

RESEARCH ARTICLE

Perceived financial incentive salience and its undermining effect: A moderated-mediation model

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Abstract

How incentives are perceived by a receiver can determine how they affect their autonomy and intrinsic motivation. Guided by self-determination theory, we investigate the relationship between perceived financial incentive salience (PFIS) and change in intrinsic motivation by focusing on the mediating role of autonomy frustration and the moderating role of task heuristic. To test this model, we utilize a repeated-measure two-wave design in two field studies ($n=169$ and 341) under a non-contingent versus contingent pay system. The findings demonstrated that perceived salience is a key determinant behind the undermining effect caused by financial incentives, independently of incentive contingency. In addition, task heuristic and autonomy frustration are crucial factors in understanding the nuances behind the undermining effect. Under both types of incentive systems (a) PFIS had a positive association with autonomy frustration, and (b) PFIS and autonomy frustration both related negatively to intrinsic motivation in high-heuristic tasks. However, the autonomy frustration-intrinsic motivation relationship and PFIS-intrinsic motivation relationship had considerable differences in low-heuristic tasks among non-contingent versus contingent systems. We discuss the implications of the findings for future research on incentive salience and work motivation.

KEYWORDS

autonomy need frustration, conspicuousness, financial incentives, salience, task heuristic

INTRODUCTION

Intrinsic motivation, defined as the inherent enjoyment of an activity, is a key driver of performance (Deci et al., 2017; van den Broeck et al., 2021). However, in organizational settings, incentives are often viewed as the default motivational mechanism to increase work performance (Gagné & Hewett, 2024). This is concerning, and potentially misguided given the robust evidence suggesting that incentives can undermine intrinsic motivation (Deci et al., 1999; Gagné & Deci, 2005), and negatively impact multiple important workplace outcomes (van den Broeck et al., 2021). This has become a keenly debated topic with theoretical arguments for and against the use of incentives garnering support (Gagné & Hewett, 2024; Shaw, 2024), and meta-analytic evidence supporting propositions from both sides (Kim et al., 2022; Ryan et al., 2022). Apart from the academic debate, this issue is of direct importance to workplaces worldwide as employee compensation is a consistent expense to organizations, and important for the well-being of employees (Dahl & Pierce, 2020). In order to help inform this debate, we specifically examine the undermining effect specified by self-determination theory (SDT) in two real-world organizations, under contingent and non-contingent pay conditions and emphasize the role of incentive salience.

A critical factor influencing incentives' motivational impact is their salience during task performance (Ross, 1975); yet this aspect has been largely overlooked in existing research. Perceived incentive salience—referring to the potential of incentives to draw a recipient's attention—is a key determinant of incentives' impact on intrinsic motivation (Hewett & Conway, 2016). It is suggested that when recipients perceive the rewards as highly salient, they experience the 'undermining' of subsequent intrinsic motivation for the task due to a shifting of attention to the contingencies (i.e., rewards) external to the task (Ryan & Deci, 2000; Taylor & Fiske, 1978). In support of this, Hewett and Conway (2016) established that high perceived salience of verbal rewards can lead to a negative impact on intrinsic motivation.

While this evidence contributes significantly to the literature, it suffers from some notable limitations. Organizational relationships are primarily characterized by financial incentives while verbal (praise or recognition) incentives are a short-term motivational tool (Deci, 1972; Hewett & Conway, 2016). Although Hewett and Conway (2016) have illuminated the importance of perceived incentive salience in the case of verbal incentives, we do not have a clear answer on how the perceived salience of financial incentives shapes intrinsic motivation in the workplace.

Existing research considers incentive contingency to be the primary factor behind the undermining effect of financial incentives (Kuvaas et al., 2020). The available evidence shows that contingent (dependent upon an outcome) financial incentives can have a possible harmful effect on intrinsic motivation, whereas non-contingent financial incentives have been found to have a positive or non-significant impact on intrinsic motivation (Deci et al., 1999; Kuvaas, 2006; Ryan et al., 1983). From a theoretical point of view, focusing only on incentive contingency is at odds with Ryan et al.'s (1983) observation that even with the same contingency structure, rewards can have varied motivational impacts based on their perceived psychological control. Even after being such a central tenet of undermining effect, whether and how financial incentives' impact on intrinsic motivation could be shaped by perceived salience—over and above their contingency—is a question that remains empirically unexplored in real work settings (Kim et al., 2022). Specifically, it is not clear if non-contingent but salient financial rewards could induce a feeling of control, even after not being instrumental on an outcome. Similarly, it is not clear if salience can elevate the controlling effect of already contingent financial rewards.

This research addresses this gap, proposing that if the undermining effect of financial incentives is indeed shaped by perceived salience, it would be possible to design incentive schemes that do not harm (or may even support) employees' intrinsic motivation while still offering necessary extrinsic rewards (Deci et al., 2017). We investigate the relationship between the perceived financial incentive salience (PFIS) and intrinsic motivation, mediated through the mechanism of autonomy frustration established by self-determination theory (SDT) (Ryan & Deci, 2000). SDT focuses on the recipient's perceptions and the work context to delineate the consequences of incentives on motivation (Ryan et al., 1983).

We identify and contribute to three important knowledge gaps in this study. First, we examine the role of perceived financial incentive salience (PFIS) on the change in intrinsic motivation under both non-contingent (Study 1) and contingent (Study 2) pay systems, also controlling for the actual incentive amounts in Study 1.

Second, based on self-determination theory, Hewett and Conway (2016) posit that autonomy frustration is the mechanism that mediates the undermining effect, but interestingly, do not explicitly test this mediational path in their analysis. Hewett and Conway's (2016) findings highlight that the relationship between perceived salience and intrinsic motivation was non-significant when not considering the role of task heuristic. Examining this mediational path tests the key theoretical assumption behind the undermining effect and clarifies whether (or not) perceived incentive salience leads to autonomy frustration in all conditions, and whether autonomy frustration always translates into an undermining effect.

Third, task type is a critical element for incentive research (Garbers & Konradt, 2014). The adverse effects of incentives have largely been evidenced in high heuristic or quality-type tasks (non-repetitive, complex tasks involving creative application of skills and knowledge) due to their inherent requirement of higher involvement and intrinsic motivation to succeed (Cerasoli et al., 2014; Hewett & Conway, 2016). The few existing studies (Hendijani & Steel, 2022; John et al., 2022) examining financial incentive salience focus on simple tasks in non-organizational settings or surprisingly ignore intrinsic motivation altogether. To broaden the application of our findings to organizational contexts, we also test the moderating role of task heuristics on this relationship (see Figure 1).

Our study taps into two distinct employee samples to effectively capture the change in intrinsic motivation under organizational work settings and different pay systems. For Study 1, we recruited individuals working at entry-level management positions across multiple industries and functions. The participants were engaged in short-term corporate tenures (8–10 weeks) as part of their full-time Master of Business Administration (MBA) programme. These participants were a priori offered a fixed amount of compensation for their tenures (non-contingent pay system). As performance non-contingent incentives or base pay is not expected to harm intrinsic motivation due to its non-controlling nature (Kuvaas, 2006; Ryan et al., 1983), studying the impact of salience under such an incentive scheme could provide us with stronger evidence of the phenomenon and clarify if salience harms intrinsic motivation even when rewards are non-contingent. For Study 2, we recruited individuals working in an R&D firm under a base pay plus performance-linked incentive system (contingent pay system). Testing our hypotheses in this context allows us to see if salience has distinct effects on motivation even while incentives are contingent and employees have experienced them for a longer duration (and hence not experiencing incentives to be salient just because they represent a new element). These distinct contexts allow us to explore the varying impacts of PFIS across different incentive schemes and employment conditions.

