effort is costly to you because of other opportunities foregone for example you could have spent that time with your family, studying or working at another job. Please see the Employee effort cost function table below. Your income will be calculated as follows: 10 points (wage) - 1 point (cost of effort) = 9 points.

TABLE 1: Employee effort cost function [e = level of effort, c(e) = cost of effort in points]. ***This table aims to translate effort into a cost in points. The table consists of 2 rows that are read horizontally. As is highlighted below, an effort level of 2 will cost you 1 point. As you can see the higher the level of effort the more points it will cost to deliver that level of effort.

e	1	2	3	4	5	6	7	8	9	10
$c(e)$	0	1	2	4	6	8	10	13	16	20

Example 2

I understand the example

YOUR INCOME = WAGE - COST OF EFFORT + BONUS

Following from the example above, if the employer offers you a bonus of 2 points, your income will be calculated as: 10 points (wage) - 1 point (cost of effort) + 2 points (bonus) = 11 points.

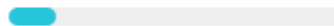
Example 3

I understand the example

YOUR INCOME = WAGE - COST OF EFFORT + BONUS - WAGE DEDUCTION

Next, if the employer adds a wage deduction of 1 point to your offer then your income will be calculated as: 10 points (wage) - 1 point (cost of effort) + 2 points (bonus) - 1 point (wage deduction) = 10 points.

NEXT



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6.2 Labour market scenario 1

Decision-making questionnaire

Labour market scenario 1

This survey aims to better understand how your actual effort levels and motivation might change as employer incentives change. Please consider how your behaviour would change in general. Your income and the employer's income will be dependent on the actual level of effort that you select. You will also be asked to reflect on the actual level of effort selected in the scenario and then to answer a series of questions based on your selection.

An employer offers you a fixed wage of 20 points and demands an effort level of 4. Effort is costly to you. Please select a level of actual effort that you deem appropriate given the scenario. (See Table 1 below.)

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10

TABLE 1: Employee effort cost function [e = level of effort, $c(e)$ = cost of effort in points]. *Reminder: Income = Wage - cost of effort.

e	1	2	3	4	5	6	7	8	9	10
$c(e)$	0	1	2	4	6	8	10	13	16	20

Reflect on the actual level of effort that you selected and please complete the questions below. I selected the actual level of effort...

To get others' approval (e.g. supervisor, colleagues, family, clients, etc.)

- Not at all
- Very little
- A little
- Moderately
- Strongly
- Very strongly
- Completely

Because others will respect me more (e.g. supervisor, colleagues, family, clients, etc.)

- Not at all
- Very little
- A little
- Moderately
- Strongly
- Very strongly
- Completely

To avoid being criticized by others (e.g. supervisor, colleagues, family, clients, etc.)

- Not at all
- Very little
- A little
- Moderately
- Strongly
- Very strongly
- Completely

Because others will reward me financially only if I put enough effort in my job.

- Not at all
- Very little
- A little
- Moderately
- Strongly
- Very strongly
- Completely

Because others offer me greater job security if I put enough effort in my job.

- Not at all
- Very little
- A little
- Moderately
- Strongly
- Very strongly
- Completely

Because I risk losing my job if I don't put enough effort in it.

- Not at all
- Very little
- A little
- Moderately
- Strongly
- Very strongly
- Completely

Because I have to prove to myself that I can.

- Not at all
- Very little
- A little
- Moderately
- Strongly
- Very strongly
- Completely

Because it makes me feel proud of myself.

- Not at all
- Very little
- A little
- Moderately
- Strongly
- Very strongly
- Completely

Because otherwise I will feel ashamed of myself.

- Not at all
- Very little
- A little
- Moderately
- Strongly
- Very strongly
- Completely

Because otherwise I will feel bad about myself.

- Not at all
- Very little
- A little
- Moderately
- Strongly
- Very strongly
- Completely

Because I personally consider it important to put efforts in this job.

- Not at all
- Very little
- A little
- Moderately
- Strongly
- Very strongly
- Completely

Because putting efforts in this job aligns with my personal values.

- Not at all
- Very little
- A little
- Moderately
- Strongly
- Very strongly
- Completely

Because putting efforts in this job has personal significance to me.

- Not at all
- Very little
- A little
- Moderately
- Strongly
- Very strongly
- Completely

Because I have fun doing my job.

- Not at all
- Very little
- A little
- Moderately
- Strongly
- Very strongly
- Completely

Because what I do in my work is exciting.

- Not at all
- Very little
- A little
- Moderately
- Strongly
- Very strongly
- Completely

Because the work I do is interesting.

- Not at all
- Very little
- A little
- Moderately
- Strongly
- Very strongly
- Completely

BACK

NEXT

Page 2 of 7

6.3 Labour market Scenario 2

Decision-making questionnaire

Labour market scenario 2

This survey aims to better understand how your actual effort levels and motivation might change as employer incentives change. Please consider how your behaviour would change in general. Your income and the employer's income will be dependent on the actual level of effort that you select. You will also be asked to reflect on the actual level of effort selected in the scenario and then to answer a series of questions based on your selection.

An employer offers you a fixed wage of 20 points and demands an effort level of 6. Effort is costly to you. Please select a level of actual effort that you deem appropriate given the scenario. (See Table 1 below.)

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10

TABLE 1: Employee effort cost function [e = level of effort, $c(e)$ = cost of effort in points]. *Reminder: Income = Wage - cost of effort.

e	1	2	3	4	5	6	7	8	9	10
$c(e)$	0	1	2	4	6	8	10	13	16	20

Reflect on the actual level of effort that you selected and please complete the questions below. I selected the actual level of effort...

To get others' approval (e.g. supervisor, colleagues, family, clients, etc.)

- Not at all
- Very little
- A little

For brevity the MWMS scale is only listed once after the first labour market scenario.

6.4 Labour market Scenario 3

Decision-making questionnaire

Labour market scenario 3

This survey aims to better understand how your actual effort levels and motivation might change as employer incentives change. Please consider how your behaviour would change in general. Your income and the employer's income will be dependent on the actual level of effort that you select. You will also be asked to reflect on the actual level of effort selected in the scenario and then to answer a series of questions based on your selection.

An employer offers you a fixed wage of 20 points and demands an effort level of 6. The employer also offers you a bonus of 10 points if you deliver an actual effort level of 6. Effort is costly to you. Please select a level of actual effort that you deem appropriate given the scenario. (See Table 1 below.)

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10

TABLE 1: Employee effort cost function [e = level of effort, $c(e)$ = cost of effort in points]. *Reminder: Income = Wage - cost of effort + bonus.

e	1	2	3	4	5	6	7	8	9	10
$c(e)$	0	1	2	4	6	8	10	13	16	20

Reflect on the actual level of effort that you selected and please complete the questions below. I selected the actual level of effort...

To get others' approval (e.g. supervisor, colleagues, family, clients, etc.)

- Not at all
- Very little
- A little

For brevity the MWMS scale is only listed once after the first labour market scenario.

6.5 Labour market Scenario 4

Decision-making questionnaire

Labour market scenario 4

This survey aims to better understand how your actual effort levels and motivation might change as employer incentives change. Please consider how your behaviour would change in general. Your income and the employer's income will be dependent on the actual level of effort that you select. You will also be asked to reflect on the actual level of effort selected in the scenario and then to answer a series of questions based on your selection.

An employer offers you a fixed wage of 20 points and demands an effort level of 6. The employer also offers you a bonus of 10 points if you deliver an actual effort level of 6. However, there is a 33% chance that the employer will add a wage deduction of 6 points if you do not deliver an actual effort level of 6. Effort is costly to you. Please select a level of actual effort that you deem appropriate given the scenario. (See Table 1 below.)

