

Social Visibility and Carbon Budget Compliance: A Quasi-Experimental Study of Internal Surcharges on Business Travel

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Abstract

This paper analyzes the role of social visibility of carbon surcharges in business travel decisions in terms of how this can affect employee adherence to in-house carbon budgets. With the shift in how limits are defined in organizations by moving away towards hard limits, behavioral nudges are becoming more apparent to achieve sustainability objectives. This study will examine how the exhibit of carbon surcharge to colleagues can lead to an improvement in the adherence to organizational carbon allocations. The crude longitudinal data (a quasi-experiment founded on difference-in-differences [DiD] analysis) of a multinational professional services company is used. This implies that the researchers will be using 6,800 employees in a period of 24 months by examining the impacts of an internal carbon surcharge policy on the behavior of travelling. The policy introduced was done in two phases where in the treatment group, surcharge costs were made visible to the team leaders and peers during booking whereas in the control group, surcharges remained invisible. DiDs were modified on the basis of job roles, business units and destinations. Findings demonstrate that the visible carbon surcharges produced a 22.6% decrease in high-carbon trip reservations ($p < 0.01$) and 15.3 percent decrease in average carbon emissions per trip. Peer supervision of managers incurred a more positive compliance. However, the change in the control units, was not significant. The findings show that the social visibility is the most impactful element in the compliance behavior besides the financial implication. The society enforces social transparency as a social checking mechanism. Socially visible internal carbon surcharge is better than mere imposition of them.

Keywords: *Compliance with the Carbon Budget, Depressed Behavior Operations, Surcharge Interior, Social Exposure, Non-Expert Expertise in Business Travel, Nudges Carbon.*

Introduction

Corporate travel remains a significant contributor of greenhouse gases (GHG), especially to companies that work in professional service, consulting, and tech industries where physical contact with the clients and internal team are common and, in many cases, international. As the CDP Carbon Disclosure Project (2022) says, business travel itself makes up 15-25 percent of all Scope 3 emissions of numerous companies, which is indirect emissions in the value chain and is the travel citizens do on employed time. To this end, companies have become more focused on having internal carbon budgets as one of their corporate sustainability initiatives to reduce travel-associated emissions (Science Based Targets Initiative, 2023). Nevertheless, it has become a challenge to transform these organizational objectives to be taken by the employees at the individual behavioral compliance level (Creutzig et al., 2022).

Even though organizations make pledges to achieving net-zero targets, most of them have uneven enforcement of their internal sustainability regulations. The main issue here is that business travel is less subject to control, and the employees can do a lot of their travel themselves in terms of travel class, time of taking the travel and frequency. In knowledge-intensive companies, travelling has also been symbolically attached to older age, achievements and high internal loyalty to the firm (Cohen, 2013; Davison & Bray, 2022). As a result, sustainability interventions, which include carbon surcharges made as internal accounting expenses on high-emission travel options, often do not discourage non-compliant actions in cases where the costs do not become evident or socially significant (Loock et al., 2013).

A manager may have to reserve a seat in the business-class to meet the client. When the internal carbon surcharge only manifests in an expense report weeks after, the booking is made successfully. However, when the same surcharge is displayed in real-time and the same is visible to the team members of the manager and the manager supervisor, that manager would change his/her mind? The present paper is devoted to determining the question whether social visibility of carbon costs can improve adherence to internal carbon policies.

Visibility and social norms have been put forward in various studies in behavioral economics and environmental psychology to explain the fostering of pro-environmental behaviors (such as energy conservation (Allcott & Rogers, 2014) or recycling (Goldstein et al., 2008)) but no empirical studies have been conducted in the corporate travel environment. Recently, research has started to probe into the role of nudges and goal-setting intervention in sustainability (Geng, Loock, & George, 2022; doi:10.1287/mnsc.2021.4161), and there is minimal research on the mechanism of peer monitoring or reputation salience on carbon choices with regard to travel. We add to this literature by doing a quasi-experiment in one of the largest global professional services firms that used the natural occurrence of visible internal carbon surcharges across the business units to roll-out the payment mechanism at different times.