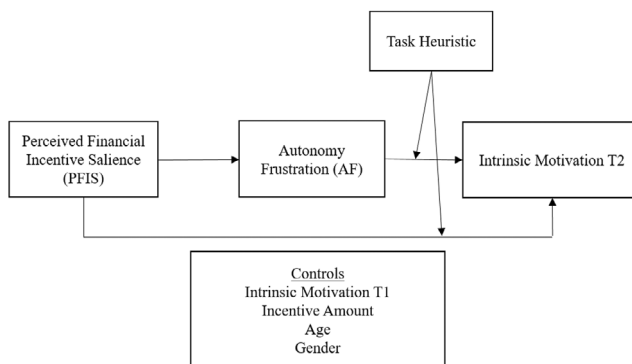


FIGURE 1 Proposed model.

THEORETICAL BACKGROUND

Self-determination theory (SDT) postulates motivation as a continuum ranging from highly autonomous (high quality) to highly controlled (low quality) (Gagné & Deci, 2005; Rigby & Ryan, 2018). Intrinsic motivation, lying at the most autonomous end of the continuum, is marked by interest and inherent enjoyment of an activity (Deci, 1971). Intrinsic motivation is found to predict higher performance quality, better persistence and well-being in the workplace over time than controlled types of motivation (van den Broeck et al., 2021).

SDT states that basic psychological needs (autonomy, relatedness and competence) underlie healthy psychological functioning and motivation (Deci et al., 2017). Looking at these needs as psychological nutriment, a fundamental premise of SDT is that people naturally strive towards psychological development and well-being (van den Broeck et al., 2016). The effects of rewards on motivation are mainly found to be derived from their relative impact on the autonomy and competence needs of an individual (Deci et al., 1999). Autonomy is conceptualized as a need to feel a sense of ownership and psychological freedom (Ryan & Deci, 2000) and argued to be a meta-need and seen as necessary to satisfy the other two needs (Yu et al., 2018).

The need for autonomy, as postulated in self-determination theory, is based on the conception of internal perceived locus of causality (PLOC) or being the source of one's actions. Based on DeCharms' (1968) elaboration of internal versus external PLOC, self-determination theory posits that an internal PLOC reflects autonomy, while an external PLOC signifies control (Ryan & Connell, 1989). Negative effects of incentives are primarily a result of feeling a pressure to engage in the work to earn the rewards while positive effects of incentives arise from the positive information one gets about their performance, satisfying their need for competence. However, as prior research finds, autonomy frustration at work is not necessarily accompanied by a feeling of competence (van den Broeck et al., 2010), suggesting that the detrimental effects of poorly designed incentives can outweigh any potential benefits.

LITERATURE REVIEW

Financial incentives in the workplace

Employment relationships are driven by financial incentives as they are needed to fulfil physiological needs (Cerasoli et al., 2014). Organizations regularly incentivize employees to enhance their engagement and work performance. However, contemporary compensation plan designs are dominated by agency theory driven assumptions of humans being primarily motivated by monetary incentives (Gagné & Hewett, 2024). In line with these assumptions, recent research has recommended increasing the incentive salience and making incentives a centre of attention to increase their 'effectiveness' by boosting extrinsic motivation (Englmaier et al., 2017; John et al., 2022). However, much like the research on pay-for-performance, this line of research remains separated from incentives' impact on intrinsic motivation (Gerhart & Fang, 2015).

Self-Determination Theory (SDT) offers critical insights into this issue, particularly regarding how external motivators can have unintended negative consequences. Rewards can be perceived to be an indicator of competence or as a controller of behaviour based on the relative prominence of their informational versus controlling aspect (Deci et al., 1999; Deci & Ryan, 1980). For example, verbal rewards (such as praise and recognition) are generally salient in their informational aspect, which satisfies the need for competence. But if verbal rewards are presented in a controlling manner (i.e., pressuring them towards some specific outcome), they can negatively impact the perceived autonomy. Research grounded in SDT has consistently shown that externally contingent motivators can harm intrinsic motivation by causing autonomy frustration (Deci, 1971; Deci et al., 1999).

Perceived financial incentive salience, autonomy frustration and the undermining effect

Autonomy frustration involves feeling a sense of pressure and conflict, such as being pushed in an unwanted direction or work in appointed ways, signifying an external perceived locus of causality (Vansteenkiste et al., 2020). When employees feel their actions are directed by external forces—such as incentives—rather than their own intrinsic interests, their motivation may diminish due to this external shift in the perceived locus of causality. This process can be understood more precisely through attribution theories which highlight the central role of salience, suggesting that individuals tend to attribute the causes of their actions to the most salient factors in their environment (Heider, 1958; Taylor & Fiske, 1978). Salient rewards tend to capture an individual's attention, making the connection between the rewards and their performance more apparent (Deci, 1972). The more salient the external rewards become, the more likely a person will consider them as the reason for their behaviour rather than an intrinsic interest in the task (Ross, 1975). This perception of an external cause behind behaviour erodes intrinsic motivation, as it creates a sense of pressure, diminishing autonomy (Deci, 1972). The controlling nature of financial rewards thus frustrates the need for autonomy and individuals come to discount their intrinsic interest in favour of external incentives (Deci et al., 1999).

Recognizing the critical influence of salience, motivational congruence theory integrates elements from attribution and undermining literature to emphasize how the alignment between motivational mechanisms (e.g., salient vs non-salient rewards) and the workplace environment (autonomy-supportive vs controlling) influences motivation (Hendijani & Steel, 2023). According to the theory, under controlling conditions, salient rewards tend to encourage extrinsic motivation. However, in autonomy-supportive environments, motivation is best nurtured when non-salient rewards are used, as they align more effectively with the supportive nature of the context. Further, research has established that even irrelevant, but salient, information can influence individual perceptions (Dohmen et al., 2006). Thus, rather than just the mere presence, size of incentives or contingency, perceived incentive salience should explain incentives' impact on intrinsic motivation (Deci & Porac, 1979; Hendijani & Steel, 2022; Ross, 1975).

HYPOTHESIS DEVELOPMENT

Salience is operationalized as the expectation and the conspicuousness of incentives during task performance (Hewett & Conway, 2016). Existing evidence has found that rewards are only detrimental to intrinsic motivation if they are expected during a task (Deci et al., 1999). When someone does not expect a reward in the first place, there is no contingency attached to the rewards and thus no feeling of being controlled by them. Therefore, a higher expectation of incentives increases their salience, and similarly, conspicuous (perceptually prominent) information receives greater attention and therefore increases salience. The salient stimuli then becomes the causal explanation behind their actions in the observer's mind (Jones & Nisbett, 1972), thereby eroding the sense of autonomy (Deci et al., 1999).

Most of the research on salience is based on laboratory settings (Hewett & Conway, 2016). Examining the role of salience, Ross (1975) conducted a laboratory experiment in which he asked one group of subjects to think about the rewards while doing the task while the other group was instructed to think about something else. Thinking about the reward made it perceptually prominent, and thus, as predicted by the undermining effect, the first group had significantly lower intrinsic motivation than the second group. In another study by Eisenberger and Selbst (1994), placing the reward in close proximity to the subjects reduced their creativity—which depends on intrinsic motivation—compared to another group with a distal position of the same rewards. More recently, Hendijani and Steel (2022) examined the interactions between salience and controlling (vs supportive) conditions, finding that salient rewards can improve outcomes in controlling conditions, but are less effective in supportive conditions.

In summary, according to attribution theory, individuals tend to attribute the causes of their actions to the most salient factors in their environment (Taylor & Fiske, 1978). Self-determination theory further suggests that when people perceive an external cause behind their behaviour (external PLOC), it can frustrate their need for autonomy and undermine intrinsic motivation (Ryan & Connell, 1989). Therefore, high perceived financial incentive salience (PFIS) can foster an external perceived locus of causality, frustrating autonomy and reducing intrinsic enjoyment of the task. Based on these arguments, we propose:

Hypothesis 1. *PFIS is positively related to autonomy frustration.*

Hypothesis 2. *PFIS is negatively related to intrinsic motivation.*

The mediating role of autonomy frustration

As highlighted earlier, salient incentives lead to a perception of external control over one's actions (external PLOC), leading to a frustration of autonomy (Deci, 1971). Extant empirical evidence highlights that the frustration of autonomy leads to a reduction in intrinsic motivation (Deci et al., 2017) as well as negative outcomes for the organization (e.g., negative emotions and turnover intentions) (Unanue et al., 2017). Studies have shown that when individuals experience autonomy frustration—such as being micromanaged or constrained by controlling incentives—they report less enjoyment, interest and persistence in tasks (Deci et al., 1999). When tasks are controlled by external rewards, individuals report diminished enjoyment and engagement because they perceive less volition and self-direction (Gagné & Deci, 2005).