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10

TABLE 1: Employee effort cost function [e = level of effort, $c(e)$ = cost of effort in points]. *Reminder: Income = Wage - cost of effort + bonus - wage deductions.

e	1	2	3	4	5	6	7	8	9	10
$c(e)$	0	1	2	4	6	8	10	13	16	20

Reflect on the actual level of effort that you selected and please complete the questions below. I selected the actual level of effort...

To get others' approval (e.g. supervisor, colleagues, family, clients, etc.)

- Not at all
- Very little
- A little

For brevity the MWMS scale is only listed once after the first labour market scenario.

6.6 Labour market Scenario 5

Decision-making questionnaire

Labour market scenario 5

This survey aims to better understand how your actual effort levels and motivation might change as employer incentives change. Please consider how your behaviour would change in general. Your income and the employer's income will be dependent on the actual level of effort that you select. You will also be asked to reflect on the actual level of effort selected in the scenario and then to answer a series of questions based on your selection.

You and a colleague work in the same department and you both do the same job. Your employer decides to pay you 20 points and your colleague 20 points. Your employer demands an effort level of 4 from each of you. Your colleague selected an actual effort level of 6. Effort is costly to you. Please select a level of actual effort that you deem appropriate given the scenario. (See Table 1 below.)

- 1
- 2
- 3
- 4
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- 6
- 7
- 8
- 9
- 10

TABLE 1: Employee effort cost function [e = level of effort, $c(e)$ = cost of effort in points]. *Reminder: Income = Wage - cost of effort.

e	1	2	3	4	5	6	7	8	9	10
$c(e)$	0	1	2	4	6	8	10	13	16	20

Reflect on the actual level of effort that you selected and please complete the questions below. I selected the actual level of effort...

To get others' approval (e.g. supervisor, colleagues, family, clients, etc.)

- Not at all
- Very little
- A little

For brevity the MWMS scale is only listed once after the first labour market scenario.

6.7 Labour market Scenario 6

Decision-making questionnaire

Labour market scenario 6

This survey aims to better understand how your actual effort levels and motivation might change as employer incentives change. Please consider how your behaviour would change in general. Your income and the employer's income will be dependent on the actual level of effort that you select. You will also be asked to reflect on the actual level of effort selected in the scenario and then to answer a series of questions based on your selection.

You and a colleague work in the same department and you both do the same job. Your employer decides to pay you 20 points and your colleague 40 points. Your employer demands an effort level of 4 from each of you. Your colleague selected an actual effort level of 6. Effort is costly to you. Please select a level of actual effort that you deem appropriate given the scenario. (See Table 1 below.)

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10

TABLE 1: Employee effort cost function [e = level of effort, $c(e)$ = cost of effort in points]. *Reminder: Income = Wage - cost of effort.

e	1	2	3	4	5	6	7	8	9	10
$c(e)$	0	1	2	4	6	8	10	13	16	20

Reflect on the actual level of effort that you selected and please complete the questions below. I selected the actual level of effort...

To get others' approval (e.g. supervisor, colleagues, family, clients, etc.)

- Not at all
- Very little
- A little

For brevity the MWMS scale is only listed once after the first labour market scenario.

7 Appendix B: Author guidelines

The author guidelines for the Journal of Economic Psychology that is published by Elsevier can be found on the journal website here:

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JOURNAL OF ECONOMIC PSYCHOLOGY

Research in Economic Psychology and Behavioral Economics

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AUTHOR INFORMATION PACK

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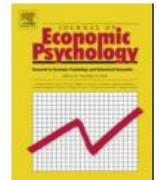
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Do intrinsic and extrinsic motivation relate differently to employee outcomes?



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ABSTRACT

In most theories that address how individual financial incentives affect work performance, researchers have assumed that two types of motivation—*intrinsic* and *extrinsic*—mediate the relationship between incentives and performance. Empirically, however, *extrinsic* motivation is rarely investigated. To explore the predictive validity of these theories of *intrinsic* and *extrinsic* motivation affected supervisor-rated work performance, affective and continuance commitment, turnover intention, burnout, and work–family conflict. In the course of three studies (two cross-sectional and one cross-lagged) across different industries, we found that *intrinsic* motivation was associated with positive outcomes and that *extrinsic* motivation was negatively related or unrelated to positive outcomes. In addition, *intrinsic* motivation and *extrinsic* motivation were moderately negatively correlated in all three studies. We also discuss the theoretical and practical implications of the study and directions for future research.

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Practitioner points

- The most important practical implication of our findings is that organizations should address *intrinsic* and *extrinsic* motivations as separate motives. With respect to the employee outcomes we have investigated, organizations should focus on increasing employees' *intrinsic* motivation. Our findings do not imply that increasing *extrinsic* motivation is advantageous to either individuals or organizations.
- It is important that employees are invited to participate in decision-making, that managers listen to them and are able to take their perspectives, that employees are offered choices within structures, and that they receive both positive feedback when they take initiative and nonjudgmental feedback when they have problems.
- Organizations should proceed with caution when applying coercive controls such as close monitoring, contingent tangible incentives and comparing employees to each other, but have competitive base pay levels.

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1. Introduction

In the last 10 years, intrinsic motivation—or motivation without money—has become a fashionable topic in business magazines. In this practice-oriented literature (e.g., Pink, 2011), authors have alleged that intrinsic motivation is linked to various positive outcomes such as work engagement, task identification, positive affect, and employee productivity in a context in which traditional, top-down incentive systems have seemingly reached their limits. Hence, for practical reasons, it is necessary to distinguish between intrinsic and extrinsic motivation (Pinder, 2011). Intrinsic motivation is defined as the desire to perform an activity for its own sake, so as to experience the pleasure and satisfaction inherent in the activity (Deci, Connell, & Ryan, 1989). Extrinsic motivation, in contrast, is typically defined as the desire to perform an activity with the intention to attain positive consequences such as an incentive or to avoid negative consequences such as a punishment (Deci & Ryan, 2000). In the current study, to highlight the most relevant source of extrinsic motivation in the domain of work (Gerhart & Milkovich, 1992), we conceptualize and measure extrinsic motivation as the degree to which work motivation is contingent on the existence of tangible incentives. Most employers try to increase employees' intrinsic motivation (for instance, by providing job autonomy and constructive feedback, by highlighting the importance of the work tasks, or by providing competitive base wages) while also providing incentives intended to increase extrinsic motivation through salient incentives that are contingent on performance or results. Thus, although intrinsic and extrinsic motivation can operate simultaneously, extant research also suggests that either intrinsic or extrinsic motivation is predominant (Gagné & Deci, 2005; Weibel, Rost, & Osterloh, 2010). The question we raise in the current study is about the consequences when employees are more or less concerned about their pay vis-a-vis their tasks as they work.

Despite more than 40 years of research on the relationship between intrinsic and extrinsic motivation and on their differing effects on employee outcomes, important questions remain unanswered about the relationship between the two types of motivation and their respective roles and outcomes. On a more general level, there is an ongoing and somewhat politicized debate about whether these two types of motivation both have positive effects or whether they relate negatively and have differential effects. Historically, the majority of motivation researchers seemed to expect that both would have positive effects and that the two types of motivation could be combined. Porter and Lawler (1968) for instance, drawing on expectancy theory (Vroom, 1964), proposed that intrinsic and extrinsic motivation jointly and positively predicted work performance and employee well-being. Behavioral modification theorists also proposed (and demonstrated meta-analytically) that the combination of tangible and intangible incentives can have a synergistic effect on performance (Stajkovic & Luthans, 2003). The implicit assumption is that extrinsic motivation aroused by tangible incentives is positively related to intrinsic motivation aroused by intangible incentives (such as social recognition). Other researchers, however, have argued that the two main types of motivation are more likely to be negatively related. For instance, a meta-analysis of 128 laboratory experiments (Deci, Ryan, & Koestner, 1999) concluded that tangible incentives undermined intrinsic motivation; this suggests that the association is negative. According to Deci and Ryan (2008), "If the effect of the extrinsic reward had decreased intrinsic motivation, it would indicate that the two types of motivation tend to work against each other rather than being additive or synergistically positive" (2008, p. 15). In a similar vein, a growing number of studies in the field of behavioral economics have provided evidence for a crowding-out effect: Tangible incentives and punishments have been shown to reduce individuals' willingness to perform a task for its own sake (e.g., Bowles & Polanía-Reyes, 2012; Frey, 1993; Frey & Jegen, 2001).

