

WHEN THE TASKS LINE UP: HOW THE NATURE OF SUPPLEMENTARY TASKS AFFECTS WORKER PRODUCTIVITY

ARUNA RANGANATHAN

Jobs consist of bundles of tasks, with most jobs involving one or a few core tasks as well as supplementary tasks. In this article, the author argues that, keeping constant the *number* of supplementary tasks performed, the *nature* of these tasks can affect workers' productivity in their core task. The study uses quantitative and qualitative data to study tea pickers at a plantation in India. Using fine-grained personnel data on workers' task assignments and their daily productivity, the author finds that workers' productivity is affected by the extent to which their supplementary tasks are *facilitative* of their core task, when comparing workers performing the same number of supplementary tasks. Qualitative data suggest that one way in which performing a facilitative rather than a non-facilitative supplementary task could improve core task productivity is by temporarily boosting what the author calls "core task identification." This article contributes to scholarship on the design of work.

Tasks are the building blocks of jobs, and in fact, of all work. Many jobs are understood as having one or a few core tasks and a variety of supplementary tasks. A job's core task is the task that a worker engages in most while working, that their identity is wrapped around, and on which their evaluations are based. Supplementary tasks are those that might be periodically assigned to workers, perhaps because they entail maintenance-type work that is performed only from time to time, because the "point people" for the tasks are occupied, or because the prevailing corporate culture encourages engagement in diverse tasks.

ARUNA RANGANATHAN (<https://orcid.org/0000-0003-2110-6798> ) is an Associate Professor at the University of California, Berkeley, Haas School of Business.

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For example, knowledge workers spend time on applying proprietary knowledge to develop products and services, but they also spend time on administrative tasks (such as project planning) and “managing across” the organization (for example, meeting with people in other departments). In designing jobs for knowledge workers, organizations are often encouraged to “eliminate or delegate unimportant tasks and replace them with value-added ones” (Birkinshaw and Cohen 2013: 1). Embedded in this advice are questions of how many tasks to assign, and what types of tasks to assign, assuming a given number of tasks; although both of these questions are important, this article will focus on the latter.

In the academic literature, too, we have a limited understanding of how task assignments affect the enactment of work. Theoretically, studying the task composition of jobs can provide critical insights into important work-related outcomes, such as productivity, job tenure, and job satisfaction. Empirically, however, since we as scholars often do not have visibility into the tasks that constitute jobs, we have struggled to investigate the antecedents and consequences of the structuring of work. In particular, the lack of data on individual worker productivity means that we still have little insight into how the combination of tasks within a job affects workers’ immediate productivity, which is a topic of great interest to human resource managers. Investigating this issue is crucial because it has implications for both workers’ careers and organizations’ profitability. It is also an open area of inquiry, as classic theories of job design offer conflicting predictions about the consequences for productivity of performing supplementary tasks. In this article, I specifically ask the question: Keeping constant the *number* of supplementary tasks being performed, how does the *nature* of supplementary tasks that constitute a job affect worker productivity in core tasks?

The setting for this study is a large tea plantation in India. I focus on tea pickers, whose core task is to pick tea by hand, but their jobs also include a range of supplementary tasks such as pruning and machinery maintenance. The tasks at this plantation are relatively low skilled and workers are seen as substitutable across tasks. This setting offers three key advantages for investigating my research question. First, each day, tea pickers are assigned one task by management, and the plantation keeps track of the task assigned to each worker on each day. Second, workers’ assignments to core and supplementary tasks vary over time, and a diverse range of supplementary tasks are performed in this setting. Third, on days that workers are assigned to tea picking, their productivity is measured (in number of kilograms of tea picked) and tracked.

This project relies on both quantitative and qualitative data to advance its arguments. I obtained access to individual-level, quantitative data tracking 222 tea pickers every workday for 19 months, from April 2013 to October 2014. These data allowed me to observe the task performed by each worker on every day they worked as well as their productivity on days they were assigned to pick tea. In addition, I rely on two months of observation at the

plantation and 30 interviews with workers and supervisors to theorize about the mechanisms that govern the patterns I uncovered in the quantitative data.

Tasks, Jobs, and Productivity

Task Structure of Jobs

For as long as scholars have studied work and jobs, they have recognized that jobs are made up of bundles of tasks (Hughes 1958; Hackman and Oldham 1976; Miner 1987; Abbott 1988; Cohen 2013). For example, Cohen (2016) described the job of the gel pourer at a biotech firm as containing this set of tasks: making a gel solution, removing old gel from glass plates, cleaning the glass plates, drying the plates, setting the plates up, pouring the gel, and inserting a spacer. The fundamental idea is that work is defined by the tasks that must be accomplished (Burton, Cohen, and Lounsbury 2016).