The behavioral operations theory and agency theory can be seen as the theoretical foundation of the study. The behavioral operations acknowledge that not only are incentives involved in decision-making in operations but also there are cognitive biases as well as social pressures (Bendoly et al., 2010). In our example, the carbon costs will be visible, a reputational nudge and this will cause self-regulation and impression management to kick in (Tetlock, 1985). An agency relation (Eisenhardt, 1989) frames social visibility as a way to align the agent's behavior with principals' objectives because it increases observability, which is decisive in shaping agency loss in the case of weak or symbolic financial incentives. Moreover, the theory of resource orchestration (Sirmon, Hitt, & Ireland, 2007) can be used to understand the way the companies develop their internal metabolism and decision structure to guide the behaviour of employees aiming at attaining strategic sustainability outcomes.

It is possible to come up with two testable hypotheses:

1: They will take place on visible surcharges on carbon whereby the number of reserved high-emission journeys will go down among employees subject to the surcharge compared to unknowledgeable employees.

According to this premise, social visibility is reputational control, which has the effect of less submissive travel behavior.

2: Surcharge effectiveness is enhanced more when there is social visibility between the middle managers compared to senior officials or junior staff.

This is anchored on the fact that middle managers are subjected to double visibility, that is, they supervise as well as are supervised by other managers hence more prone to reputational cues.

This study fills the gap between sustainability policy and the fields of organizational behavior and operation design since by studying the performance of the visible and invisible over carbon surcharges, it provides prescription to the companies that struggle to incorporate their workforce into the climate goals.

Literature Review

In this section, the researcher presents the main constructs upon which the theoretical framework of the study is based, carbon budget compliance, social visibility, and internal surcharge. The concepts fall within the sustainable concepts jobs and the operations literature on behavior to determine how the social mechanisms affect individual travel choices within corporate-plan.

Carbon Budget Compliance denotes compliance of an employee to the carbon emission limits the firm has set on in relation to work travel. In the majority of cases, such boundaries will be a part of broader corporate sustainability initiatives, such as those of Science-Based Targets (SBTi, 2023) or internal Net-Zero agendas. In this meaning, governments are not involved in regulating compliance but it is internally established by strict policies of what emission teams, projects or business units can dispose. According to previous studies, the compliance with the provisions of the internal environment is not as influenced by the presence of direct costs, but by such factors as the legitimate nature of the policy, actions of the peers, and signaling by those in a managerial position (Loock et al., 2013; Geng, Loock, & George, 2022).

Social Visibility S: refers to the extent to which decisions of individual travelers and, hence, the carbon that goes with it is visible to relevant others: supervisors, colleagues, or organizational leaders. In social psychology, salience of social norms and pressures of reputation grow under the condition of visibility (Cialdini, Kallgren, & Reno, 1991). It is a strong determinant of behavior in organizations, either where the formal incentive is weak or where there is a decentralized monitoring (Bendoly et al., 2010). It can therefore be a strong nudge when one is visible in what he/she is doing, especially in the work places where managers use knowledge of status, performance perception and team cohesion as part of their evaluation process (Tetlock, 1985).

The concept of Internal Surcharge is a shadow cost that is not in monetary form, but it is a reduction in form of a deduction against the high-emission travel alternatives (e.g., business flights, long trips). These surcharges may not directly cost the individual employee but this expense may be reflected in the budgets of a project or a department, and hence appear to budget controllers. They aim at replicating the effects of having carbon prices in the organizations but not actual movement of money. The inner surcharge is being implemented more and more frequently in companies that want to integrate the cost of carbon into the decision-making of managers without being forced by regulation (Anderson & Peters, 2016). Nevertheless, when there is no visibility, internal surcharges have little behavioral role because they do not impact the decision-maker of the utility function (Girod et al., 2014).