Autonomy frustration also impacts the sense of ownership over actions, leading to reduced persistence (Vansteenkiste & Ryan, 2013). Over time, sustained autonomy frustration can lead to disengagement from tasks and even burnout, as individuals lose the internal satisfaction that drives sustained motivation (Ryan & Deci, 2017). In summary, combining our Hypothesis 1 and the findings on the inverse relationship between autonomy frustration and intrinsic motivation leads to our mediation hypothesis:

Hypothesis 3. *Autonomy frustration mediates the relationship between PFIS and intrinsic motivation.*

The overall moderated-mediation model

Since the earliest examinations of the undermining effect (Deci, 1971, 1972), task type is recognized as a key factor in understanding how incentives influence intrinsic motivation. The undermining effect is primarily expected to occur in tasks that are already intrinsically motivating because, without initial enjoyment or motivation, there is little to undermine (Deci et al., 1999). This distinction is particularly relevant when comparing high-heuristic tasks (non-repetitive, complex tasks involving creative application of skills and knowledge; Deci & Ryan, 2000) and low-heuristic tasks (simple, repetitive tasks requiring monotonous functioning). Intrinsic motivation tends to be higher in high-heuristic tasks, making them more susceptible to the undermining effect (Hewett & Conway, 2016).

In addition, the cumulative impact of any task on intrinsic motivation is shaped by its effect on the need for autonomy and competence, and tasks differ in their capacity to support these needs. Low-heuristic tasks, being simple and repetitive offer little room for autonomy and limit opportunity for challenges, as they require minimal cognitive investment and creative problem-solving, failing to satisfy these needs (González-Cutre et al., 2016; Morgeson & Humphrey, 2006). On the other hand, high-heuristic tasks offer greater opportunities for individuals to satisfy their needs for autonomy and

competence because they involve applying creativity, skills and knowledge to produce unique solutions to solve complex, non-routine problems (Hewett & Conway, 2016; Morgeson & Humphrey, 2006). The fulfilment of these needs leads to higher self-identification with the task, enhanced enjoyment and a positive loop for intrinsic motivation (Amabile et al., 2005).

However, the benefits of high-heuristic tasks hinge on the presence of autonomy. These tasks, which require creativity and problem-solving, depend on autonomy to provide individuals the freedom to explore and develop innovative solutions. However, when individuals experience autonomy frustration—that is when they are deprived of the required autonomy in high-heuristic tasks—their identification with the task can weaken, leading to reduced task interest and a subsequent decline in intrinsic motivation (Langfred & Moye, 2004; Morgeson & Humphrey, 2006). This situation becomes particularly damaging when high-heuristic tasks, which inherently demand high autonomy, are paired with autonomy frustration, increasing the risk of motivation loss. Therefore, if an autonomy-frustrated individual is required to engage in high-heuristic tasks without the requisite autonomy, they would be at a higher risk of losing their intrinsic motivation for the task.

Additionally, high perceived financial incentive salience (PFIS) can disrupt intrinsic motivation by diverting attention away from the task itself and towards the incentives, thereby decreasing involvement and immersion in the task (Vansteenkiste et al., 2005). Such distractions are particularly harmful in high-heuristic tasks, where sustained focus and deep engagement are essential, as highly salient incentives become the perceived cause behind their behaviour, harming task persistence. The negative impact of PFIS on task engagement and a higher focus on incentives, in turn, thwart the satisfaction of the need for autonomy. High-heuristic tasks are also characterized by higher personal valuation and lower external control, both of which are central to perceived self-determination (Cerasoli et al., 2014).

In summary, task heuristic is expected to moderate the relationship between PFIS, autonomy frustration and intrinsic motivation for three major reasons. First, highly salient incentives shift the perceived cause of one's actions to external factors, reducing identification with the task and promoting an external locus of causality. This reduction in identification is more detrimental for high-heuristic tasks, which require greater task engagement. Second, high-heuristic tasks are generally accompanied by higher levels of intrinsic motivation compared to low-heuristic tasks, making any negative impact on intrinsic motivation more pronounced in these contexts. Third, the combination of autonomy frustration and the high autonomy demands of high-heuristic tasks (compared to the lesser need of autonomy in low-heuristic tasks) is particularly damaging to intrinsic motivation. Overall, the negative effects of autonomy frustration are amplified in high-heuristic tasks.

The overall model, therefore, suggests that the impact of PFIS on intrinsic motivation is mediated by autonomy frustration and moderated by task heuristic. That is, the negative indirect effect of PFIS on intrinsic motivation (through autonomy frustration) is expected to be stronger in high-heuristic tasks.

Based on these arguments, we propose the following hypothesis:

Hypothesis 4. *PFIS relates to intrinsic motivation via conditional indirect effects, such that the relationship is mediated by autonomy frustration and moderated by task heuristic.*

STUDY 1: METHOD

Research context

The study period consisted of 8–10 weeks of work at entry-level management positions. Respondents were employed across multiple functions and industries. The work can be described as knowledge work (involving consulting, market research, investment banking, etc.) requiring high involvement and skills, representing a unique mixture of organizational settings. Participants worked under a non-contingent incentive scheme, where compensation was a priori fixed at a set amount, ranging from 1 to 7 lakhs rupees (approx. 1200–8400 USD) for the 2-month period, with half paid at the end of the first month

and the other half at the end of the second. Studying such a real-life context, with non-contingent incentives, allows us to capture more nuanced insights about the phenomenon.

Participants

During their industry tenures, we collected data from full-time Master of Business Administration (MBA) participants of an internationally renowned Association to Advance Collegiate Schools of Business (AACSB) and Association of MBAs Accreditation (AMBA) accredited management institute in India. We shared the survey with 559 participants, of which 295 (52%) completed the survey at Time 1. We again shared the survey with the same 559 participants at Time 2 (as we did not know which exact individuals responded at Time 1), of which 355 (59%) completed the survey. One hundred and sixty-nine (57%) complete responses matched the codes generated at Time 1, representing our final sample. Out of 169 participants, 53 (31%) were female, and 116 (69%) were male. Participants' ages ranged from 21 to 34 years (mean = 25).

Procedure

The surveys were administered in English as it matched the language of instruction at the institute and the respondents' workplaces. Hence, there was no need for a translation procedure. We employed a two-wave survey design as it allowed us ample time to capture the underlying factors. To ensure anonymity and to match the separately captured data, we utilized alpha-numeric self-generated identifying codes that included the first two letters of the birthplace, first name, last name and birth date as recommended by Schnell et al. (2010). This procedure removed our ability to uniquely identify the respondents, increasing respondents' trust in the anonymity of their responses. Respondents were also assured confidentiality of the data.

We collected responses at two time points separated by 8–10 weeks. Time 1 represents the first 2 weeks of the industrial tenure, whereas Time 2 was the last 2 weeks of the stint. At Time 1, we collected data on Time 1 intrinsic motivation and demographic details. At Time 2, we collected data on perceived financial incentive salience, autonomy frustration, task heuristic and Time 2 intrinsic motivation. By temporally separating the data collection of independent variables and dependent variables (change in intrinsic motivation), this design also reduces the threat of common method bias (Podsakoff et al., 2012). In line with previous research and established guidelines (Deci et al., 1999; Hewett & Conway, 2016; Spector & Brannick, 2011), we collected data only on variables with a clear empirical or theoretical justification for their relevance to the key variables in our study. Consequently, no additional demographic or health-related data were gathered.