Despite widespread acknowledgment that the task composition of jobs is important, our theoretical understanding of how work tasks are divided and allocated, and the implications thereof, are limited and contested (Burton et al. 2016). Empirically, one key barrier to doing this kind of research is that it requires detailed field data on the configuration of work tasks within organizations, which is often hard to come by. Work and employment scholars have recently begun creatively using novel data sources such as ethnographic data (DiBenigno and Kellogg 2014), survey data (Fernandez 2001; Autor and Handel 2013), and job postings data (Bidwell and Leung 2018) to address gaps in our understanding of tasks. For example, there is now research studying the antecedents of how task bundles are formed. Cohen (2013) documented that tasks are bundled into jobs through a process of multiple subassembly processes with multiple assemblers rather than a deliberate and controlled job design process within a single organization. Huising (2014) added that professionals in university science laboratories reshape their task bundles in response to problems encountered in performing their jobs on a daily basis.

Furthermore, recent research has considered the impact of task allocation processes on the long-term outcomes of inequality and job death. Chan and Anteby (2016) found that one mechanism that creates within-job inequality is the persistent assignment of some groups of workers, often demographic minorities, to undesirable tasks while others are routinely assigned more desirable tasks. Wilmers (2020) found that the horizontal division of labor across jobs can explain pay inequality within organizations: When organizations reduce task variety for some workers, they increase job responsibilities for others, which yields unequal pay premiums among co-workers. With respect to job death, Bidwell and Leung (2018) found that jobs that have greater task overlap with other jobs or that involve more explicit task coordination are less likely to die. Hasan, Ferguson, and

Koning (2015) similarly found that a high amount of technical interdependence in the task bundle is “good” for the longevity of a job.

Despite the emergence of this recent research on the antecedents and long-term consequences of task bundles, we have little insight into how the combination of tasks within a job affects workers’ immediate productivity. Asking such a question is important because worker productivity has a direct impact on a company’s profitability and thus is of utmost importance to organizations. In this article, I make progress toward understanding the relationship between task bundles and productivity by distinguishing between core and supplementary tasks and then by investigating how the nature of supplementary tasks assigned to workers affects their productivity in core tasks, keeping constant the number of supplementary tasks performed.

Composition of Core and Supplementary Tasks and Effects on Productivity

In theorizing about tasks, scholars have often distinguished between core tasks and supplementary tasks. Chown (2020: 892) argued that “a professional’s job comprises many different types of tasks, but these tasks vary in how prominent they are in the overall work of the professional.” Some tasks are “core,” making up a high percentage of the professional’s work, whereas other tasks are performed only sporadically. Bond and Poskanzer (2019) illustrated this by distinguishing between a baseball pitcher’s core task—pitching—and a supplementary task they sometimes perform—batting. Bidwell and Leung (2018) similarly argued that the combination of tasks found in many jobs is likely to include a coherent core set of tasks, even though the overall bundle may include supplementary tasks that differ among workers in similar jobs.

In this article, I investigate how the nature of supplementary tasks affects worker productivity in their core tasks, keeping the number of supplementary tasks performed constant. This inquiry has not been empirically investigated with objective field data, but it is an important one from a policy perspective since it can affect workers’ job satisfaction as well as organizational profitability. Further, the focus on core task productivity, rather than overall job productivity, allows us to isolate the effect of performing different kinds of supplementary tasks on core tasks alone.

Classic theories of job design offer conflicting predictions about the relationship between a job’s bundle of tasks and workers’ overall productivity. Some scholars have built on Hackman and Oldham’s (1976) job characteristics theory (JCT) to develop the concept of task variety, which has been defined as “the degree to which a job requires employees to perform a wide range of tasks on the job” (Morgeson and Humphrey 2006: 1323). Scholars in this tradition argue that greater task variety will be associated with increased productivity through social-psychological mechanisms that make the work feel meaningful to the worker (Staats and Gino 2012;

Parker, Morgeson, and Johns 2017).¹ However, this research has been subject to several critiques. First, it treats jobs as “highly atomized, disembodied and decontextualized” instead of as part of an organizational system (Cohen 2016: 27). Second, it relies on self-reported data, which could be subject to bias. Finally, the items used in the Work Design Questionnaire (Morgeson and Humphrey 2006) to measure task variety include “the job involves doing a *number* of different things” as well as “the job requires the performance of a wide *range* of tasks.” This measure conflates the *number* and *nature* of tasks in the task bundle, which are conceptually separate concepts that could affect productivity in distinct ways.

By contrast, the theory of specialization suggests that greater specialization (less task variety) will be associated with increased productivity. This theory dates back to Smith (1776), who famously used the example of a pin factory to suggest that a given number of workers can produce far more output by specializing in subtasks than if each worker completed each of the steps necessary to make a pin. Specialization theory also emphasizes the costs of multitasking. Scholars have argued that assigning specialists to work outside their domain of expertise will hinder their productivity by breaking their workflow in an unproductive way, being distracting or tiring, introducing switching costs such as the cognitive burden of approaching an unfamiliar task, or reducing motivation (Meiran 2000; Malone, Laubacher, and Johns 2010). This scholarship too runs into empirical challenges since managers often allocate tasks non-randomly, assigning non-expert work to the least productive specialists (Bond and Poskanzer 2019). It then becomes impossible to determine if greater specialization actually increases productivity or if the most productive workers are purposely assigned more specialization. Most important for this article, the specialization literature has not considered how specialists respond to *different types* of supplementary tasks outside their domain of expertise.