This research contains limitations in the form of certain organizational and contextual characteristics that indeed impact the limits of application and reading of results.

- **Professional Service Firm:** The firm (e.g., IT services, law and consulting) are more knowledge intensive, has high involvement with the clients and the decisions on their travel are decentralized. The symbolism and status-oriented quality of traveling in these companies necessitate the significance of social clues (Cohen, 2013; Davison & Bray, 2022).
- **Not an External Carbon Pricing:** The surcharge being examined is an internal to the management of accounts, as opposed to being a state taxing system or a cap and trade. It is key to make this differentiation because compliance is not compulsory and does not depend on the regulatory but on the organizational culture (Carattini et al., 2017).

The High-Travel Organization Cultures: The companies we are looking at are those where business travel is usual rather than unusual. To reduce the emissions in such cultures, the need is to modify established behavior as compared to imposing restrictions on less frequent behavior. High-travel norms translate also into easier to observe peer behavior, and therefore easier to compare which makes the social accountability even more salient (Sullivan & Ghosh, 2018).

Theory Development

We are in the middle of behavioral operations, agency theory and resource orchestration theory.

Behavioral Operations

When making operational decisions, behavioral operations literature has brought out the role of cognitive constraints, heuristics and social influence. The primary construct here would be visibility where people usually adjust their behavior due to the fact that they know they are under observation (Bendoly et al., 2010). Specifically, the body of literature on impression management postulates that individuals in visible settings have greater tendencies to be compliant to the perceived social rules (Leary & Kowalski, 1990). When applied to sustainability, it implies that the employees can miss high-carbon alternatives in case they think that such decisions will result in social criticism.

Agency Theory

The agency theory is based on the idea that once agents (employees) exercise decision making powers over the decisions that influence principals (the firm) the problem of alignment may occur especially when the goal is not aligned and there is inadequate monitoring of the goals (Eisenhardt, 1989). With internal surcharges, there is no incentive alignment as there is no direct personal cost in the context of carbon compliance. Nevertheless, by bringing such expenses to the surface of awareness of supervisors or co-workers, one may reinstate accountability, and this is a soft control mechanism. It has also been proved that voluntary add-on communication such as transparency and feedback can enhance synchronization in cases when formal agreements are impossible (Bosse & Phillips, 2016).

According to resource orchestration theory (Sirmon, Hitt, & Ireland, 2007), the way in which managers organize, bundle and leverage the organizational resources including decision environments can play a significant role in performance. Interface design in the travel booking systems and transparency in metrics of costs is a part of this orchestration in our context. With the

inclusion of carbon surcharge sight at strategically placed decision points, managers are able to influence employees to become more sustainability-oriented without eliminating choice.

Methodology

This section presents the outline of the empirical plan to examine the impacts of the social visibility of internal carbon surcharges on the employee travel behavior. In this study, we exploit the staggered rollout of a policy of carbon surcharge visibility within a global professional services firm to provide rich causal inference to the circulation inference with Difference-in-Differences (DiD) regressions and other complementary strength tests.

The research took place in a multinational firm of professional services, and in the sphere of consulting and advising services. It has workforce of over 50,000 employees in various parts of the world with headquarters located at North America, Western Europe and Asia-Pacific. Having business travel as a large portion of its Scope 3 emissions, the company committed to making its business travel net-zero by 2030 as it partakes its climate efforts on the Science Based Targets initiative (SBTi, 2023).

The company has already introduced the initiative of internal carbon surcharging that has been applied to high emission travel choices such as the business class flights and the multi-stop long-haul flights in Q1 2023. These addition charges were not charged to employees but instead they were charged internally on budgets at project level. Notably, the company rolled out the surcharge visibility policy on a phased basis throughout business units, where visibility to their surcharges was observed when booking travel by some teams, whereas other teams could not view them.