Despite this often-fierce debate between the opposing positions, very few researchers have stringently tested how extrinsic motivation and intrinsic motivation relate, as extrinsic motivation is rarely measured. It is not sufficient to assume that tangible incentives necessarily induce extrinsic motivation, and, without empirical data on extrinsic motivation, this account remains speculative. Furthermore, most of these findings are based on experiments that cannot be extrapolated to real-world compensation systems or to the organizational field as a whole, as the effects that real-life compensation systems have on need satisfaction—and, hence, on intrinsic and extrinsic motivation—are highly variable and inconclusive (Gagné & Forest, 2008). In a recent meta-analysis, Cerasoli, Nicklin, and Ford (2014) reported a stronger positive association between intrinsic motivation and performance when incentives were only indirectly tied to performance than when incentives were directly tied to performance. Although such meta-analytic findings may clarify the previously controversial question of how extrinsic incentives relate to intrinsic motivation, the relationship between extrinsic motivation and intrinsic motivation remains unclear.

Furthermore, we lack knowledge on the relative contributions that intrinsic and extrinsic motivation make to employee outcomes. A growing number of studies have demonstrated the hidden costs of tangible incentives. Such incentives can lead to fixed mind-sets (McGraw & McCullers, 1979), unbalanced preoccupations with those tasks that are rewarded (Kerr, 1975; Wieth & Burns, 2014), impaired health and safety in the workplace (Johansson, Rask, & Stenberg, 2010), work stress (Ganster, Kiersch, Marsh, & Bowen, 2011), and high turnover among salespeople (Harrison, Virick, & William, 1996). However, researchers have limited knowledge about whether extrinsic motivation actually mediates such effects. In addition, although there are some empirical studies demonstrating that intrinsic motivation has a positive association with affective commitment (Kuvaas, 2006) and negative associations with both turnover intention (Dysvik & Kuvaas, 2010) and burnout (Fernet, Guay, & Senécal, 2004), we do not yet know whether such relationships change when both types of motivation are tested concurrently. Hence, in this study, we aim to increase the knowledge of how extrinsic and intrinsic motivation relate to various employee outcomes.

We intend to explore the predictive validity of theories of intrinsic and extrinsic motivation in work settings by investigating these questions empirically. We investigate several employee outcomes, including behavior (work performance), behavioral intention (turnover intention), attitudes (affective and continuance commitment), and well-being (burnout and work–family conflict) to provide a broad perspective on the relationship between the two types of motivation and outcomes. Work performance is important for employees with respect to both psychological and tangible incentives, but it is also highly important for the organization as a whole (Sonnetag & Frese, 2002). The two types of organizational commitment are relevant outcomes. Continuance commitment may be the result of an extrinsic or external regulation to obtain positive consequences and to avoid negative ones, but affective commitment is enhanced by shared values and autonomous regulation (Meyer, Becker, & Vandenberghe, 2004). Finally, we investigate turnover intention and well-being because, although extrinsic motivation can be positively related to work performance, it can be negatively related to these outcomes. If that is the case, organizations must balance the potential positive and negative consequences of extrinsic motivation.

2. Theory and hypotheses

There has been surprisingly little research about whether intrinsic and extrinsic motivations are substitutes or complements or about how they predict employee outcomes when operating in combination (Gagné & Forest, 2008; Gerhart & Fang, 2014). In the following, we develop hypotheses based on self-determination theory (SDT) and models of behavioral economics to explain how intrinsic motivation and extrinsic motivation relate, how each type of motivation relates to performance, and how both type of motivation relate to other employee outcomes.

2.1. The relationship between intrinsic and extrinsic motivation

In the field of organizational behavior, researchers in the tradition of SDT argue outspokenly for the difference between intrinsic and extrinsic motivation for two reasons. First, when people are intrinsically motivated, “the correlates and consequences are more positive in terms of the quality of their behavior as well as their health and well-being” (Deci & Ryan, 2000, p. 243). Second, extrinsic motivation is negatively related to intrinsic motivation (Ryan & Deci, 2000). Therefore, according to SDT, an incentive that actually strengthens extrinsic motivation will, at the same time, undermine intrinsic motivation. Furthermore, given how the two types of motivation are defined, it is difficult to explain how and why intrinsic and extrinsic motivation should be positively related. The actions of performing an activity to experience the pleasure and satisfaction inherent in that activity and performing the same activity to procure positive consequences or avoid negative consequences are logically incompatible because this creates a cognitive challenge, and individuals usually concentrate on the more salient cue when acting (Ross, 1975).

Although intrinsic and extrinsic motivation may coexist for a given individual in relation to a given task, they are separate motivational dimensions, and the influence of one will probably dominate (Deci & Ryan, 2008; Gagné & Deci, 2005). When a job is inherently satisfying and its incentives are indirectly tied to performance, such as through competitive base pay, employees will mainly think about their tasks as they work, and intrinsic motivation will probably dominate. When a job is less inherently satisfying and its incentives are directly tied to performance or results, as with bonuses and commissions, employees will be more likely to see the money as the main reason to do the work, so extrinsic motivation will likely dominate. Finally, when a job is inherently satisfying and its incentives are directly tied to performance, the incentives will probably not change the employees' behavior; therefore, they will neither increase extrinsic motivation nor reduce intrinsic motivation. This conclusion is similar to the meta-analytical finding that unexpected tangible incentives do not affect intrinsic motivation (Deci et al., 1999). When, however, behavior is changed in the direction of the performance-contingent incentive, it probably does so because the incentive is salient; as a result, extrinsic motivation will increase, and intrinsic motivation will decrease. Dysvik, Kuvaas, and Gagné (2013) reported preliminary findings consistent with this account: a negative association between intrinsic and extrinsic motivation across two study samples. As already mentioned, Cerasoli et al. (2014) did not investigate extrinsic motivation, but the most plausible theoretical explanation for their findings is that salient incentives directly tied to performance result in a motivational shift toward extrinsic motivation at the expense of intrinsic motivation (e.g., Weibel et al., 2010).

Outside the field of observational behavior, researchers from behavioral economics have also built models that distinguish extrinsic motivation from intrinsic motivation to understand their relationship and the effects they have on organizational outcomes (Frey & Jegen, 2001). More specifically, standard economic theories posit that individuals react in predictable ways to price changes: If behavior is rewarded, more of the behavior is shown; if it is punished, less is shown (Frey, 1992). This *price effect* is suggested to have no effect on preferences, as incentives do not alter intrinsic motivations. This is often referred to as the *separability assumption* of standard economics (Bowles & Polanía-Reyes, 2012); extrinsic motivation is (implicitly) assumed to be independent from intrinsic motivation.

A number of models in behavioral economics, however, suggest that these two types of motivation are not separable. For instance, crowding theory argues that contingent incentives and punishments undermine intrinsic motivation for the rewarded or punished behavior and that incentives' overall effect on behavior is a function of both the positive effect that incentives have on extrinsic motivation and the negative effect that incentives have on intrinsic motivation (e.g., Frey, 1997a, 1997b; Frey & Jegen, 2001; Frey & Osterloh, 2002). Similarly, goal-framing theory posits that individuals are guided

and motivated by three overarching goals—gain (extrinsic) goals, hedonic (intrinsic) goals, and normative (prosocial) goals—and that these goals compete for focal position, thus inhibiting each other's effects on behavior (Lindenberg & Foss, 2011). Another approach to theorizing a negative interaction between the two types of motivation is signaling theory (Benabou & Tirole, 2003), which argues that tangible incentives have a signaling property. Incentives signal that the task at hand needs additional reinforcement to be completed—presumably because it is not an enjoyable task; as a consequence, such incentives undermine intrinsic interest in the task, thereby altering preferences (Benabou & Tirole, 2003). Thus, based on SDT and behavioral economics models, we propose the following hypothesis:

Hypothesis 1. Intrinsic motivation is negatively related to extrinsic motivation.