Measures

The internal reliability of the instruments was assessed using Cronbach's alpha. Unless specified otherwise, all instruments were rated on a 5-point Likert scale. Some minor, cosmetic adaptations were made to some of the scale items to account for the temporality of our research design; all items used in the study, along with corresponding original items, factor loadings and Cronbach's alpha are reported in Appendix A.

Intrinsic motivation

We adapted items from the 3-item intrinsic motivation sub-scale of the Multidimensional Work Motivation Scale (MWMS) (Gagné et al., 2015). All scores were in response to the following question: ‘To what extent do the following statements reflect reasons that you put or would put efforts into your current job?’ from 1 (not at all) to 5 (completely). (Cronbach's alpha = .87) [Time 1], .96 [Time 2]; Interquartile range = 1.17 [Time 1], 3 [Time 2]; Skewness = -1.07 [Time 1], .10 [Time 2]; Kurtosis = 1.48 ([Time 1], -1.47 [Time 2]).

Autonomy frustration

Items were adapted from the 4-item autonomy frustration sub-scale of the Basic Psychological Need Satisfaction and Need Frustration at Work Scale (Olafsen et al., 2021). All scores were in response to the following question: ‘The following statements concern your personal experiences and feelings during the last 6–8 weeks of your current work. Please indicate to what degree you agree with these statements by ticking off the one that suits you the best?’ from 1 (strongly disagree) to 5 (strongly agree). (Cronbach's alpha = .74, Interquartile range = 1.25, Skewness = -1.17, Kurtosis = -.35).

Task heuristic

Following Hewett and Conway (2016), we adapted a single item from the problem-solving subscale of the Work Design Questionnaire (Morgeson & Humphrey, 2006): ‘My work often involved dealing with problems that I had not met before’ rated from 1 (strongly disagree) to 5 (strongly agree). Supporting the validity of the measure we found that task heuristic predicted intrinsic motivation, in line with the theoretical predictions. (Interquartile range = 1, Skewness = -1.61, Kurtosis = 3.95).

Perceived financial incentive salience

Perceived Financial Incentive Salience was measured with the 4-item scale developed by Hewett and Conway (2016), adapted to financial incentives, which exhibited high reliability in the same study. (Cronbach's alpha = .81, Interquartile range = 1, Skewness = -.84, Kurtosis = 1.01).

Control variables

Time 1 intrinsic motivation was controlled to measure the change in intrinsic motivation between T1 and T2. Age, gender and absolute incentive amounts were controlled in the analyses as these factors impact intrinsic motivation, autonomy frustration and reward perceptions, as found in multiple studies (Cerasoli et al., 2014; Deci et al., 1999). We collected incentive amounts from an open database maintained at the institute to reduce the possibility of respondent biases in our data.

STUDY 1: RESULTS

Preliminary analyses

Before testing our hypotheses, we tested if there was a significant difference in Time 1 intrinsic motivation of participants who filled the survey at only one versus both time points. We first tested the

TABLE 1 Study 1: Descriptive statistics and intercorrelations among the study variables.

Variables	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8
1 Gender	.31	.47	—							
2 Age	24.86	2.01	-.17*	—						
3 Incentive Amount	285191	89630	.14	-.13	—					
4 T1 Intrinsic Motivation	4.11	.81	-.09	-.04	.07	—				
5 Perceived Financial Incentive Saliency (PFIS)	3.73	.84	.01	-.05	-.01	.06	—			
6 Task Heuristic (TH)	4.32	.81	.05	-.02	.08	-.09	-.04	—		
7 Autonomy Frustration (AF)	2.79	.85	-.17*	-.04	-.17*	.07	.21**	.75	—	
8 T2 Intrinsic Motivation	2.77	1.49	-.05	-.06	-.05	-.02	-.03	.09	.16*	—

Note: *N* = 169. Coefficient alphas are provided in parentheses.

**p* < .05.

***p* < .01.

normality assumption using the Shapiro–Wilk test and found that the data were not normally distributed ($p < .001$). Hence, we conducted the Mann–Whitney U test instead of an independent samples t -test. The results confirm that the two groups are not statistically different ($p > .05$).

We also performed a confirmatory factor analysis to verify the measurement model fit of the hypothesized model before conducting the hypothesis testing. The four-factor model with PFIS, autonomy frustration, task heuristic and intrinsic motivation found a good fit with the data (CFI = .97; TLI = .96; SRMR = .05; RMSEA = .06, 90% CI [.03, .08]).

Following Pieters' (2017) recommendations, we first establish the nomological and discriminant validity of autonomy frustration and intrinsic motivation before testing the mediation hypothesis. For directionality, self-determination theory specifies that psychological need states precede motivational impacts, as they are the psychological nutrients that energize and direct people's behaviour (Deci & Ryan, 2000). Our measures also fulfil the reliability condition as we have used well-validated and established survey instruments that show high internal reliability (see Table 1). In line with the unfoundedness condition, the *change* in intrinsic motivation between Time 1 and Time 2 represents the temporal distance between the measurement of the mediator and dependent variable. This condition also specifies adding potential confounders, while we have added participant age and sex as two of such potential confounders based on prior research (Deci et al., 1999), we further highlight our limitation of adding a few more confounders in the *Limitations and Future Research Directions* section. Finally, the distinctiveness of autonomy frustration and intrinsic motivation was confirmed, with average variance extracted (AVE) values of .56 and .93, respectively, exceeding their shared variance (.20).

Hypothesis testing

The descriptive statistics, correlations among the study variables and scale reliability statistics are reported in Table 1. All variables were centred before calculating the interaction terms.

We tested our hypotheses in SPSS using hierarchical linear regression or Process Macro, results are reported in Table 2. We received support for Hypothesis 1, perceived financial incentive salience (PFIS) was positively related to autonomy frustration ($B = 0.22$, $p < .01$). Results did not show a direct relationship between PFIS and intrinsic motivation in the absence of task heuristic, not supporting Hypothesis 2. Although we did not hypothesize about the relationship between autonomy frustration and intrinsic motivation, the results reflect a significant positive relationship. To test for Hypothesis 3 which concerns the mediation model, we used Process Macro (Model 4) developed by Preacher and Hayes (2004). Using 10,000 bootstrap samples, we found that autonomy frustration mediated the relationship between PFIS and intrinsic motivation ($B = 0.06$, CI [.01–.14]), but the relation was opposite to what the theory would predict, thus, not supporting Hypothesis 3. We again used the Process Macro (Model 15) to test for the overall moderated-mediation hypothesis (H4) using 10,000 bootstrap samples. The results support the moderated-mediation hypothesis, along with a direct effect between PFIS and intrinsic motivation, there also exists an indirect effect through autonomy frustration, conditional on task heuristic. PFIS had an indirect positive relationship with intrinsic motivation at low task heuristic levels ($B = 0.13$, CI [.04–.25]) which became weaker at mean levels of task heuristic ($B = 0.06$, CI [.01–.14]) and insignificant at high task heuristic ($B = -0.01$, CI [-.08–.09]) (see Table 3).

Although these findings can be explained by self-determination theory, they are subject to several limitations due to the non-contingent pay system and 'honeymoon period' of our sample, as they were on the job for only 2 months. First, non-contingent financial incentives are generally supportive of intrinsic motivation—similar to verbal incentives—but a large portion of employees work under contingent pay systems and it is not clear if these results apply to a contingent pay system. Second, multiple findings only apply to the populations experiencing early stages of autonomy frustration, still engaged in attempts of autonomy restoration (Radel et al., 2011). It may be possible that with extended periods of autonomy frustration, even low-heuristic tasks cease to benefit from a positive effect of higher salience, as we originally hypothesized. Research on newcomer socialization

TABLE 2 Study 1: Results of regression analysis and mediation analyses.