This quasi-experimental design gave an opportunity to test the hypothesis in a natural way, that is, whether social visibility of carbon surcharges (i.e., making them visible to peers or the supervisor when the decision is made) affects internal carbon budget compliance.

Data Sources

The three enormous data sources, harmonised and anonymised at individual level that we took into account:

1. Travel Booking Logs: This is the complete log consisting of the travel booking done by the employees in the Q1 2022 to the Q1 2024. Travels include departure and arrival destinations, means of transport, ticket classes (economy or business), date of booking and the actual date of trip and carbon emission per trip an estimate of the amount of carbon emission per trip in metrics based on how far the trip was and the mode of transport taken.
2. Internal Human Resources (HR) Databases: This data set will have demographic and role related data i.e. seniority of employee, business unit, size of the team, job title, geographic location. These were critical controls in modeling of heterogeneous treatment effect.
3. Carbon conversion tool: It is another proprietary tool of the company that calculated the carbon emissions per trip considering that the number was dependent on the UK department of Environmental food and rural affairs (DEFRA) emission factors (DEFRA, 2023). The guidelines that DEFRA issues are considered as the gold standard in calculation of emissions in any industry.

Timestamps and employee ID were used to combine all data and anonymize it according to General Data Protection Regulation (GDPR) and internal data governance policies encrypting

them. Power analysis and sample What is a power analysis in the context of the study? A power analysis is basically a method used to determine the number of cases required to achieve a proposed hypothesis. According to Moore (2005), a power analysis is a tool used to find out how many cases it takes to have an estimated odds of getting a certain proposed hypothesis. What is a power analysis in the context of the study? A power analysis is basically a technique which is applied to find out how many cases take to arrive at a proposed innovation. According to Moore (2005), a power analysis refers to a tool employed to identify

We have a sample of 6800 workers in 42 business units, over 24 months (12 months pre and post implementation of the policy). The business units differed in sizes that ranged between 50 and more than 300 employees and the variation in traveling and carbon intensity was vast.

In order to ensure that our power of statistic is adequate, we resorted to an a priori power analysis program, GPower 3.1 (Faul et al., 2009). The minimized sample size was estimated when the influence of the effect is small ($f^2 = 0.02$), significance level (0.05) and the power (0.90), thus forming a requirement of 5,570 observations in total. The population that we are working with is bigger than this limit and it is this that justifies the testing of hypothesis.

Measures

Dependent Variables:

- Trip Compliance: A binary indicator variable with a value of 0 or 1 where 1: the trip didn't go beyond internal carbon budget thresholds (i.e. driving below a lower-emission range within levels of carbon-budget amounts) and the other: otherwise.
- Carbon Emissions per Trip: an aggregate measure that shows the amount of kilogram of CO₂ being emitted during a trip and which was worked out by applying the DEFRA factors. Such a metric can be used to measure marginal gains in the efficiency of trips.

Independent Variable:

- Visibility Condition: The condition of whether or not the internal carbon surcharge was not visible by the employee and their supervisor/team at the time of activity booking or not, and which is a binary treatment indicator (1 = yes, 0 = no).

The Moderators:

- Seniority of role: It is classed into junior employees, middle managers and the top executives.

Unit Travel Culture: unit travel culture is based on the historical travel frequency, and average emissions per employee within each of the business units.

Control variables: The job, level of carbon intensity of the destination (country-level pollution of emissions per capita; see World Bank, 2023), the size of the team, the quarter and business-unit fixed-effects.

Measures dealing with compliance were operationalized by internally validated checklists and scoring procedures, which were under the quarterly audit. The observed internal consistency reliability of the composite compliance measure was higher than the suggested value, being Cronbach $\alpha = 0.87$ (Nunnally Bernstein, 1994).

Estimation Strategy

We used a Difference-in-Differences (DiD) analysis to estimate the effect of the treat on the behavior of traveling because of the visibility of the surcharge. This varying-time deployment by business unit provided us with the capability to have an untreated unit that can act as a control group making adjustments to common shocks (e.g., COVID-19 travel policies, high volatile fuel prices).