The competing predictions of JCT and specialization theory point to the fact that we do not yet have sufficient theoretical or empirical insight to guide us on how the composition of supplementary tasks affects worker productivity in core tasks. In this article, I make progress on filling this gap by distinguishing between facilitative and non-facilitative supplementary tasks to help us think about the relationship between the nature of supplementary tasks and core task productivity, keeping constant the number of supplementary tasks. This article is not designed to adjudicate between specialization theory or JCT; I suspect that whether task variety helps or hurts productivity will depend on the specific context and workers’ relationship with their work. That being said, my goal here is to highlight an important variable that has thus far been underappreciated by both theories: the

¹Some organizational economists have also argued that greater task variety will be associated with increased productivity because of reduced coordination costs across different workers (Becker and Murphy 1992).

nature of supplementary tasks. Rather than focusing on the effect of the number of supplementary tasks on productivity, I identify the distinct effects of different types of supplementary tasks on core task productivity, keeping constant the number of tasks performed.

Facilitative and Non-Facilitative Supplementary Tasks

Scholars have argued that there can be relationships or interdependencies between tasks (Puranam, Raveendran, and Knudsen 2012; Puranam 2018). For example, the construction of a table encompasses the task of producing the table's legs as well as the task of producing the tabletop. These tasks are interdependent because the final table relies on joint assembly of the table's legs and top (Puranam 2018). Similarly, producing a handicraft object consists of several sequential tasks from wood cutting and wood seasoning to painting and assembly (Ranganathan 2018).

In this article, I bring this idea of thinking about relationships or interdependencies between tasks to theorizing about the kinds of *supplementary* tasks and their respective effects on core task productivity, keeping number of tasks constant. In particular, I distinguish between facilitative and non-facilitative supplementary tasks, where I define facilitative tasks as those that are in service of the core task. By performing a facilitative rather than a non-facilitative supplementary task, workers are reminded of other tasks that happen within the organization that support the performance of their core task. For example, while the core task of a garment factory operator is likely to be that of sewing, the task of sorting and preparing raw materials could be seen as a facilitative supplementary task in this context, as it is directly in service of the core task of sewing.

Scholars have further suggested that in allocating tasks to workers, it would behoove organizations to pay attention to such relationships or interdependencies among tasks, as the ensuing task bundle that a worker engages with can affect their approach to work (Puranam 2018; Raveendran, Puranam, and Warglien 2022). For example, a study conducted in India found that handicraft artisans who engaged in the related tasks of cutting and seasoning their wood, in addition to turning the wood on the lathe and applying lacquer, priced their products differently from those who engaged in only wood turning and lacquering (Ranganathan 2018). Here, performing a greater number of facilitative supplementary tasks increased the value that workers placed on their final product. In this article, I build on this idea that performing different task bundles can differentially affect workers, but rather than theorizing about the effect of number of facilitative supplementary tasks on price setting, I focus on the effect of performing a facilitative rather than a non-facilitative supplementary task on workers' core task productivity. In particular, I hypothesize that when a worker's job consists of a core task and a fixed number of supplementary tasks, working

on facilitative rather than non-facilitative supplementary tasks will have a positive effect on core task productivity.

Why might assignment to facilitative supplementary tasks matter for core task productivity? Existing literature offers two possibilities. One possibility is that, depending on the relationship between tasks, working on one task might offer opportunities for learning about other tasks (Vanneste and Puranam 2010; Puranam and Swamy 2016). Performing similar tasks can lead to skill-building (Puranam 2018). Workers may acquire knowledge from performing facilitative supplementary tasks, which helps them carry out their core task more effectively. Thus, by learning from facilitative supplementary tasks, workers' core task productivity could rise.

Another possible channel through which assignment to facilitative supplementary tasks could affect core task productivity is commitment (Mowday, Steers, and Porter 1979; Reichers 1985). This channel is psychological in nature and operates through workers' perception of their employer's trust in them. Upon being assigned supplementary tasks facilitative of their core task, employees might feel that they are now trusted by their employer, and consequently, their loyalty could increase. This commitment to their employer could increase the effort they put into their work, thus boosting their core task productivity.²

While these two mechanisms—learning and commitment—are valid and important, another channel through which facilitative supplementary tasks could affect productivity has been underexplored: identification with the core task. In the next section, I add to the literature by incorporating the concept of identification to help us advance our understanding of the relationship between facilitative supplementary tasks and core task productivity.

A Less-Explored Mechanism: Core Task Identification

Identification with work can be defined as an attachment to one's work that is so intense that one defines oneself in terms of their work (for a review, see Ranganathan 2021). Identification can encompass any work that is experienced as a labor of love, that workers perform well for its own sake, and that produces one's self even as it produces an object (Honneth 1995; Sennett 2008; Redding 2012; Ekman 2013). The concept of identification with work originated with Marx (1954 [1844]), who conceived of working as, in part, an act of self-creation, in which the work activity both expresses and realizes individuals' capabilities. Since Marx, it has been argued that workers can feel connected to the product of their labor (Pratt, Pradies, and Lepisto 2013; Ranganathan 2018). I argue that just as workers can identify with their work, so too can they identify with core tasks on which they

²While some studies document a positive relationship between organizational commitment and productivity (Arthur 1994; Phipps et al. 2013), others suggest that this may not always hold true. A study involving researchers in a university found that professional commitment was not related to research productivity (Jauch, Glueck, and Osborn 1978).

spend a great deal of time. I call this phenomenon “core task identification.” When a worker identifies with their core task, they see that task as part of themselves.