2.2. Motivation and performance

Arguably, the most important outcome of motivation is individual performance. In this respect, intrinsic motivation is posited to garner “the highest levels of effort” (Meyer et al., 2004, p. 996), as it has been linked to high energy levels (Ryan & Deci, 2008) and persistence (Vallerand & Blssonnette, 1992). In addition, intrinsic motivation is positively associated with enthusiasm and engagement (Van den Broeck, Lens, De Witte, & Van Coillie, 2013), thriving (Spreitzer, Sutcliffe, Dutton, Sonenshein, & Grant, 2005), and well-being (Nix, Ryan, Manly, & Deci, 1999). All these positive-affect states are theorized to energize employees and to focus their interest on their work in an integrative way. In addition to being positively related to in-role performance in school, work, and physical domains (Cerasoli et al., 2014), intrinsic motivation has also been shown to have positive associations with contextual work performance and creativity (Gagné & Deci, 2005). Accordingly, we hypothesize the following:

Hypothesis 2a. Intrinsic motivation is positively related to overall work performance.

The relationship between extrinsic motivation and employee performance has received scant research attention, but the empirical research on incentives and performance provides some guidelines. On the one hand, experiments show that performance-contingent tangible incentives lead to higher performance in the case of simple and standardized tasks that are easily measurable and attributable (e.g., Bareket-Bojmel, Hochman, & Ariely, 2014; Lazear, 2000). Furthermore, Weibel et al.'s (2010) meta-analysis of experimental studies found that such incentives had not just a relatively strong positive effect on performance for uninteresting tasks but also a small but significant negative effect for interesting tasks. Finally, the meta-analysis of Jenkins, Mitra, Gupta, and Shaw (1998) demonstrated that contingent tangible incentives were positively related to performance for quantitative tasks but that they were unrelated to performance for qualitative tasks, presumably because quality is more difficult to measure. On the other hand, other meta-analyses suggest a stronger positive relationship between contingent incentives and performance quality than between those incentives and performance quantity (Condly, Clark, & Stolovitch, 2003; Garbers & Konradt, 2014).

Probable explanations for these partially conflicting findings include the difference in how tasks are coded in the meta-analyses and the different types of incentives that are investigated in the individual studies. More specifically, there are differences in the size and timing of the incentives, in the difficulty of obtaining them, in the percentage of participants who actually obtain them, in the degree of performance contingency, and in the salience of the incentive. The potential effects of the incentives on motivation, however, are mostly assumed for salient and contingent incentives. Accordingly, when predicting and understanding effects of financial incentives on performance, it is probably not sufficient to investigate the moderating effect of task type; the extent to which the financial incentive is salient or contingent on performance or results should also be investigated (Cerasoli, Nicklin, & Nassreelgawi, 2016; Cerasoli et al., 2014; Pazy & Ganzach, 2009). Thus, whereas highly contingent and salient incentives can increase extrinsic motivation (Gagné & Forest, 2008; Kuvaas, Buch, Gagné, Dysvik, & Forest, 2016), relatively less contingent or less salient incentives such as base pay have been found to relate positively to intrinsic motivation (Kuvaas, 2006; Kuvaas et al., 2016) and to organization-based self-esteem (Gardner, Van Dyne, & Pierce, 2004). Hence, extrinsic motivation that results from highly contingent and salient incentives should increase performance only when the measurable and attributable aspects of the work are good indicators of work performance. A recent study of salespeople, for instance, showed that the amount of money received in contingent and salient incentives over a 2-year period was positively related to an increase in work effort (Kuvaas et al., 2016). However, the effect of extrinsic motivation is less clear for cognitively complex or interesting tasks that have a higher potential for intrinsic motivation (Ariely, Gneezy, Loewenstein, & Mazar, 2009; Weibel et al., 2010) and for cases in which more subjective performance measures are used to capture employees' work-based, contextual, or creative performance (Deckop, Mangel, & Cirka, 1999).

Accordingly, extrinsic motivation seems to have ambiguous effects on overall work performance. This is partly attributed to the multitasking effect: In a context of strong tangible incentives, employees will concentrate on those tasks that are directly incentivized and neglect those that are not (Gibbons, 2005; Holmström & Milgrom, 1991). In addition, the positive affective states associated with intrinsic motivation (e.g., enthusiasm, engagement, thriving, and well-being), which energize employees to focus on performing the task well, are not present when those employees engage in tasks mainly to obtain positive outcomes. On the contrary, extrinsic motivation is typically associated with psychological distress and lower levels of well-being (Gagné et al., 2010; Vansteenkiste et al., 2007), which may decrease focus and prevent employees from fully engaging in a task.

Hence, for three reasons, we propose that extrinsic motivation is either nonsignificantly related or negatively related to overall work performance. First, as shown above, findings from the research on incentives and overall work performance have been equivocal and mixed. Second, most jobs in contemporary organizations are not easily measurable, and the less measurable aspects often always count more than the aspects that are more easily measurable (Murphy, 2008). Third, as we argued above, extrinsic motivation might be negatively related to intrinsic motivation—the latter of which is a robust predictor of overall work performance (Cerasoli et al., 2014). In support of our claim, a meta-analysis of educational research found a positive relationship between intrinsic motivation and school achievement and a negative relationship between extrinsic motivation and school achievement (Taylor et al., 2014). We believe that similar findings will be observed in the domain of work and therefore hypothesize the following:

Hypothesis 2b. Extrinsic motivation is nonsignificantly related or negatively related to overall work performance.

2.3. Intrinsic motivation and other employee outcomes

In addition to increasing performance, intrinsic motivation energizes an extensive variety of behaviors, affects, emotions, and attitudes—the main rewards for which are the experiences of autonomy and effectance (Cho & Perry, 2012; Deci & Ryan, 1985; Lemyre, Treasure, & Roberts, 2006). Because intrinsic motivation is linked to positive affect, emotions, and attitudes, it also protects employees against stressors and negative emotions (e.g., Gagné et al., 2010; Lemyre, Roberts, & Stray-Gundersen, 2007; Ryan & Deci, 2008; Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2007). Gagné et al. (2010), for instance, found that intrinsic motivation had positive associations with optimism, job satisfaction, affective and normative organizational commitment, and self-reported psychological health and well-being; they also found that intrinsic motivations had negative associations with psychological distress and turnover intention. Negative associations with unfavorable outcomes have also been demonstrated for turnover intention and emotional exhaustion (e.g., Dysvik & Kuvaas, 2008, 2010; Grant & Sonnentag, 2010). Furthermore, intrinsic motivation has been associated with lower job burnout (Fernet et al., 2004). Finally, when individuals have to perform multiple roles—such as spouse, parent, and worker—a conflict between work and family may occur (Greenhaus & Beutell, 1985). Employees who are intrinsically motivated experience control over their own behavior and are therefore more likely to be able to balance their work and family lives (Senécal, Vallerand, & Guay, 2001). Hence, we hypothesize the following:

Hypothesis 3a. Intrinsic motivation is positively related to affective commitment.

Hypothesis 3b. Intrinsic motivation is negatively related to (a) burnout, (b) work–family conflict, (c) continuance commitment, and (d) turnover intention.