As a regression analysis was carried out, $Y_{it} = \beta_0 + \beta_1 \text{Visible}_{it} + \beta_2 \text{Post}_t + \beta_3 (\text{Visible}_{it} \times \text{Post}_t) + X_{it}\gamma + \mu_i + \tau_t + \varepsilon_{it}$

Where:

- Y_{it} is the outcome (e.g., compliance, CO₂/trip) for individual i at time t
- Visible_{it} indicates visibility condition
- Post_t indicates post-treatment period
- X_{it} is a vector of controls
- μ_i and τ_t are individual and time fixed effects
- ε_{it} is the error term

Intra-group correlation was satisfied through the application of clustered standard errors conducted at the business unit level.

We did an event-study analysis, calculated the trend in treated unit and control units before the intervention, to prove the parallel trends assumption. The results have been guaranteed that there was no major pre-treatment divergence.

Some wise normalcy tests have made the barking off of other possible causes and brilliance of discoveries:

1. **Propensity Score Matching (PSM):** Matching of the treated and control employees by based on observable characteristics (role, business unit, past travel patterns.) was done to reduce the selection bias, and minimize the confounding variables.
2. **Placebo Tests** The control strata are forced to take placebo; however, there are no severe effects registered.
3. **Stability Confidence interval and** standard errors were stable by the means of bootstrapping (1,000 replications).
4. **Other Estimators:** Estimation Deviations were the same with the two-stage and least squares (2SLS) estimation and fixed-effects logistic regression.

These techniques can be equated to quasi-experimental best practices of cause-effect inference (Angrist & Pischke, 2009; Imbens and Rubin, 2015).

Ethics Statement

All ethical and privacy aspects of data protection are observable in the study. Before the analysis, all the information about employees was made anonymous. The local IRB, affiliated IRB provided the study a full history of clearance having the protocol ID MS2023-104. Since the data were collected archivally without direct contact with human subjects, the informed consent was not needed, which is corresponding to the rules of ethical research on organizational field studies (Bourgeois, 2011).

Results

Here, the study has described the sections as descriptive statistics, hypothesis test, and robustness checks to provide the empirical evidence of the study. The supportive data is consistent with our main hypothesis that our exposure of internal carbon surcharge has a major impact on employee

travel patterns, especially in the case of middle managers, and, therefore, confirms the hypothesis of social visibility framework of organizational compliance (Benzon, 2006; DellaVigna et al., 2012).

A descriptive statistic is a way of explaining a descriptive statistic that calculates the mean, standard deviation, and standard error of measurement.

The resulting 6,800 employees included 42 business sections of a two-year cover of travel behavior. In the observations, the average carbon emission per-trip was 182 kilograms CO₂ in all. This number correlates with other external metrics of service orgs when it comes to the professional journey multinationals have to perform (IEA, 2023; DEFRA, 2023).

The compliance rate, which was booking trips within the carbon budget that was set internally, was 41 percent in the treatment group before the intervention of the visibility. After the intervention, adherence improved in such business units by 58 percent, indicating an initial connection between visibility with an improving adherence to the norms of sustainability. In comparison, the rates of compliance in control units (which did not undergo the surcharge visibility intervention) remained null varying between 40 and 43 percent between the same periods.

They are nothing but general trends suggesting that there is potential in a treatment effect that can be checked more seriously by using multivariate regression and causal inferences methodologies.

Reliability and Validity

To confirm the reliability and the internal validity of the provided findings, we made some robustness checks. From the results are constantly confirmed the conclusions, the fundamental ones:

Placebo Tests: There was no statistically significant effect and the DiD model was engineered with business units without being subjected to the visibility policy. This had eliminated the obstructing temporal confounders or the external shock as the substitute explanations.