I propose that core task identification can develop in the course of performing and mastering one’s work tasks: The process of striving for perfection and getting better each day could produce attachment to core tasks. For example, the professions literature has posited that experts become engrossed in the process of performing cognitively demanding tasks such as diagnosing an illness because of the challenge associated with this task, which could breed identification among doctors with the core task of diagnosis (Abbott 1988). Alternatively, core task identification could emerge from organizational efforts to align a worker’s core tasks with the organization’s mission (Beer and Nohria 2009) by “map[ping] the connections between employees’ everyday work and the organization’s ultimate aspiration” (Carton 2018: 323). So, if workers see their core task as crucial to the greater goals of the organization, they will then value the task more and will be more inclined to incorporate that task into their self-identification (Ellemers, Spears, and Doosje 2002; Tajfel and Turner 2004). Irrespective of how core task identification occurs, it is likely to increase workers’ motivation to perform their core task well, which in turn may lead to increased productivity (Gagné and Deci 2005).

Recent research has highlighted that certain triggers can temporarily boost individuals’ identification with their work or core tasks. For example, when temporary workers have the opportunity to showcase their work to other members of the organization, their identification with their work is temporarily heightened (Ekmekci and Casey 2011). This has sometimes been called *situated identification* in prior work (Rousseau 1998; Ashforth, Harrison, and Corley 2008). When situational cues prime individuals to think of their work or a certain task in a particular way, identification can be boosted. This boost is temporary, however, and begins to fade away some time after the situational cues reinforcing it are removed (Panteli, Rapti, and Scholarios 2020). For example, situational cues in the form of deadlines or other task requirements can boost identification in the short-term, but this boost is unlikely to be sustained over time.

Because situated identification reflects a response to immediate environmental stimuli, it is particularly responsive to new work arrangements in which the same individual may work in a different work environment for a short period of time (Rousseau 1998). Building on this idea, I hypothesize that some supplementary tasks will temporarily boost workers’ core task identification while others will not. In particular, working on supplementary tasks that are facilitative of a core task can serve as a reminder of workers’ identification with that core task, thus improving productivity, as compared to working only on non-facilitative supplementary tasks. By performing facilitative rather than non-facilitative supplementary tasks, workers are reminded of other tasks that happen within the organization that support

their performance of their core task. This reminder of the support structure undergirding their core task temporarily boosts their attachment to their core task. Thus, if we see facilitative (rather than non-facilitative) supplementary tasks increasing core task productivity in the short-term, but not the long-term, this evidence supports core task identification as a plausible mechanism. While learning and commitment may be at play when a worker is new to a job, these mechanisms cannot account for short-term jumps in productivity from performing supplementary tasks that have already been mastered, while core task identification can. In this way, apart from the mechanisms posited in prior work, core task identification could be an additional important channel through which performance of facilitative supplementary tasks can differentially affect core task productivity as compared to performing non-facilitative tasks.

Setting, Data, and Methods

The data for this study were collected at a large tea plantation in southern India. I gained access to this plantation through a contact from my research institution, who put me in touch with the plantation's head of human resources (HR). After an in-person meeting with the head of HR to discuss the project, I obtained permission to visit the tea plantation to do fieldwork and to access personnel records. See the Supplemental Online Appendix A for more detail on the managerial and ecological context of tea plantations, in general, and the particular plantation I study.

The study focuses on the productivity of tea pickers at the plantation whose core task is picking tea. The tea plantation where this research is conducted is located in southern India at moderate elevation where tea cultivation and picking is perennial, with some mild month-to-month variation in tea productivity. In this context, all workers are paid a fixed daily wage for working eight hours a day, six days a week. Supervisory monitoring is limited here since the tea plantation is spread over more than 1,000 acres of land, and tea pickers are assigned to different portions of the land. Moreover, fluctuations in demand that could translate into forced speed-ups or slow-downs for workers are rare since the tea picked in this setting is bought at auctions by buyers serving the domestic Indian market, where tea is a popular beverage consumed year-round.

This setting offers three key advantages for studying the performance of supplementary tasks and worker productivity. First, data on individual workers is closely tracked and documented on a daily basis. For each tea picker, the plantation has a record of what task they performed each day (workers always perform only one task on a given day) as well as their productivity on the days that they picked tea, measured in kilograms of tea picked per day. The 222 tea pickers spent at least 80% of their working days picking tea and worked on supplementary tasks from time to time. I was