2.4. Extrinsic motivation and other employee outcomes

Extrinsic motivation involves a perceived contingency between specific behaviors and desirable consequences such as tangible incentives (Gagné & Deci, 2005). Externally motivated employees act to avoid undesired outcomes and to procure desirable outcomes, which is likely to reduce their satisfaction because, due to their need for autonomy, they will feel coerced or seduced by external contingencies (Gagné & Deci, 2005). As a result, extrinsically motivated employees are more likely to experience negative psychological states associated with their work, which in turn may make them susceptible to burnout (Lemyre et al., 2007). In addition, recent evidence in the field of behavioral economics has shown that strong external contingencies lead to anxiety and to “choking under pressure” reactions (Ariely et al., 2009; Kamenica, 2012).

Negative psychological states and attentional narrowing are likely to be related to a number of unwanted outcomes. First, the perceptions of unwanted pressure and the absence of positive emotions are both positively correlated to burnout (Schaufeli, Bakker, & Van Rhenen, 2009), as pressure raises demands and as the absence of positive emotions prevents resources’ buffering effect. Second, attentional narrowing and negative affect (as well as the previously discussed multitasking effect) may cause a shift in focus from affective commitment to continuance commitment, as employees are more likely to focus on the transactional, contingent aspects of their jobs than on the relational, affective ones (Iverson & Buttigieg, 1999). Gagné et al. (2010), for instance, found that extrinsic motivation was negatively associated with affective commitment and positively associated with psychological distress and continuance commitment. Third, perceptions of pressure and focusing effects may also affect employees’ broader lives. For instance, Vansteenkiste et al. (2007) observed that an extrinsic work–value orientation had negative associations with job satisfaction, life satisfaction, and life happiness and positive associations with work–family conflict and turnover intention. Finally, when employees are extrinsically motivated, they experience less control over their behavior, thus becoming more susceptible to burnout (Fernet & Austin, 2014; Lemyre et al., 2007). We therefore hypothesize the following:

Hypothesis 4a. Extrinsic motivation is negatively related to affective commitment.

Hypothesis 4b. Extrinsic motivation is positively related to (a) burnout, (b) work–family conflict, (c) continuance commitment, and (d) turnover intention.

3. Method

3.1. Samples and procedure

We conducted three studies to test our hypotheses. In Study 1, we distributed questionnaires to the employees and store managers of 106 gas stations located in Norway. Through the employee questionnaire, we collected data on control variables and measures of intrinsic and extrinsic work motivation, and the store manager questionnaire consisted of a measure of employee work performance. The participants returned the questionnaires using postage-paid envelopes. All the gas stations belonged to the same chain, and all operated convenience stores. We received complete responses from 557 employees and 106 store managers (response rates of approximately 46% and 74%, respectively). The final matched sample consisted of 552 employees and 78 store managers. Of the employees, 57.2% were women, and 42.8% were men; their organizational tenure varied widely: 31.2% had less than a year of experience, 37% had between 1 and 2 years, 21.4% had between 3 and 5 years, and 10.5% had more than 5 years.

In Study 2, we administered two Web-based questionnaires to 22,893 employees who were members of a finance-sector trade union in Norway. There was a time lag of 3 weeks between the administration of the two questionnaires to reduce the potential influence of common-method bias (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). The first questionnaire included measures of intrinsic and extrinsic work motivation and questions related to the control variables; the second questionnaire consisted of measures of the dependent variables. At Time 1, we received complete responses from 6571 employees (a response rate of 28.7%), and at Time 2, we received complete responses from 4518 employees (a response rate of 68.8%). The matched final sample for Study 2 was $N = 4518$ (19.7% of the initial sample). Of these, 57.2% were women, and 42.4% were men (another 0.4% did not reveal a gender). The mean age of the respondents was 48.4 years, and their mean organizational tenure was 12.8 years. Most respondents were employed in the banking (68.3%) or insurance (24.5%) sectors, and relatively few were employed on a temporary basis (2.4%) or had managerial responsibilities (8.2%).

In Study 3, we surveyed employees and their immediate supervisors in two organizations located in Norway: a medical technology organization (Organization 1) with 805 employees and an organization in the financial industry (Organization 2) with 1300 employees. Prior to administering the Web-based questionnaires, the human resource departments in both organizations informed their respective employees and supervisors about the study and encouraged them to participate. We received complete responses from 349 employees and 45 supervisors from Organization 1 (response rates of approximately 43% and 66%, respectively). From Organization 2, we received complete responses from 480 employees and 58 supervisors (response rates of approximately 37% and 28%, respectively). The sample consisted of 829 employees and 103 supervisors, resulting in a matched sample that included supervisors' ratings of 271 employees' work performance. Of the 829 total employees, 48.1% were women, and 51.9% were men. The mean age was 44.66 years ($SD = 9.93$), and the reported mean organizational tenure was approximately 13 years ($SD = 9.62$).

3.2. Measures

All of the items were scored on 5-point Likert scales ranging from 1 (*strongly disagree*) to 5 (*strongly agree*) unless otherwise noted.

3.2.1. Intrinsic and extrinsic motivation

In Study 1 ($\alpha = 0.89$), Study 2 ($\alpha = 0.91$), and Study 3 ($\alpha = 0.88$), we measured intrinsic motivation with the six-item intrinsic work-motivation scale that Kuvaas (2006) introduced and that Kuvaas and Dysvik (2009) developed further. We chose this measure because it taps into the core of the widely used construct definition (Deci et al., 1989): the motivation to perform an activity in order to experience the pleasure and satisfaction inherent in that activity. We measured extrinsic work motivation in Study 1 ($\alpha = 0.75$), Study 2 ($\alpha = 0.76$), and Study 3 ($\alpha = 0.71$) using the four-item scale that Dysvik et al. (2013) used; this measure taps into the extent to which motivation at work is contingent upon the existence of tangible incentives. The items used to measure intrinsic and extrinsic motivation are presented in Appendix A.

3.2.2. Work performance

In Study 1 ($\alpha = 0.95$) and Study 3 ($\alpha = 0.92$), we obtained supervisor ratings of employees' work performance on the basis of responses to a 10-item scale (Dysvik & Kuvaas, 2011), including items such as "He/she puts a great deal of effort into carrying out his/her job."

3.2.3. Organizational commitment

In Study 2, we used the six-item scales that Meyer and Allen (1997) developed to measure affective commitment ($\alpha = 0.82$) and continuance commitment ($\alpha = 0.77$) to the organization. Sample items include "I really feel as if this

organization's problems are my own" (affective commitment) and "Right now, staying with my organization is a matter of necessity as much as desire" (continuance commitment).

3.2.4. Burnout

In Study 2, we measured burnout ($\alpha = 0.95$) using the 14-item scale that Shirom (1989) developed; this scale asks employees to report how often they have experienced particular feelings at work recently. This is a sample item: "I have no energy for going to work in the morning." The items were scored on a 7-point scale from 1 (almost never) to 7 (almost always).

3.2.5. Work–family conflict

In Study 2, we measured work–family conflict ($\alpha = 0.85$) using the four-item scale that Gutek, Searle, and Klepa (1991) developed, which includes items such as "On the job I have so much work to do that it takes time away from my personal interests."

3.2.6. Turnover intention

We assessed turnover intention in Study 2 ($\alpha = 0.92$) and Study 3 ($\alpha = 0.92$) using the five-item scale that Kuvaas (2008) used previously. This is a sample item: "I often think about quitting my present job."