Variables	Autonomy Frustration		T2 Intrinsic Motivation		
	Model 1	Model 2	Model 1	Model 2	Model 3
Control Variables					
Gender	-.18*	-.18*	-.07	-.07	-.05
Age	-0.08	-.07	-.08	-.09	-.09
Incentive Amount	-0.1	-0.1	-.008	-.02	.00
T1 Intrinsic Motivation	-.07	-.09*	-.03	-.05	-.04
Main Effects					
Perceived Financial Incentive Salience (PFIS)		.22**		.08	.08
Task Heuristic (TH)				.06	.002
PFIS*TH				-.28**	-.32***
Autonomy Frustration (AF)					.17*
AF*TH					-.17*
ΔR -square	.05	.04**	.01	.06	.05*
ΔF	2.33	8.37**	.37	3.63*	4.8**
Mediation Results					
		Index	SE	95% CI	
				Lower	Upper
Mediating Effect	Autonomy Frustration	.06	.04	.01	.14

Note: Standardized coefficients betas are reported.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

TABLE 3 Study 1: Moderated mediated results for intrinsic motivation across levels of task heuristic.

Task Heuristic	Conditional Indirect Effect	95% CI		
		SE	Lower	Upper
Low (-1 SD)	.13	.06	.04	.25
<i>M</i>	.06	.03	.01	.14
High (+1 SD)	-.01	.04	-.08	.09

highlights that the initial exuberance of newcomers is often marked with high levels of commitment that protect them from setbacks in the face of vulnerabilities (Solinger et al., 2013). Therefore, the strong effect of new work tasks on competence need satisfaction could have protected them from the undermining effect. Thus, examining the phenomenon in people employed for longer durations becomes important. Third, although we employed multiple efforts to minimize any response bias, the collection of data for PFIS, autonomy frustration, task heuristic and Time 2 intrinsic motivation at the same time could have resulted into some biases from the respondents. Fourth, although we followed previous literature in using a single-item measure of task heuristic which supports the use of single-item measures when studying moderators and when dealing with diverse populations (Fuchs & Diamantopoulos, 2009; Hewett & Conway, 2016), the validity of single-item measures can be difficult to establish.

STUDY 2: METHOD

To increase the generalizability of our findings, we conducted another field study to examine the phenomenon in employees engaged in regular full-term employment for longer durations and paid under a base pay plus performance-linked (contingent) incentive system.

Participants

Study participants were engaged in lower and mid-level managerial positions in an R&D organization in India. They worked under a contingent incentive scheme, which included a base salary along with incentives tied to both individual and company performances. While specific compensation amounts were not available, the participants held positions ranging from lower to mid-level managerial roles, suggesting a likely variation in pay. Participants received their base salary at the end of each month, individual performance-linked incentives at the end of each quarter, and company performance-linked incentives at the end of the year. We shared the survey with 1004 participants, of which 437 (44%) completed the survey at Time 1. We again shared the survey with the same 1004 participants at Time 2 (as we could not identify the exact respondents of Time 1), of which 477 (48%) completed the survey. Three hundred and forty-one complete responses matched the codes generated at Time 1, representing our final sample. Out of 341 participants, 95 (28%) were female, and 246 (72%) were male. Participants' ages ranged from 18 to 24 (23%), 25 to 34 (29%), 35 to 44 (22%), 45 to 54 (21%) and 55 to 64 (5%).

Procedure

We collected responses at two time points separated by 5–6 weeks. At Time 1, we collected data on perceived financial incentive salience, Time 1 intrinsic motivation and demographic details. At Time 2, we collected data on autonomy frustration, task heuristic and Time 2 intrinsic motivation. Consistent with Study 1, no additional demographic or health-related data were gathered due to a lack of clear empirical or theoretical justification for their relevance to the key variables in our study. The surveys were administered in English as it matched the language at the respondents' workplaces. To ensure anonymity and to match the separately captured data, we again utilized alpha-numeric self-generated identifying codes similar to the first study. Respondents were also assured confidentiality of their responses and an option to leave the study at any time without any consequences.

Measures

The internal reliability of the instruments was assessed using Cronbach's alpha. Unless specified otherwise, all instruments were rated on a 5-point Likert scale. Some minor, cosmetic adaptations were made to some of the scale items; all items used in the study, along with corresponding original items, factor loadings and Cronbach's alpha are reported in Appendix B.

Intrinsic motivation

We used the same 3-item intrinsic motivation sub-scale of the Multidimensional Work Motivation Scale (MWMS) (Gagné et al., 2015). (Cronbach's alpha = .95 [Time 1], .92 [Time 2]; Interquartile range = 1.67 [Time 1], 1.84 [Time 2]; Skewness = -.94 [Time 1], -.89 [Time 2]; Kurtosis = .36 [Time 1], -.13 [Time 2]).

Autonomy frustration

We used the 4-item autonomy frustration sub-scale of the Basic Psychological Need Satisfaction and Frustration Scale (Chen et al., 2015). All scores were in response to the following question: ‘Below, we ask you about the kind of experiences and feeling you actually have in your workplace and worklife. Please read each of the following items carefully and choose from the options to indicate the degree to which the statement is true for you at this point in your worklife’, from 1 (strongly disagree) to 5 (strongly agree). (Cronbach's alpha = .73, Interquartile range = 1.25, Skewness = .25, Kurtosis = −.31).

Task heuristic

We used three items from the Work Design Questionnaire (Morgeson & Humphrey, 2006) to better capture the heuristic nature of the task. The three items capture complexity, problem-solving and novelty, rated from 1 (strongly disagree) to 5 (strongly agree). These three items together capture the main elements of a heuristic task defined as ‘non-repetitive, complex tasks involving creative application of skills and knowledge’ (Hewett & Conway, 2016). (Cronbach's alpha = .76, Interquartile range = 1.33, Skewness = .36, Kurtosis = .14).

Perceived financial incentive salience

We used the same 4-item scale (Hewett & Conway, 2016) adapted to financial incentives. (Cronbach's alpha = .89, Interquartile range = 1.63, Skewness = .41, Kurtosis = −.63).

Control variables

Time 1 intrinsic motivation was controlled to measure the change in intrinsic motivation between T1 and T2. Age and gender were also controlled in the analyses as these factors impact intrinsic motivation and autonomy frustration as found in multiple studies (Cerasoli et al., 2014; Deci et al., 1999).

STUDY 2: RESULTS

Before testing our hypotheses, we tested if there was a significant difference in Time 1 intrinsic motivation and perceived financial incentive salience (PFIS) of participants who filled the survey at only one versus both time points. We first tested the normality assumption using the Shapiro–Wilk test and found that the data were non-normally distributed for both variables ($p < .001$). Hence, we conducted the Mann–Whitney U test instead of an independent samples t -test. The results confirm that the two groups are not statistically different either in their T1 intrinsic motivation or their PFIS ($p > .05$).

Similar to Study 1, we also performed a confirmatory factor analysis (CFA) to verify the measurement model fit of the hypothesized model before conducting the hypothesis testing. The four-factor model with PFIS, autonomy frustration, task heuristic and intrinsic motivation found an excellent fit with the data (CFI = .99; TLI = .98; SRMR = .04; RMSEA = .04, 90% CI [.02, .05]).

As highlighted in Study 1, our mediator and dependent variable fulfil the conditions of directionality, reliability (see Table 4) and unfoundedness. The distinctiveness of autonomy frustration and intrinsic motivation were again confirmed, with average variance extracted (AVE) values of .51 and .81, respectively, exceeding their shared variance (−.37).

Hypothesis testing

The descriptive statistics, correlations among the study variables and scale reliability statistics are reported in Table 4. All variables were centred before calculating the interaction terms.

We tested our hypotheses in SPSS using hierarchical linear regression or Process Macro, results are reported in Table 5. We received support for Hypothesis 1, perceived financial incentive salience (PFIS) was positively related to autonomy frustration ($B = 0.31, p < .001$). As hypothesized, results also show a negative direct relationship between PFIS and intrinsic motivation, supporting Hypothesis 2 ($B = -0.22, p < .001$). Although we did not hypothesize about the relationship between autonomy frustration and

TABLE 4 Study 2: Descriptive statistics and intercorrelations among the study variables.