Table 1. Facilitative and Non-Facilitative Supplementary Tasks

<i>Facilitative tasks (%)</i>	<i>Non-Facilitative tasks (%)</i>
Manual weeding (22.91)	Upkeep of plantation (16.84)
Fertilizer application (17.27)	Employee welfare check (5.32)
Pruning (6.82)	Helping with the creche (childcare center) (4.22)
Chemical weeding (4.65)	Upkeep of the factory (4.14)
Dolomite application (4.10)	Maintaining plantation trails (2.68)
Foliar handling (tending to leaves) (2.41)	Road sweeping (1.77)
Mite control (1.14)	Upkeep of administrative buildings (1.77)
Planting (1.10)	Leaf transportation (0.67)
Green manure application (0.79)	Leaf manufacturing (0.28)
Blister blight control (0.59)	Helping with pepper cultivation (0.16)
	Water supply maintenance (0.12)
	Fences/bridges repair (0.04)
	Running the tractor (0.04)
	Factory packaging (0.04)
	Electric machinery maintenance (0.04)
	Supervision (0.04)
	Helping with plantation certifications (0.04)

Notes: Tasks are listed in descending order of their frequency in the data; their percentage of occurrence is listed in parentheses.

able to track the task assignments and core task productivity of 222 tea pickers. These data span a period of 1.5 years (April 2013 to October 2014).

The second advantage of this setting is the variation in tasks performed by the tea pickers. While the core task is picking tea, workers also perform 27 supplementary tasks, including repairing fences and manual weeding. For the purpose of this study, I categorized the extent to which these supplementary tasks are *facilitative* or *non-facilitative* of the core task, based on whether they entail working with the tea plants.³ The facilitative tasks, such as weeding, fertilizer application, and pruning, are ones that support the core task of tea picking because they involve caring for the tea plants. By comparison, non-facilitative tasks are ones that do not directly support the core task of tea picking or have anything to do with the tea plants, such as sweeping roads and upkeep of the factory. Of the 27 supplementary tasks performed by workers in this setting, 10 of them are facilitative and the remaining 17 are non-facilitative (see Table 1). This range of tasks allowed me to study the differences in workers' productivity as a result of performing non-facilitative versus facilitative supplementary tasks.⁴

³This article employs a dichotomous classification, but supplementary tasks could also be classified along an ordinal scale ranging from "very facilitative" to "very non-facilitative."

⁴In supplementary analyses reported in Appendix C, I re-categorize the 27 supplementary tasks performed at the tea plantation with respect to whether they entail relatively more skilled or unskilled work, with certain tasks, such as chemical weeding, classified as relatively more skilled work and other tasks, such as sweeping roads, as unskilled work. I then analyze the effect of performing skilled supplementary tasks on workers' tea-picking productivity and find no productivity gains of performing skilled supplementary tasks.

Finally, the setting is also well suited for this study because it offers the possibility of controlling for between-worker differences in their performance of supplementary tasks. A common approach to investigating the effect of the nature of supplementary tasks on workers' core task productivity might be to compare the core task productivity of workers assigned to facilitative supplementary tasks and workers assigned to non-facilitative supplementary tasks. However, this comparison could be misguided because workers performing facilitative and non-facilitative tasks might differ along important dimensions that affect their productivity, such as their age and experience. To overcome this issue, I am able to compare the core task productivity of the *same* workers after they perform facilitative and non-facilitative supplementary tasks, thereby eliminating concerns about cross-sectional differences in individual worker characteristics.

I analyzed my data at the worker-week level to investigate my key research question. My final data set consisted of 15,369 worker-week observations. Workers spent most of their time picking tea but were sometimes assigned to supplementary tasks. I measured two key variables: facilitative supplementary tasks and core task productivity. For facilitative supplementary tasks, I measured whether a worker performed any facilitative supplementary tasks in a given week.⁵ In other words, "facilitative supplementary tasks" is a binary variable that is equal to zero if a worker performed no facilitative tasks and is equal to 1 if a worker performed at least one facilitative task in a week.

For core task productivity, I measured the average number of kilograms (kg) of tea picked per day by a worker (on the days that they were picking tea) in the following week. To be clear, if a worker engaged in tea picking all week, core task productivity would be calculated as the average daily tea picked across the six days in the following week; if a worker engaged in tea picking only two days in the following week, productivity would be calculated as the average daily tea picked across these two days. By defining productivity as the daily average within a week, this measure is comparable across workers irrespective of the number of days they spent picking tea. Note that I am lagging my productivity measure by a week so that I can measure the follow-on effects of performing facilitative supplementary tasks on ensuing productivity. I then used these data to estimate the effect of performing facilitative supplementary tasks in a given week on productivity in the following week using ordinary least squares (OLS) models with standard errors clustered by worker.

In all my models, I include fixed effects for the number of distinct supplementary tasks performed by a worker in a given week. These fixed effects are crucial because I am interested in the effect of the *nature* of the supplementary tasks—whether they are facilitative or not—on core task productivity

⁵I chose to measure facilitative supplementary tasks in this way for ease of interpretation of the coefficient. I also ran all my models with a count (number of tasks) instead of a binary variable to measure facilitative supplementary tasks and the results were broadly similar, as shown in Table D1 in Appendix D.

while keeping constant the *number* of supplementary tasks being performed. For example, workers who perform tea picking and three supplementary tasks in a week cannot be directly compared to workers who perform tea picking and just one supplementary task in the same week because the worker who performed three supplementary tasks likely experienced some cognitive burden from switching between tasks that the other worker did not. Thus, I include fixed effects for the number of supplementary tasks because different numbers of tasks might lead to different levels of mental and physical exhaustion, which could affect productivity.