3.2.7. Control variables

In Study 1, we controlled for organizational tenure and for potential sociodemographic differences such as gender (1 = women; 2 = men) to rule them out as alternative explanations for the observed relationships between intrinsic work motivation, extrinsic work motivation, and work performance. The gas stations were geographically dispersed, so we also controlled for geographic location, which might have been associated with cultural differences (or other unobserved effects). In Study 2, as in Study 1, we controlled for gender (1 = women; 2 = men) and organizational tenure; additionally, we controlled for employment condition (1 = temporary employment; 2 = permanent employment), education (measured on an ordinal scale ranging from 1 = elementary school to 5 = university degree), pay level (measured on an ordinal scale from 1 to 7, where 1 represented under 200,000 NOK (approximately USD 23,868) and 7 represented above 700,000 NOK (approximately USD \$83,583), and managerial responsibility (1 = no managerial responsibility; 2 = managerial responsibility) because of their potential associations with work motivation and employee outcomes. Similarly, in Study 3, we controlled for gender (1 = women; 2 = men), organizational tenure, employment condition (1 = temporary employment; 2 = permanent employment), pay (measured on an ordinal scale from 1 to 7, where 1 represented under 250,000 NOK (approximately USD 29,835) and 7 represented above 500,000 NOK (approximately USD 59,670), and managerial responsibility (1 = no managerial responsibility; 2 = managerial responsibility). In Study 3, we also controlled for organizational affiliation using a dummy variable.

3.3. Analyses

To test whether the measured items would conform to the a priori hypothesized data structure, we treated the data as categorical and performed a confirmatory factor analysis (CFA) using the weighted least squares adjusted for means and variance estimator in Mplus (Muthén, du Toit, & Spisic, 1997) and cluster-robust standard errors. We used hierarchical linear modeling to explore the associations intrinsic and extrinsic motivation had with work performance (Study 1); affective commitment, continuance commitment, turnover intention, burnout, and work–family conflict (Study 2); and work performance and turnover intention (Study 3). This procedure allowed us to portion out the variance in the employees' responses that was attributable to multiple employees working at the same gas station (Study 1), in the same organization (Study 2), or for the same leader (Study 3); our goal was to examine only the individual-level variance. The intraclass correlation coefficients (ICC; Hofmann, Griffin, & Garvin, 2000) for work performance (ICC = 0.05 in Study 1 and ICC = 0.28 in Study 3), affective commitment (ICC = 0.09 in Study 2), and turnover intention (ICC = 0.03 in Study 2 and ICC = 0.19 in Study 3) confirmed the appropriateness of this method.

4. Results

In Study 1, a three-factor CFA model with factors representing intrinsic motivation, extrinsic motivation, and work performance achieved a good fit with the data, $\chi^2(167) = 707.21$, $p < 0.01$; RMSEA = 0.077; CFI = 0.98; TLI = 0.98, in terms of the frequently used rules of thumb (e.g. Hair, Black, Babin, Anderson, & Tatham, 2006). In Study 2, a seven-factor CFA model with factors representing intrinsic motivation, extrinsic motivation, affective commitment, continuance commitment, burnout, turnover intention, and work–family conflict achieved a similarly good fit, $\chi^2(924) = 6300.17$, $p < 0.01$; RMSEA = 0.031; CFI = 0.96; TLI = 0.96. The same applied to Study 3, for which a four-factor CFA model representing intrinsic motivation, extrinsic motivation, work performance, and turnover intention achieved a good model fit, $\chi^2(269) = 510.36$, $p < 0.01$; RMSEA = 0.04; CFI = 0.98; TLI = 0.98. In addition, all factor loadings were statistically significant, with mean standardized loadings of 0.82 (Study 1), 0.76 (Study 2), and 0.81 (Study 3), thus providing confirmation of the constructs' convergent validity (Anderson & Gerbing, 1988). The scales had good internal consistency in all studies, with Cronbach's alphas ranging from

0.71 to 0.95. Tables 1–3 contain descriptive statistics and bivariate correlations for the variables in Study 1, Study 2, and Study 3, respectively. In support of Hypothesis 1, the correlation between intrinsic and extrinsic motivation was negative in all three studies ($r = -0.20, p < 0.001$ in Study 1; $r = -0.12, p < 0.001$ in Study 2; and $r = -0.10, p < 0.01$ in Study 3). In addition, the factor correlation between intrinsic and extrinsic motivation from the CFA reported in Appendix A was -0.16 ($p < 0.001$).

The results of the hierarchical linear modeling analyses for Studies 1, 2, and 3 are presented in Tables 4–6, respectively. The analyses revealed that intrinsic motivation had positive associations with work performance ($\gamma = 0.15, p < 0.001$ in Study 1; $\gamma = 0.17, p < 0.01$ in Study 3) and affective commitment ($\gamma = 0.39, p < 0.001$), providing support for Hypotheses 2a and 3a. Intrinsic motivation also had negative associations with burnout ($\gamma = -0.29, p < 0.001$), work–family conflict ($\gamma = -0.09, p < 0.001$), continuance commitment ($\gamma = -0.20, p < 0.001$), and turnover intention ($\gamma = -0.33, p < 0.001$ in Study 1; $\gamma = -0.32, p < 0.001$ in Study 3), providing support for Hypothesis 3b. In line with Hypothesis 2b, we found a negative association between extrinsic motivation and work performance in Study 1 ($\gamma = -0.10, p < 0.05$) and no association with work performance in Study 3 ($\gamma = -0.02, n.s.$). In support of Hypothesis 4a, extrinsic motivation was negatively related to affective commitment in Study 2 ($\gamma = -0.10, p < 0.001$). Finally, in line with Hypothesis 4b, we found that extrinsic motivation had positive associations with burnout ($\gamma = 0.10, p < 0.001$), work–family conflict ($\gamma = 0.11, p < 0.001$), continuance commitment ($\gamma = 0.10, p < 0.001$), and turnover intention ($\gamma = 0.10, p < 0.001$ in Study 1; $\gamma = 0.19, p < 0.01$ in Study 3).

5. Discussion

The purpose of this study was to investigate the simultaneous associations that intrinsic and extrinsic motivation have with various employee outcomes. In line with SDT within the field of organizational behavior and with crowding theory, goal-framing theory, and signaling theory from behavioral economics, we found a negative association between extrinsic and intrinsic motivation in all three studies. We also consistently found that intrinsic motivation was positively associated with positive outcomes (work performance and affective organizational commitment) and negatively associated with negative outcomes (continuance commitment, turnover intention, burnout, and work–family conflict). Extrinsic motivation, by contrast, was negatively related or unrelated to positive outcomes and was consistently positively associated with negative outcomes.

5.1. Implications for theory and practice

Our findings are in line with SDT. Specifically, the negative relationship between extrinsic and intrinsic motivation observed in our study contributes to SDT by providing empirical support for one of its most important assumptions: that these motivational dimensions are separate and negatively related (Deci & Ryan, 2008; Gagné & Deci, 2005). This is a novel finding because most research on the relationship between intrinsic and extrinsic motivation has not investigated extrinsic motivation and has instead inferred extrinsic motivation from various measures of external regulations, such as the existence or degrees of tangible incentives. The observation that extrinsic motivation is not associated with positive outcomes in our study is a further contribution to SDT. These findings are also novel because past studies of extrinsic motivation in work settings have often been inconsistent with SDT. Recently, SDT researchers have attempted to measure four to six subtypes of motivation to provide measures of autonomous and controlled motivation and have reported several results that are inconsistent with SDT (see e.g., Gagné et al., 2014; Gillet, Gagné, Sauvagère, & Fouquereau, 2013; Kyndt, Raes, Dochy, & Janssens, 2013; Tremblay, Blanchard, Taylor, Pelletier, & Villeneuve, 2009; Van den Broeck et al., 2013). We still endorse future attempts to develop better, more finely grained measures for the subtypes of autonomous and controlled motivation, but the existing measures seem to confuse rather than clarify the roles of the subtypes.

Table 1
Descriptive statistics, correlations, and scale reliability for Study 1.