Variables	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7
1 Gender	1.28	.45	–						
2 Age	3.55	1.20	-.01	–					
3 Time 1 Intrinsic Motivation	3.89	1.07	.06	-.04	(.95)				
4 Perceived Financial Incentive Salience (PFIS)	2.47	1.08	.03	-.18**	.04	(.89)			
5 Task Heuristic (TH)	2.73	.90	.02	.01	-.10	-.17**	(.76)		
6 Autonomy Frustration (AF)	2.72	.88	-.01	.01	.08	.30**	-.37**	(.73)	
7 Time 2 Intrinsic Motivation	3.84	1.12	.05	.04	-.03	-.24**	.18**	-.38**	(.92)

Note: $N = 341$. Internal consistency estimates (coefficient alphas) are provided in parentheses.

** $p < .01$.

TABLE 5 Study 2: Results of regression analysis and mediation analyses.

Variables	Autonomy Frustration		T2 Intrinsic Motivation		
	Model 1	Model 2	Model 1	Model 2	Model 3
Control Variables					
Gender	-.01	-.02	.06	.07	.08
Age	.02	.07	.04	-.01	.01
T1 Intrinsic Motivation	.09	.07	-.03	-.01	.01
Main Effects					
Perceived Financial Incentive Salience (PFIS)		.31***		-.22***	-.13*
Task Heuristic (TH)				.11*	.01
PFIS*TH				-.19***	-.11*
Autonomy Frustration (AF)					-.32***
AF*TH					-.18*
ΔR -square	.01	.09***	.01	.11***	.08***
ΔF	.85	9.33***	.62	14.00***	17.44***
95% CI					
Mediation Results		Index	SE	Lower	Upper
Mediating Effect	AF	-.10	.02	-.15	-.06

Note: Standardized coefficients betas are reported.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

intrinsic motivation, the results reflect a significant negative relationship, in line with the theory. To test for Hypothesis 3 which concerns the mediation model, we used Process Macro (Model 4) developed by Preacher and Hayes (2004). Using 10,000 bootstrap samples, we found that autonomy frustration mediates the relationship between PFIS and intrinsic motivation ($B = -0.10$, CI $[-0.15, -0.06]$), supporting Hypothesis 3. We again used the Process Macro (Model 15) to test for the overall moderated-mediation hypothesis (H4). The results support the moderated-mediation hypothesis, along with a direct effect between PFIS and intrinsic motivation there also exists an indirect effect through autonomy frustration, conditional on task heuristic. PFIS had an indirect negative relationship with intrinsic motivation at low task heuristic levels ($B = -0.07$, CI $[-.14, -0.02]$) which became stronger with increasing task heuristic, mean levels of task heuristic ($B = -0.10$, CI $[-.16, -0.06]$), high task heuristic ($B = -0.14$, CI $[-.21, -0.08]$) (see Table 6).

GENERAL DISCUSSION

We tested whether perceived financial incentive salience (PFIS) can crowd out intrinsic motivation under non-contingent and contingent incentive schemes (Deci & Porac, 1979; Ross, 1975). Study 1 recruited adults engaged in 8–10 weeks industry tenures at entry-level managerial positions under a non-contingent pay scheme. Study 2 involved long-term employees working at lower and mid-level managerial positions in an R&D organization under a contingent incentive scheme. Controlling for initial motivation levels also made it possible for us to separate the effects of the predictor variables, which proves to be challenging in field-based studies.

Key findings highlight the important role of perceived financial incentive salience (PFIS) in shaping intrinsic motivation, independently of incentive amount and contingency. In the case of non-contingent financial incentives, PFIS resulted in a positive direct effect on intrinsic motivation in low-heuristic tasks and a negative direct effect in high-heuristic tasks. The positive effect in low-heuristic tasks, although not as hypothesized, aligns with the available theoretical knowledge and the findings of Hewett and Conway (2016). When the tasks are simple and repetitive, there is lesser prior enjoyment to be reduced by salient incentives. In such cases, higher attention to rewards might lead to internalization of task value, bringing some excitement to them, thus increasing intrinsic motivation, when not controlled by contingent incentives (Hewett & Conway, 2016). Whereas in the case of contingent financial incentives, PFIS had an insignificant effect on intrinsic motivation in low-heuristic tasks and an increasingly negative effect in high-heuristic tasks. These results highlight that the impact of perceived incentive salience on intrinsic motivation is similar across non-contingent financial incentives and verbal incentives, as both are generally not experienced as controlling if not salient (Ryan et al., 1983). On the contrary, results indicate an increasing controlling effect of contingent financial incentives with an increase in perceived salience.

High PFIS fosters an external perceived locus of causality (Hewett & Conway, 2016), resulting in autonomy frustration (Deci et al., 2017). Our findings extend Ross' (1975) arguments and psychological research findings (Taylor & Fiske, 1978) that salience is an important reward characteristic that influences the perceived locus of causality even in the case of financial incentives. Although the role of

TABLE 6 Study 2: Moderated mediated results for intrinsic motivation across levels of task heuristic.

Task Heuristic	Conditional Indirect Effect	SE	95% CI	
			Lower	Upper
Low ($-1 SD$)	-.07	.03	-.14	-.02
<i>M</i>	-.10	.03	-.16	-.06
High ($+1 SD$)	-.14	.03	-.21	-.08

salience and individual attributions has been recognized by multiple theories, including SDT, an empirical examination of workplace financial incentives was lacking in the literature.

Although PFIS is positively related to autonomy frustration, that frustration does not always lead to an undermining effect. Autonomy frustration had opposing relationships with intrinsic motivation—positive (Study 1) and negative (Study 2). The results of Study 1 suggest that initial autonomy frustration can boost intrinsic motivation as individuals strive to restore autonomy (Fang et al., 2022; Radel et al., 2011). As outlined by Radel et al. (2014), ‘autonomy-deprived students would display more intrinsic motivation in a subsequent task if this task gives a glimpse of autonomy satisfaction’. The results make sense in the light of the fact that all of the individuals in our sample for Study 1 were in the initial phase of their jobs, not deprived of their autonomy for long, and Radel et al.’s (2011) assertion that negative results of autonomy frustration are a consequence of prolonged deprivation and relinquishment of attempts to restore autonomy. In essence, the increase in intrinsic motivation in Study 1 may have resulted from the brief and nascent experience of autonomy frustration helping them to focus better on subsequent need-supportive opportunities, which leads to an increase in intrinsic motivation at later stages (Radel et al., 2014). However, prolonged frustration, as seen in Study 2, leads to the undermining effect.

Autonomy frustration partially mediated the PFIS-intrinsic motivation relationship in both studies. However, PFIS had a direct negative relation with intrinsic motivation in Study 2 but not in Study 1, perhaps because in the short-term, while individuals find salient rewards to be controlling this does not reduce the excitement of new work tasks immediately.

The type of work (task heuristic) greatly influences the ultimate effect of financial incentives. In non-contingent pay systems, enjoyment for simple and repetitive tasks can be enhanced by making the financial incentives salient, helping individuals internalize the value of those tasks (Hewett & Conway, 2016). However, these same salient incentives invariably result in detrimental effects on intrinsic motivation if the incentives are contingent on some outcome or the work includes high-heuristic tasks. In other words, people may feel controlled in case of salient incentives, but it can support intrinsic motivation if the tasks are simpler and the pay is non-contingent.

The results make it clear that how the incentives are presented and perceived by employees, as well as the associated work context, matter over and above the amount of incentives and contingency of incentives, but there are some key differences in outcomes under different reward contingencies as they lead to different cognitive evaluations (Deci, 1971). Descriptive results showed weak correlations between PFIS and absolute incentive amounts, indicating that even large incentives can be non-salient and non-controlling. Conversely, smaller but salient or contingent rewards can harm intrinsic motivation.