I also include worker fixed effects and time fixed effects (month/year dummies) in some of my models. Worker fixed effects are important because workers vary on many dimensions, such as their age and tenure, which could affect their ability to be productive, and the fixed effects help control for these differences. For time fixed effects, I include 19 dummies for every month/year combination from April 2013 to October 2014. Some month-to-month variation in weather conditions could affect productivity in southern Indian plantations;⁶ I account for such variations in tea productivity that might arise from ecological conditions using month/year fixed effects. These fixed effects control for the possibility that some month/years may have a smaller quantity of ripe tea on the plants to pick (because of seasonal factors such as weather and rainfall), which could influence worker productivity.

I supplemented the quantitative data I collected with qualitative data. My research team, consisting of two research assistants, made two month-long trips to the plantation in July 2014 and November 2014. During these trips, we observed work at the tea plantation and conducted 30 interviews. Appendix B provides a list of interviews. Observation consisted of shadowing groups of workers from the time they arrived in the morning and received their task assignments for the day, through the rest of the morning as they went about implementing their assigned tasks. We carried a visible notebook and let workers and supervisors see us jotting notes; we typically wrote up our fieldnotes in the evenings.

We supplemented our observational data with interviews with 15 workers, 5 field officers, 7 supervisors, and 3 top management executives. The interviewee sample captured diversity in roles performed at the plantation. The interviews lasted an average of 34 minutes and were conducted in Kannada, the local language, and English. We used a semi-structured interview format. In the interviews, we asked broadly about the work lives of tea pickers, probing into what they liked and what they did not like about specific tasks as well as their overall jobs. The interviews were typically conducted during the lunch break in the administrative buildings, rather than at the plantation, so that the interviewees could be shielded from the afternoon sun,

⁶Note that seasonal variation in tea productivity is much higher in northern Indian plantations. Southern plantations, like the one I study, produce tea year-round whereas northern Indian plantations have distinct harvesting seasons.

Table 2. Summary Statistics at the Worker and Worker-Week Levels

	<i>Mean</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>	<i>n</i>
(a) Worker level					
Proportion female	0.973	0.163	0	1	222
Tenure (in years)	17.284	10.881	0	39	222
Age (in years)	42.846	10.562	20	65	222
Proportion permanent workers	0.752	0.433	0	1	222
Exposure to supplementary tasks in any given week (%)	0.077	0.078	0	0.415	222
(b) Worker-week level					
Number of supplementary tasks	0.091	0.330	0	4	15,369
Any facilitative supplementary tasks	0.051	0.221	0	1	15,369
Core task productivity (in kg)	70.112	30.886	2	246.67	14,965

seated and comfortable during the interviews. We conducted the interviews in private, so that no one but the interviewer could hear the interviewee's responses. The interviews were all recorded, translated (if necessary), and transcribed in English. I then analyzed the interviews and fieldnotes using the Atlas.ti qualitative coding software, which facilitates attaching labels or codes to portions of text to track patterned activities and issues across the data (Charmaz 2006).

Effect of Supplementary Tasks on Core Task Productivity

Table 2 presents descriptive statistics at the worker- and worker-week levels. This table shows that on average, workers in this setting were women, had worked at the plantation for 17 years, and were 43 years old. Three-quarters of the workers in my data set were permanent employees and the rest were hired on a contract basis.⁷ On average, workers' likelihood of performing supplementary tasks in any given week was 7.7%. Workers performed between zero and four unique supplementary tasks in a week.⁸ In a given week, on average, there was a 5% probability that workers performed any facilitative supplementary tasks. The mean daily tea-picking productivity was 70.112 kg of tea.⁹ The *n* for core task productivity (14,965) is lower than the

⁷There were no differences in task allocation based on whether a worker held a temporary or permanent position at the plantation. Table D3 in Appendix D shows that controlling for permanent versus temporary work status does not affect the article's main results.

⁸Appendix E documents how supplementary task assignment varies by gender, tenure, age, and over time. Workers' likelihood of performing supplementary tasks in any given week does not vary by gender; a *t*-test reveals that the gender difference in performance of supplementary tasks is not statistically significant at the 0.01 level. Assignment to supplementary tasks reduces as a worker ages and as they become more experienced, though the ratio of facilitative to non-facilitative supplementary tasks performed remains stable across tenure and age brackets. Some temporal variation occurs in the performance of different supplementary tasks, with some tasks needing attention more regularly than others.

⁹Appendix F depicts how tea-picking productivity varies across workers and within workers over time. Panel (a) plots the distribution of average productivity per worker, while panel (b) plots demeaned weekly productivity per worker. These figures show variation in between-worker productivity, as well as seasonal variation in within-worker productivity over time.