	Mean	SD	1	2	3	4	5	6	7	8	9
1. Location 1	0.57	0.50									
2. Location 2	0.26	0.44	−0.67**								
3. Location 3	0.10	0.29	−0.37**	−0.19**							
4. Location 4	0.08	0.27	−0.34**	−0.17**	−0.10*						
5. Gender ^a	1.43	0.50	0.05	−0.05	−0.01	0.02					
6. Tenure	2.11	0.97	0.15**	−0.05	−0.13**	−0.05	0.00				
7. Intrinsic motivation	3.29	0.77	−0.06	0.04	0.04	−0.01	−0.07	−0.08	(.89)		
8. Extrinsic motivation	2.78	0.81	−0.03	−0.02	0.00	0.09*	0.14**	0.05	−0.20**	(.75)	
9. Work performance	3.64	0.76	−0.01	0.02	0.00	−0.01	−0.15**	0.19**	0.17**	−0.13**	(.95)

Notes. $N = 552$.

^a 1 = women; 2 = men.

* $p < 0.05$.

** $p < 0.01$.

Table 2
Descriptive statistics, correlations, and scale reliabilities for Study 2.

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Gender ^a	1.43	0.49													
2. Education	3.47	1.02	0.14**												
3. Tenure	12.81	11.58	-0.03 [†]	-0.29**											
4. Employment condition ^b	1.99	0.09	-0.01	-0.02	0.06**										
5. Pay level	4.42	1.22	0.34**	0.32**	-0.12**	0.02									
6. Managerial responsibility ^c	0.08	0.28	0.05**	0.10**	-0.07**	-0.04**	0.31**								
7. Intrinsic motivation	3.91	0.78	-0.03 [†]	-0.02	0.06**	0.02	0.19**	0.12**	(.91)						
8. Extrinsic motivation	3.21	0.90	0.04**	0.05**	-0.07**	-0.01	-0.11**	-0.09**	-0.12**	(.76)					
9. Affective commitment	3.57	0.82	0.00	-0.09**	0.14**	0.02	0.05**	0.11**	0.42**	-0.16**	(.82)				
10. Continuance commitment	2.93	0.84	0.04**	-0.11**	0.19**	-0.01	-0.10**	-0.05**	-0.21**	0.12**	-0.15**	(.77)			
11. Turnover intention	2.17	1.15	0.04**	0.16**	-0.16**	-0.04**	-0.03	-0.04	-0.35**	0.16**	-0.53**	0.19**	(.92)		
12. Burnout	2.62	1.04	-0.08**	0.00	-0.03	-0.03	-0.11**	-0.07**	-0.32**	0.14**	-0.33**	0.35**	0.46**	(.95)	
13. Work-family conflict	2.42	1.04	-0.00	0.08**	0.01	-0.00	0.08**	0.06**	-0.07**	0.11**	-0.19**	0.26**	0.37**	0.55**	(.85)

Notes:
N = 4518.
[†] p < 0.05.
^{*} p < 0.01.
^a 1 = women, 2 = men.
^b 1 = temporary employee, 2 = permanent employee.
^c 1 = no managerial responsibility, 2 = managerial responsibility.

Table 3
Descriptive statistics, correlations, and scale reliabilities for Study 3.

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11
1. Organization	1.47	0.50											
2. Gender ^a	1.52	0.50	0.04										
3. Education	4.82	1.19	-0.19**	0.08*									
4. Tenure	12.75	9.62	0.18**	-0.01	-0.31**								
5. Employment condition ^b	1.01	0.08	-0.06	-0.08 [†]	0.04	-0.02							
6. Pay level	6.30	1.17	-0.11	0.26**	0.37**	0.02	-0.05						
7. Managerial responsibility ^c	1.22	0.42	0.09	0.14**	0.18**	0.11**	-0.04	0.29**					
8. Intrinsic motivation	3.94	0.69	0.13*	0.05	0.05	0.06	0.01	0.14**	0.24**	(.88)			
9. Extrinsic motivation	3.23	0.84	-0.10	0.02	-0.03	-0.07*	0.01	-0.11*	-0.07	-0.10**	(.71)		
10. Work performance	3.99	0.63	0.18**	-0.15*	0.09	-0.07	-0.05	0.09	0.13*	0.24**	-0.04	(.92)	
11. Turnover intention	2.53	1.18	-0.03	-0.02	0.16**	-0.08*	0.01	0.04	-0.07*	-0.37**	0.24**	-0.12	(.92)

Notes. N = 829 (n = 271 for work performance).
[†] p < 0.05.
^{*} p < 0.01.
^a 1 = women, 2 = men.
^b 1 = temporary employee, 2 = permanent employee.
^c 1 = no managerial responsibility, 2 = managerial responsibility.

Table 4
Work motivation and work performance: HLM results for Study 1.

Variables	Work performance
Intercept	3.53***
Location 2	0.04
Location 3	0.03
Location 4	0.02
Gender ^a	-0.13***
Tenure	0.22***
Intrinsic motivation	0.15***
Extrinsic motivation	-0.10 [†]
Individual level residual variance (σ^2)	0.48***
Group level residual variance (τ_{00})	0.04***
Pseudo R ²	0.13

Notes. N = 552.
Standardized coefficients are shown. We used the equation suggested by Hox (2010) to derive the standardized coefficients: Standardized coefficient = (unstandardized coefficient × standard deviation of the explanatory variable) / standard deviation of the outcome variable.
^a 1 = women, 2 = men.
[†] p < 0.05.
^{**} p < 0.01.
^{***} p < 0.001.

The relatively small effect sizes for the associations between extrinsic motivation and employee outcomes suggest that the negative effects of extrinsic motivation are modest; however, they are almost uniform. Our data are consistent with the widely held belief that intrinsic motivation has a greater influence on performance than does extrinsic motivation, and they refute the hypothesis that “if there is an undermining effect on intrinsic motivation, it is usually dominated by the positive effect of PFIP (pay-for-individual-performance) on extrinsic motivation” (Gerhart & Fang, 2014, p. 47). Nevertheless, we do not suggest that extrinsic motivation cannot positively influence work performance. If extrinsic motivation is the key to the association between incentives and performance, extrinsic motivation should increase performance—as measured in quantitative terms (Cerasoli et al., 2014; Jenkins et al., 1998)—for uninteresting experimental tasks (Weibel et al., 2010). Accordingly, extrinsic motivation can be a potent motivator where there is little potential for intrinsic motivation and when it is relatively easy to monitor and measure results and outcomes. Kuvaas et al. (2016), for instance, found a small positive association between extrinsic motivation and increased sales effort, but they also found a positive relationship between extrinsic motivation and increased turnover intention (which is in line with the findings of the present study). This small increase in work effort may be outweighed by the increase in turnover intention. In addition, it is important to acknowledge that many jobs have become less routinized, less strictly defined, and more multidimensional (Cascio, 1998) and that many others can be automated or performed in countries with lower labor costs.

The most important practical implication of our findings is that organizations should address intrinsic and extrinsic motivations as separate motives. At least with respect to the employee outcomes we investigated in the present study,

Table 5

Work motivation and employee outcomes: HLM results for Study 2.

	Affective commitment	Continuance commitment	Turnover intention	Burnout	Work-family conflict
Intercept	3.55 ^{***}	3.24 ^{***}	2.38 ^{***}	3.36 ^{***}	1.81 ^{***}
Gender ^a	0.03	0.05 ^{**}	0.01	-0.08 ^{***}	-0.05 ^{**}
Education	-0.05 ^{**}	-0.06 ^{***}	0.12 ^{***}	0.01	0.06 ^{***}
Tenure	0.14 ^{***}	0.14 ^{***}	-0.10 ^{***}	0.00	0.00 ^{**}
Employment condition ^b	0.01	-0.02	-0.02	-0.02	0.00
Pay level	-0.04 [*]	-0.03	0.00	0.01	0.11 ^{***}
Managerial responsibility ^c	0.07 ^{***}	0.01	0.00	-0.02	0.04 [*]
Intrinsic motivation	0.39 ^{***}	-0.20 ^{***}	-0.33 ^{***}	-0.29 ^{***}	-0.09 ^{***}
Extrinsic motivation	-0.10 ^{***}	0.10 ^{***}	0.10 ^{***}	0.10 ^{***}	0.11 ^{***}
Individual level residual variance (σ^2)	0.50 ^{***}	0.63 ^{***}	1.07 ^{***}	0.94 ^{***}	1.02 ^{***}
Group level residual variance (τ_{00})	0.04 ^{***}	0.00	0.03 [*]	0.00	0.01
Pseudo R^2	0.20	0.10	0.16	0.12	0.04

Notes. $N = 4518$.