Overall, these results underscore the critical importance of considering salience when designing incentive schemes, as it influences motivation beyond the effects of incentive contingency alone. PFIS was consistently associated with autonomy frustration, suggesting persistent salience can be harmful. Future research incorporating salience and task type could help resolve inconsistencies in the incentive-motivation literature, as supported by Cerasoli et al. (2014), Eisenberger and Selbst (1994), and Hewett and Conway (2016).

Implications for theory

Self-determination theory is among the most researched and applied theories of motivation and well-being today (Ryan et al., 2022), but the probability of an undermining effect outside the laboratory settings has remained a point of controversy for the last five decades (Cerasoli et al., 2016; Gerhart & Fang, 2015). This study builds upon the more classical work in SDT that established the importance of reward contingency (e.g., Deci et al., 1999), and adds reward salience as a separate, important, yet largely unexplored, factor influencing the effectiveness of rewards and their tendency to undermine intrinsic motivation. In doing so, we heed the call by Ryan et al. (2022) for a deeper examination of the undermining effect, by adding to the sparse but expanding body of knowledge on the role of perceived

salience on intrinsic motivation in a highly appropriate context of financial incentives, under different pay contingencies in real organizational settings.

Since the earliest examinations of the undermining effect (Deci, 1972; Ryan et al., 1983), non-contingent rewards have been considered the ‘silver bullet’ for incentivization based on the common understanding that non-contingent rewards are always beneficial or neutral for intrinsic motivation as they are not tied to performance pressure. This assumption is highlighted even in the most recent meta-analytical studies of the undermining effect, focusing solely on the incentive contingency, and ignoring incentive salience as a moderator (e.g., Kim et al., 2022). Our results contribute to self-determination theory in suggesting that salience might be an even stronger factor than contingency in impacting the perceived locus of causality, and, in turn, autonomy and motivation. Based on the theories of attribution, it seems plausible that the *perceptions* of external control due to salience, rather than actual control due to contingency or a lack thereof, shape the perceived locus of causality (Taylor & Fiske, 1978). Our findings highlight that (a) non-contingent but salient financial incentives can diminish intrinsic motivation, and (b) heightened salience exacerbates the controlling effect of already contingent rewards, amplifying their detrimental impact on intrinsic motivation.

The current findings also suggest a way to reconcile seemingly divergent findings in the literature, resulting in ongoing debates, for example, contrasting SDT and agency theory (Gagné & Hewett, 2024; Shaw, 2024). There is little doubt that incentives and PFP compensation schemes can increase performance, as now demonstrated across several meta-analyses (Jenkins et al., 1998; Kim et al., 2022). However, the idea that rewards can undermine intrinsic motivation (Deci et al., 1999), which itself can have detrimental impacts on employees (van den Broeck et al., 2021), also appears to be supported by evidence. As maintained in self-determination theory (Gagné & Deci, 2005), it now seems apparent that rewards are neither wholly beneficial nor harmful, but rather their effectiveness depends on how they are administered. Specifically, financial incentives can improve performance and align employees’ interests with those of the employer. However, to do so without undermining intrinsic motivation, it is important to not only consider the explicit contingency of rewards (Deci et al., 1999), but also how rewards are discussed and administered (Hewett & Conway, 2016) and the nature of the work—whether it requires complex heuristic work or more repetitive and menial tasks. Adequate consideration of this dynamic may be helpful in the theoretical development of SDT, as well as in bridging the gap between SDT and more traditional management theories of incentivization.

Another key contribution of our findings is to support that the undermining effect can occur even when incentives are not removed completely following a task, a reality of recurring compensation in organizational relationships and a primary point of contention on experimental studies of the undermining effect (Gerhart & Fang, 2015). Our findings, along with the rising literature on the effect of reward salience on motivation and behaviour (Hendijani & Steel, 2022; Hewett & Conway, 2016; John et al., 2022), highlight the need to consider the role of perceived salience in studies examining effects of rewards, in conjunction to reward contingency.

The support for the mediated pathway of this mechanism, through autonomy frustration, not only provides evidence supporting SDT literature but also highlights that autonomy frustration is not the only pathway that mediates this effect. An explicit test of the mechanism was lacking so far. Our results assert a need to study additional mediating factors, over a longer term and under different work conditions, as autonomy frustration does not completely mediate this effect, especially in the short term.

Our results also contribute to self-determination theory research on autonomy restoration. Most evidence of a restorative process has been obtained in laboratory experiments, with calls to examine this phenomenon outside of the laboratory (Radel et al., 2011, 2013). Combining the results of two studies, our findings also indicate to the presence of such a process in real organizational settings and present evidence in line with a temporal perspective on restoration (in short-term autonomy deprivation) versus compensation (in prolonged autonomy deprivation).

Implications for practice

Recent scholarly calls to increase the salience of incentive schemes (Englmaier et al., 2017; John et al., 2022), in a bid to support extrinsic motivation, need to be qualified by its simultaneous detrimental impact on intrinsic motivation. In contrast to this, SDT has received increasing attention from management practitioners to support and foster intrinsic motivation (Rigby & Ryan, 2018), based on this and our findings, we can offer some general recommendations for how incentives can be implemented effectively in organizations. For simpler tasks, making the non-contingent rewards salient (e.g., email reminders for promised incentives) can be an effective strategy for managers to underscore the importance of these tasks in contributing to both individual success and organizational outcomes. However, not emphasizing the reward before the task and using reinforcement instead can be undertaken for highly complex tasks and when incentives are contingent on some benchmark.

For complex tasks, managers should be rather careful in designing and presenting financial incentives as there is a real chance that they will undermine intrinsic motivation in these situations. While it may seem intuitive for managers to emphasize rewards, and thus increase reward salience, this may not have the intended consequence. Instead, managers should consider other means to satisfy employees' basic psychological needs.

Finally, it should be recognized that there are many ways to foster more autonomous forms of motivation that do not involve financial incentives. Factors such as effective job design, leadership and even cognitively reframing work to promote internalization (Hewett, 2023), are well-established predictors of motivation and performance, and in most cases will be substantially cheaper to implement. Financial remuneration and rewards are an essential part of working life, and it is therefore important to understand their effects. But we must not lose sight of these other non-financial means of motivation.

Limitations and future research directions

Utilizing self-report measures is often associated with common method biases (Podsakoff et al., 2012), but field studies involving psychological perception (perceived incentive salience and autonomy frustration in our case) often necessitate using such measures. Previous research has established that self-report measures focusing on psychological perceptions are valid indicators, with their limitations mostly limited to measuring objective job environment and in the case of cross-sectional designs (Spector, 1994). We ensured the anonymity of the respondents (to reduce social desirability bias), piloted the questionnaire (to check comprehension) and utilized multi-wave designs to minimize any risk of such biases. In the case of intrinsic motivation, the time of engagement into target behaviour outside of the rewarded period—known as the 'free-choice period'—is considered to be the valid behavioural measure of intrinsic motivation (Deci, 1971). However, studying this phenomenon outside of laboratory settings has always remained a challenge due to the practical difficulties of untangling such free-choice behaviour from mandated task responsibilities. In addition, the seminal meta-analysis of the undermining effect found that behavioural free-choice measures and self-report measures showed similar patterns of results, with results for free-choice measures being much stronger than self-report measures (Deci et al., 1999). In light of this evidence, we see our results as providing valid, albeit conservative, estimates of the relationship. That said, it would be beneficial to utilize behavioural measures of intrinsic motivation and salience manipulations in a quasi-experimental study to examine this phenomenon in organizational settings.