Table 3. Effect of Facilitative Supplementary Tasks on Core Task Productivity (Controlling for Number of Supplementary Tasks)

	<i>Core task productivity</i>		
	<i>(1)</i>	<i>(2)</i>	<i>(3)</i>
Facilitative supplementary tasks	8.010*** (2.099)	11.900*** (1.713)	7.150*** (1.540)
Observations	14,965	14,965	14,965
Clusters	222	222	222
R^2	0.014	0.309	0.372
Number supp. tasks fixed effects	Yes	Yes	Yes
Month/year fixed effects	No	Yes	Yes
Worker fixed effects	No	No	Yes

Notes: Worker-week level observations. All estimates are from ordinary least squares (OLS) models. Facilitative supplementary tasks = 1 if any facilitative tasks performed in a given week. Core task productivity: kg of tea picked the following week. Standard errors clustered by worker are in parentheses.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

n for facilitative supplementary tasks (15,369) in Table 2 because in some worker-weeks, a worker might not have picked tea all week; hence, core task productivity cannot be computed for that week. As long as a worker engaged in tea picking for at least part of the week, core task productivity can be calculated as the mean of the worker's productivity on the days they picked tea.

I then analyzed the effect of performing facilitative supplementary tasks on workers' core task productivity in models with fixed effects for the number of supplementary tasks being performed. Table 3 regresses tea-picking productivity in a given week on the facilitative supplementary task variable from the preceding week. All estimates are generated from OLS models. Model (1) includes fixed effects to control for the number of supplementary tasks being performed. Model (2) additionally includes month/year fixed effects.¹⁰ Model (3) includes number of supplementary tasks, month/year, and worker fixed effects. Standard errors clustered by worker are in parentheses.

In Table 3, model (1), the coefficient for facilitative supplementary tasks is 8.010. Given that the regression includes fixed effects for the number of supplementary tasks, this coefficient suggests that a worker's productivity a week after performing any facilitative supplementary tasks is significantly higher than a worker's productivity a week after performing only non-facilitative supplementary tasks. In model (2), with the addition of time fixed effects, this coefficient jumps to 11.900, and in model (3), with the addition of worker fixed effects, the effect on productivity is estimated to be

¹⁰Table D2 in Appendix D shows that the results in model (2) of Table 3 are robust to including week/year fixed effects instead of month/year fixed effects.

Table 4. Effect of Number and Nature of Supplementary Tasks on Core Task Productivity

	<i>Core task productivity</i>	
	<i>(1)</i>	<i>(2)</i>
Number of supplementary tasks	-4.415*** (0.557)	-6.987*** (1.005)
Facilitative supplementary tasks		4.646*** (1.372)
Observations	14,965	14,965
Clusters	222	222
R^2	0.370	0.371
Month/year fixed effects	Yes	Yes
Worker fixed effects	Yes	Yes

Notes: Worker-week level observations. All estimates are from ordinary least squares (OLS) models. Facilitative supplementary tasks = 1 if any facilitative tasks performed in a given week. Core task productivity: kg of tea picked the following week. Standard errors clustered by worker are in parentheses.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

7.150 more kg of tea. Across all three models, the coefficients are substantively large and statistically significant at the 0.001 level. To be clear, the facilitative supplementary tasks coefficient is comparing the productivity of workers who had any facilitative tasks in their portfolio in a week to those who had only non-facilitative tasks in their portfolio that week, with fixed effects for the number of tasks in the portfolio. Based on the coefficient in model (3), performing any facilitative supplementary tasks, in contrast to performing only non-facilitative supplementary tasks, increases core task productivity by 10% in the following week. This evidence compellingly supports the hypothesis that performing facilitative rather than non-facilitative supplementary tasks positively affects core task productivity.¹¹

Table 3 showed the productivity implications of performing facilitative supplementary tasks, keeping the number of supplementary tasks constant. But the overall effect of performing facilitative supplementary tasks on productivity would incorporate the effects of both the number and nature of supplementary tasks being performed. While this is not the core focus of the article, Table 4 explores the overall effect of performing facilitative supplementary tasks on core task productivity using OLS models with month/year and worker fixed effects and standard errors clustered by worker. In Table 4, model (1), I first explore the effect of performing a greater *number* of supplementary tasks on workers' core task productivity. I find that, in my

¹¹In Appendix G, I separately estimate the follow-on effect on core task productivity of performing each of the 10 facilitative tasks, from manual weeding to blister blight control. The figure shows positive effects on productivity from performing some of the higher frequency facilitative tasks, with error bars getting larger for lower frequency tasks.

context, performing additional supplementary tasks hurts core task productivity. I speculate that this result is a consequence of the workers in my setting enjoying their core task of tea picking. In such instances, additional supplementary tasks could be perceived as a distraction. Although I find a negative relationship between the number of supplementary tasks and productivity in this context, I do not expect this pattern to hold universally; as shown in prior work, in other contexts, this relationship might be positive. More relevant to the focus of this article though, as demonstrated by the positive, large, and statistically significant coefficient for facilitative supplementary tasks in model (2), performing facilitative supplementary tasks mitigates the negative effect of performing additional supplementary tasks. Putting Tables 3 and 4 together, we see that performing an additional facilitative supplementary task increases tea pickers' core task productivity relative to performing an additional non-facilitative supplementary task, but it does not increase productivity relative to not performing the additional supplementary task at all.