We used the equation suggested by Hox (2010) to derive the standardized coefficients: Standardized coefficient = (unstandardized coefficient \times standard deviation of the explanatory variable)/standard deviation of the outcome variable.

^a 1 = women, 2 = men.^b 1 = temporary, 2 = permanent.^c 1 = no managerial responsibility, 2 = managerial responsibility.^{*} $p < 0.05$.^{**} $p < 0.01$.^{***} $p < 0.001$.**Table 6**

Work motivation and employee outcomes: HLM results for Study 3.

	Work performance	Turnover intention
Intercept	4.62 ^{***}	2.36
Organization	.00	.00
Gender ^a	-0.23 ^{**}	-0.13
Education	.03	.23 [*]
Tenure	-0.17 [*]	-0.07
Employment condition ^b	-0.08	-0.06
Pay level	.09	.09
Managerial responsibility ^c	.06	-0.03
Intrinsic motivation	.17 [*]	-0.32 ^{***}
Extrinsic motivation	-0.02	.19 ^{**}
Individual level residual variance (σ^2)	.27 ^{***}	.83 ^{***}
Group level residual variance (τ_{00})	.09	.23
Pseudo R^2	.11	.23

Notes. $N = 829$ ($n = 271$ for work performance).

We used the equation suggested by Hox (2010) to derive the standardized coefficients: Standardized coefficient = (unstandardized coefficient \times standard deviation of the explanatory variable)/standard deviation of the outcome variable.

^a 1 = women, 2 = men.^b 1 = temporary, 2 = permanent.^c 1 = no managerial responsibility, 2 = managerial responsibility^{*} $p < 0.05$.^{**} $p < 0.01$.^{***} $p < 0.001$.

organizations should do whatever they can to increase employees' intrinsic motivation. Our findings do not imply that increasing extrinsic motivation is advantageous to individuals or organizations in terms of these outcomes. At a more global level, according to SDT, this means satisfying employees' needs for autonomy, relatedness, and competence, which will enhance their intrinsic motivation (e.g., Gagné & Deci, 2005). At a more practical level, it is important that employees are invited to participate in decision-making, that managers listen to them and are able to understand their perspectives, that employees are offered choices within structures, and that they receive both positive feedback when they take initiative and nonjudgmental feedback when they have problems (Stone, Deci, & Ryan, 2009). In addition, organizations should be careful when applying coercive controls such as close monitoring and contingent tangible incentives, compare employees to each other, but offer competitive base pay (Stone et al., 2009).

5.2. Limitations, Strengths, and research opportunities

The main limitations of this study are the cross-sectional designs of Study 1 and 2 and the potential sample-specificity of our findings. We collected data from a gas station chain, members of a financial-industry trade union in Norway, and employees from the financial and medical industries. Even though we do not have detailed information about the types of tasks our respondents were performing at the times of data collection, based on our findings, it is probably fair to conclude that these tasks went beyond what can be relatively easily measured in terms of quantifiable results or outcomes. Accordingly, the generalizability of our findings are limited to such or similar tasks.

Unfortunately, we were not able to obtain data on supervisor-rated performance for employees in the financial industry. We did, however, collect self-reported work performance and organizational citizenship behavior, and we found that both were positively associated with intrinsic motivation and that neither was significantly associated with extrinsic motivation. This was not reported in the data analysis, however.

Because we wanted to investigate the perhaps most relevant source of extrinsic motivation in the domain of work, we used a measure of extrinsic motivation that exclusively focuses on tangible incentives. As there are several other sources of extrinsic motivation in most work settings, including deadlines (Amabile, DeJong, & Lepper, 1976), evaluations (Smith, 1975), and surveillance (Lepper & Greene, 1975), future work could develop new and broader measures.

We were not able draw conclusions about causality from these data. However, we are reasonably confident that common-method bias did not affect our findings. In Study 1 and 3, we assessed work performance using supervisor ratings to ensure that the data on the dependent variables came from a source other than the employees (Podsakoff, MacKenzie, & Podsakoff, 2012). Furthermore, the time lag between the two surveys in Study 2 should have reduced any potential common-method bias (Podsakoff et al., 2003). This and the fact that we tested our hypotheses in three relatively large samples represent important strengths of our study.

Prior research has shown that the relationship between intrinsic motivation and performance is weaker when incentives are directly tied to performance and stronger when they are indirectly tied to performance (Cerasoli et al., 2014). In the future, researchers could investigate whether this moderation effect is actually explained by an increase in extrinsic motivation by testing the interaction of extrinsic and intrinsic motivation in terms of work performance. In addition, researchers could investigate whether extrinsic motivation explains the finding that extrinsic incentives and performance quantity have a stronger relationship than do intrinsic motivation and performance quantity (Cerasoli et al., 2014) by testing the simultaneous relationships that extrinsic and intrinsic motivation have with both performance quantity and performance quality. Furthermore, as the negative associations between intrinsic and extrinsic motivation were small across the three samples, future research could investigate non-linear relations between the two.

A final potentially fruitful avenue for future research would be to investigate the association between base pay and extrinsic motivation. For the samples in which we controlled for base pay, we found small but significant negative correlations between pay and extrinsic motivation. According to SDT, competitive base pay can contribute to satisfying employees' needs for autonomy, competence, and relatedness; therefore, it can also reduce extrinsic motivation—perhaps particularly because of high satisfaction regarding the need for autonomy (Gagné & Forest, 2008). If a sufficient number of studies have included both base pay and extrinsic or controlled motivation, a meta-analysis would be very useful.

Appendix A. Supplementary factor analyses for intrinsic and extrinsic motivation

	CFA		EFA	
	Intrinsic motivation	Extrinsic motivation	Intrinsic motivation	Extrinsic motivation
IM1: The tasks that I do at work are themselves representing a driving power in my job	0.84		0.76	−0.03
IM2: The tasks that I do at work are enjoyable	0.93		0.87	−0.01
IM3: My job is meaningful	0.88		0.79	−0.01
IM4: My job is very exciting	0.91		0.88	0.03
IM5: My job is so interesting that it is a motivation in itself	0.91		0.90	−0.01
IM6: Sometimes I become so inspired by my job that I almost forget everything else around me	0.63		0.64	−0.00
EM1: If I am supposed to put in extra effort in my job, I need to get extra pay		0.57	−0.07	0.50
EM2: It is important for me to have an external incentive to strive for in order to do a good job		0.78	0.07	0.79
EM3: External incentives such as bonuses and provisions are essential for how well I perform my job		0.74	0.07	0.73

(continued on next page)

Appendix A (continued)

	CFA		EFA	
	Intrinsic motivation	Extrinsic motivation	Intrinsic motivation	Extrinsic motivation
EM4: If I had been offered better pay, I would have done a better job		0.72	−0.12	0.64

N = 6571 (we used all available Time 1-data from Study 2).

The two-factor CFA model with factors representing intrinsic and extrinsic motivation achieved a good fit with the data ($\chi^2(34) = 802.74$, $p < 0.01$; RMSEA = 0.061; CFI = 0.97; TLI = 0.97). All factor loadings were statistically significant. The factor correlation between intrinsic and extrinsic motivation was -0.16 ($p < 0.001$).

A supplemental one-factor CFA model performed substantially worse ($\chi^2(35) = 12937.27$, $p < 0.01$; RMSEA = 0.245; CFI = 0.55; TLI = 0.43). The EFA results were obtained using Principal Axis Factoring with Promax rotation.

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