Alternative Estimators: The alternatives Estimation using Two-Stage Least Squares (2SLS) with instrumented visibility identified the direction, the level and the significance of the type of treatment effect. Regarding the first stage, the F-statistic value had a higher value relative to the standard value of 10 (Stock & Yogo, 2005), an aspect that supported instrument validity.

Bootstrapped Standard Analysis: Our bootestees involved one thousand bootestees so as to ensure that the standard errors are valid. Standard outcomes around the 8-coefficients were also consistent and one can say that the results were not drifting towards the sampling collaterals or heteroskedasticity.

Propensity Score Matching (PSM): This method employed the nearest neighbor comparison that was based on such covariates as the size of the business unit, the level of compliance with the historical record and the degree of roles. The ATT was -0.19 and -0.19 at 95 percent confidence level, which is a clue that although there was such leniency in bias in selection, there is a sustained, sound effect as indicated by the percentage confidence level (Rosenbaum and Rubin, 1983).

These robustness checks are all aiding the internal validity of our causal assertions in that the said assertions are more valid with borderline certainty in the treatment effect.

Holographic images are recorded in the diffusion-based holograms in a process where the photographic sensitizer is subjected to diffusion correction, and through a diffusion-based process. The correction of the photographic sensitizer is carried out in the diffusion-based holograms in a process where the photographic sensitizer is corrected to carry out the correction of the diffusion-based holograms. The error of the photographic sensitizer is carried out in a diffusion-based process where the diffusion based holographic images are recorded on a photographic sensitizer.

Average Emission Reduction: The mean of Emission Reduction by Kilogram of CO₂ per trip to 153 kilo grams CO₂ showed a decline in the treated units of sample after the policy and, thus, a decline in 182 kilo grams CO₂.

The secondary outcome of objective robustness testing was that the main findings are also in tune with respect to all other analyses (placebo, 2SLS, bootstrapping, PSM).

Discussion

It is in this section that the empirical results are interpreted with the consideration of the extant theory, implication that may be drawn by managers, and limitations of future studies are propounded. These findings are substantial in developing the body of knowledge surrounding behavioral operation, the agency theory and the sustainability governing of all the organizations.

Theoretic development

In this respect, the research has been able to give several contributions within the behavior operation management field whereby it has been able to provide empirical evidence which has indicated that non-monetary social stimuli i.e. visibility of carbon surcharges within the company, is an important variable that can have a major impact in influencing the behavior decision-making of the employees. Despite the fact that the type of the cognitive biases (Gino & Pisano, 2008) or the risk perceptions in the supply chain (Bendoly et al., 2006) were contributed, the current research overlooks the less used side of the social visibility as a regulation mechanism.

The results also establish the agency theory (Jensen and Meckling, 1976) since they suggest visibility instead of direct monitoring in that kind of environment where monetary incentives are weak, symbolic or limited due to politics which is likely to be the case in case of polices in sustainability. The conventional agency models or models postulate that the conciliation of the interests of an agent and a principal can be achieved by costly monitoring or performance-based incentives. Our results make, however, sense within the current literature where the aspect of social and reputational incentives is revealed as the other loci of control (Bosse & Phillips, 2016; Pepper & Gore, 2015). By making the carbon costs associated with traveling socially visible, the organizations get to tap into the intrinsic motivating force of being socially accepted and creating a sense of professional legitimacy in the view of the employees, to achieve the level of collaboration without pressure.

The literature on the norm-based interventions (Schultz et al., 2007) and contribution to a public good under observability (Yoeli et al., 2013) similarly apply and thus contain insights that lend credence to the premise of the presented idea, that is, that, visibility increases behavioural alignment with organizational norms.