Although our focus was limited to intrinsic motivation only, future research would be beneficial in examining the concurrent effects of incentive salience on various autonomous and controlled forms of motivation, to delineate its impact on varied workplace outcomes. Additionally, while we concentrated on the effects of PFIS on autonomy frustration, incentives may also enhance competence satisfaction if perceived as informational by the recipient (Deci et al., 1999). Although attribution theories do not predict such an effect on competence, alternative pathways—such as a clearer link between performance

and incentives (Englmaier et al., 2017), frequent thinking about incentives (Jeffrey & Adomdza, 2010) and a stronger drive to earn (John et al., 2022)—have been linked to higher salience. Exploring these alternative pathways could provide valuable insights into additional mechanisms and variations in the incentive salience–motivation relationship. Alternate theoretical streams, such as motivational congruence theory (Hendijani & Steel, 2023), can also prove valuable for future research. For example, motivational congruence theory predicts a positive overall effect on motivation if workplace context (e.g., autonomy-supportive vs controlling) is congruent with incentives (non-salient vs salient). Comparing the effects of such congruent controlling versus congruent autonomy-supportive conditions on various types of motivation can add valuably to the literature.

We considered a distinction of contingent versus non-contingent incentives but some studies on pay-for-performance also consider further distinctions based on the degree of contingency (also known as incentive intensity) (Kim et al., 2022) to create a spectrum of contingency or control. Future research on pay-for-performance can include incentive salience along with incentive intensity to evaluate the concurrent effects of these two control dimensions.

The opposite pattern of autonomy frustration–intrinsic motivation relationship observed between the two studies, although explained by autonomy restorative mechanisms, can be more rigorously explored in a longitudinal, within-subjects research design. This exploration could be further enhanced by simultaneous consideration of competence and relatedness needs to examine the concurrent effects on the restoration processes.

While we did not collect data on additional socio-demographic variables (e.g., marital status, socio-economic status and occupation) or physical and mental health factors (e.g., affect), exploring the impact of salience on these variables could offer valuable insights. For example, economic research has shown that disadvantaged students perform worse when randomly assigned a financially salient mathematics examination (Duquenois, 2022). Similarly, given our findings on the significant role of salience in autonomy frustration, it is plausible that this effect could extend to negative affective states (e.g., anxiety) in workplace settings (Levine et al., 2022).

Future research would be valuable in examining the impact of individual differences and additional contextual factors in this relationship. For instance, Hagger and Chatzisarantis (2011) found a significant moderating impact of causality orientations in the undermining effect. Research has also found a significant impact of leader autonomy support on workplace motivation, which can help employees curtail some autonomy frustration caused by high salience.

Conclusion

Perceived financial incentive salience (PFIS) emerged as an important financial incentive characteristic impacting intrinsic motivation; while it resulted in an adverse impact on intrinsic motivation in all tasks under the contingent incentive system, for non-contingent incentives the adverse effects were limited to high-heuristic tasks. Although high PFIS always led to autonomy frustration, it did not translate into an undermining effect in the short term. The study enhances our understanding of how to present rewards differently based on the type of task, contingency type and the expected importance of intrinsic motivation to the task.

AUTHOR CONTRIBUTIONS

Manish Saini: Conceptualization; methodology; investigation; data curation; formal analysis; writing – review and editing; writing – original draft. **Nishant Uppal:** Conceptualization; supervision; resources; writing – original draft; writing – review and editing. **Joshua L. Howard:** Supervision; writing – review and editing.

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CONFLICT OF INTEREST STATEMENT

All authors declare no conflict of interest.

DATA AVAILABILITY STATEMENT

The data are available on reasonable request from the corresponding author and is not publicly available due to it containing information that could compromise the privacy of research participants and their employers.

ETHICS STATEMENT

The procedures involved in the current study with all the research human participants were in accordance with the ethical standards of the institutional/national research committee along with the 1964 Helsinki declarations or comparable ethical standards.

PARTICIPANT CONSENT

Informed consent was elicited from all the participants of the current study.

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APPENDIX A

Study 1: Items used in the study along with items from the original instruments, factor loadings and Cronbach's alpha

S.No.	Original items	Items used in study	Loading	Cronbach's alpha
Time 1 Intrinsic Motivation				
1	Because the work I do is interesting.	Because the work I do or would do is interesting.	0.84	0.87
2	Because what I do in my work is exciting.	Because what I do or would do in my work is exciting.	0.85	
3	Because I have fun doing my job.	Because I have fun doing my job.	0.77	
Perceived Financial Incentive Salience				
1	I was expecting the performance of the task to lead to the feedback, recognition or reward.	I was expecting work performance to lead to financial rewards or money.	0.79	0.81
2	I expected to receive feedback, recognition or reward in relation to the task.	I expected to receive financial rewards or money in relation to my work.	0.74	
3	I was thinking about the feedback, recognition or reward.	I was thinking about the financial rewards or money during my work.	0.66	
4	I was conscious of the feedback, recognition or reward whilst I was performing the task.	I was conscious of the financial rewards or money while doing my work.	0.51	
Autonomy Frustration				
1	Most of the things I do at work, I do because I feel that I have to.	Most of the things I do/did at work, I did because I felt that I had to.	0.33	0.74
2	At work I feel forced to do many things that I would not have chosen to do.	At work I feel/felt forced to do many things that I would not have chosen to do.	0.79	
3	I feel pressured to do many of the things I do at work.	I feel/felt pressured to do many of the things I do/did at work.	0.73	
4	My daily activities at work feel like a continuous line of duties.	My daily activities at work feel/felt like a continuous line of duties.	0.54	

S.No.	Original items	Items used in study	Loading	Cronbach's alpha
	Task Heuristic			
1	The job often involves dealing with problems that I have not met before.	My work often involved dealing with problems that I had not met before.	0.91	–
	Time 2 Intrinsic Motivation			
1	Because I have fun doing my job.	Because I have/had fun doing my job.	0.93	0.96
2	Because what I do in my work is exciting.	Because what I do/did in my work was exciting.	0.96	
3	Because the work I do is interesting.	Because the work I do/did was interesting.	0.95	

APPENDIX B

Study 2: Items used in the study along with items from the original instruments, factor loadings and Cronbach's alpha

S. No.	Original items	Items used in study	Loading	Cronbach's alpha
	Time 1 Intrinsic Motivation			
1	Because I have fun doing my job.	Because I have fun doing my job.	0.87	0.92
2	Because what I do in my work is exciting.	Because what I do in my work is exciting.	0.94	
3	Because the work I do is interesting.	Because the work I do is interesting.	0.93	
	Perceived Financial Incentive Salience			
1	I was expecting the performance of the task to lead to the feedback, recognition or reward.	I expect my job to lead to financial rewards or money.	0.76	0.89
2	I expected to receive feedback, recognition or reward in relation to the task.	I expected to receive financial rewards or money in relation to my job.	0.80	
3	I was thinking about the feedback, recognition or reward.	I think about the financial rewards or money during my job.	0.81	
4	I was conscious of the feedback, recognition or reward whilst I was performing the task.	I remain conscious of the financial rewards or money while doing my work.	0.67	
	Autonomy Frustration			
1	Most of the things I do feel like 'I have to'.	Most of the things I do feel like 'I have to'.	0.25	0.73
2	I feel forced to do many things I wouldn't choose to do.	I feel forced to do many things I wouldn't choose to do.	0.76	
3	I feel pressured to do too many things.	I feel pressured to do too many things.	0.72	
4	My daily activities feel like a chain of obligations.	My daily activities feel like a chain of obligations.	0.65	

S. No.	Original items	Items used in study	Loading	Cronbach's alpha
Task Heuristic				
1	The job involves performing relatively simple tasks. (reverse scored)	The job involves performing relatively simple tasks. (reverse scored)	0.57	0.76
2	The job involves solving problems that have no obvious correct answer.	The job involves solving problems that have no obvious correct answer.	0.69	
3	The job often involves dealing with problems that I have not met before.	The job often involves dealing with problems that I have not met before.	0.75	
Time 2 Intrinsic Motivation				
1	Because I have fun doing my job.	Because I have fun doing my job.	0.80	0.89
2	Because what I do in my work is exciting.	Because what I do in my work is exciting.	0.90	
3	Because the work I do is interesting.	Because the work I do is interesting.	0.89	