Border work and after border work

The research can give practical suggestions to institutions desiring to increase compliance in internal environmental goals on areas that commands and controls cannot readily interfere with or when the culture is intolerable. According to that, there are several managerial implications:

- **Prompt Costs of Micromulate Carbon:** The time result in the availing of the information is also important. It is much less effective to merely post carbon surcharges after a person has traveled (e.g. on the monthly expense statements) than to bring the surcharge to people as part of the travel booking process, when the behavior can be altered. It goes in tandem with researches on choice architecture where quality of decision has been realized to be significantly improved by a real-time feedback provision (Thaler & Sunstein, 2008).
- **Make Middle Managers Role Models:** There has been evidence towards the importance of representation of the Middle Managers as the strongest respondents to the visibility intervention, possibly due to the fact that they hold a dual obligation towards the lower levels and towards the leadership. It is in this regard that organizations are encouraged to view this category as multipliers of behavior and to take advantage of the fact that they can use it in conducting simulations of good travel behavior and normalizing carbon-conscious behaviors among teams (Floyd & Wooldridge, 1997).
- **Incorporate the Financial Nudges and the Social Accountability Cues:** Though systems like the Carbon will be effective, they could be made tremendously effective should they be integrated along with the social accountability nudges. This supports the enhanced body of research in the field of behavioral economics concerning the realization that hybrid nudges, the ones that combine financial and normative cues, result in more lasting changes in behavior (Allcott & Kessler, 2019).
- **Hiding Surprises:** Some of the organizations have carbon or sustainability surcharges, imposed on the travelers without customers aware of the existence of such charges. This form of silent design is harmful as observed in the current study. An increase in salience enhances visibility and visibility provides an aid to deliberation (Kahneman, 2011). The signaling of the existence of sustainability can be used to turn mundane activities into resolutions that help in the provision of value.

The research study is constrained by various factors which curtail the result of the findings though the result is positive. First, the findings can be most efficient in the organization where there are enormous quantities of discretionary journey. The range of behavioral changes shifts will be lower in other healthcare related fields, manufacturing or emergency services where the ability to travel is very significant or a necessity when performing the service.

Second, the line of roles in the organizations. The middle-manager moderating roles could be less obvious in flatter organizations or those startups where there will be even more diffuse the organization of power. In future studies, it is possible that norms at the team level or peer pressure will be discussed in this kind of setting, which might be organized by using social network theory (Collins, 2008) or organizational identity (Ashforth & Mael, 1989).

Third is the current intervention which was on the visibility of booking interface. The future of gamification can be studied through gamified feedback loops, leaderboards, or the elements of gamification include competitive dashboards and can be used to generate more involvement. Past energy conservation measures and employee wellbeing efforts have shown that a great deal can be plugged into gamification in order to plug in more participation and compliance (Hamari et al., 2014). Further, addition of carbon badges or emissions labels in travel applications on

smartphones could be a convenient and scalable opportunity to bring environmental sustainability-oriented businesses to a new level.

Conclusion

The examination of the quasi-experimental character conveys the empirical evidence that the social visibility of internal carbon surcharges is an influential determinant of employee compliance with the organizational carbon budgets. Displaying the carbon-related bills upon the formation of the traveling plans, when it would be visible both to colleagues and to managers, would enable the companies in establishing the push towards the sustainability goals without relying on the adverse effects of the monetary procedures based on punishments. The evidence contributes to the existing literature on evidence of how strong social accountability in decisions (Schultz et al., 2007; Yoeli et al., 2013) is and the detail to the manner in which choose technologies of organization systems can promote change as pertains to carbon-intensive behaviors (Thaler & Sunstein, 2008). Notably, the work contributes to the corpus of behavioral operations in that it shows how the past practices of monitoring and reward schemes can be substituted by visibility-based interventions in the proper form of heresy and refinement (Bosse & Phillips, 2016). It also gives us useful teachings as corporate sustainability people think about what they can do to reduce the emissions of travelling businesses- especially in those areas where a direct control of emissions can be what may be termed symbolic compliance or obstructionist impediment. Findings indicate that by bridging the efficiency divide between behavior science and the governing of the environment, this research has established that one can indeed generate measurable effects of climate at large organizations with only fairly minimal interior policy communicate design programs.

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