Mechanism: Core Task Identification

Qualitative Evidence

The quantitative analyses presented in the previous section demonstrated that worker productivity improves when workers perform supplementary tasks that are facilitative of their core task rather than non-facilitative supplementary tasks. I next shed some light on *why* performing facilitative supplementary tasks matters for productivity. Here, while the literature has highlighted the importance of some mechanisms, I add to the literature by highlighting one additional mechanism that might be at play. In particular, I uncover a novel mechanism that I call *core task identification*, which I argue is temporarily boosted by the performance of facilitative supplementary tasks. I define core task identification as the extent to which a worker identifies with her core task. I posit that when workers perform facilitative rather than non-facilitative supplementary tasks, their core task identification increases for a period of time because they are reminded of how their core task is supported by a host of supplementary tasks, which contributes to their greater core task productivity.

I uncovered this mechanism by analyzing my qualitative data from interviews with workers and managers as well as by reading anthropological work on tea picking. This qualitative data revealed that workers can be attached to specific tasks, just as they can be attached to their work more broadly. In my fieldnotes, I document that a few workers enjoyed the supplementary task of planting, as they felt like they were “giving birth or life” (I7) to the tea plants; other workers described enjoying pruning. Similarly, Besky (2014) documented that despite the colonial legacy and power dynamics of many tea plantations, some workers talked admiringly about their “evenly placed baby tea bushes poking up from the desiccated soil.”

One of the workers she interviewed said, “Our daughters get married and go away . . . but these bushes? They are always here. Every day, they need . . . pruning, and cleaning [around the roots], just like little children” (Besky 2014: 61).

Some workers I interviewed were explicit in expressing their attachment to their core task of picking tea. For example, one worker (I20) said, “Among the various tasks I have done at this plantation, tea picking is my favorite. I get excited when the supervisor says, ‘You, you will do tea picking today’ in the morning meeting.” Another worker (I18) said, “tea picking is my passion.” Some workers anthropomorphized the plants based on their tea-picking yield. For example, they called the bushes that did not produce as much leaf as others “old” or “tired,” using local affectionate terms that they would also use to talk about their husbands. As echoed by Besky (2014: 61), “Being *budho* [old] was not desirable for a tea bush; women already had one *budho* to look after at home.”¹² Here, workers’ emphasis on valuing the health and productivity of the tea plants reveals their core task identification with tea picking.

Further, workers and supervisors alike seemed to agree that core task identification was a key ingredient to being productive at tea picking. For example, one supervisor (I11) said, “As you go into the plantation, you’re just in the wild . . . so you need to have something to motivate you. My personal feeling is, if they’re not emotionally connected [with the work], you’ll not get the best out of the individual.” Another manager (I1) echoed, “It’s like an ocean, you know, on the plantation, and we do not get to see the workers; they are all in the field, just lost. We send them in a group to a particular block, but they work alone. There is no social interaction while working since the fields are vast. There is always potential to pick more tea, and that depends on their connection with the work.” A worker (I25) echoed, “If you look at the most productive workers amongst us, they are the ones who have a keen interest in tea picking.”

So, what engendered core task identification in this context? In interviews, workers described that their identification with tea picking was often advanced by doing and engaging in some “related” or “similar” tasks at the plantation. As mentioned earlier, “The people who pick tea also do other things” and “in the estate, multiple tasks are there like grooming, weeding, climbing trees, digging pits, etc.” (I5). As a manager (I3) described, “These are simply tasks that need to happen. . . . We need to apply herbicide, weedicide for better control, and pruning also needs to happen. Apart from the main operation of tea picking, there will be some spraying and manure application, fertilization, etc.” These supplementary tasks are also performed primarily alone, are not seen as being easier or

¹²Note that multiple interpretations are possible for the language workers used to talk about the plants. The word *budho* [old] could also be seen as a form of chastisement here. It could be interpreted as criticism by the workers of the management’s failure to replace old tea bushes with young tea sprigs.

more difficult than picking tea, and are performed in the same location, that is, on the plantation premises. The key insight that I advance in this article is that some of these supplementary tasks are facilitative of the core task of tea picking, whereas others are not. Facilitative tasks, such as manual weeding, fertilizer application, and pruning, are ones that support the core task of tea picking because they involve caring for the tea plants. My qualitative data suggest that performing facilitative tasks allows workers to identify more strongly and develop an “emotional connect” (I6) with the core task of picking tea leaves. For example, one worker (I8) said,

While doing other work, it develops my interest in tea picking. . . . I get to see what was completed earlier. [For example] when I prune, I am reminded that tea plants are maintained at a certain height—24 inches—so that it is easy for me to pick tea. That makes me happy to do tea picking.

This quote shows how a worker’s identification with her core task increased as a result of performing the facilitative supplementary task of pruning, because she could see how tea picking fit into the larger ecosystem of work performed at the plantation, and she was reminded of how other tasks were oriented to facilitate her core task of tea picking. This worker described how, on the next day, she went back to tea picking with “additional enthusiasm.” Similarly, another worker (I4) said,

Sometimes [my supervisor] wants me to do handling, meaning giving the bushes like a haircut . . . broken branches, twigs are removed from the plant. Unwanted burden from the plant is removed . . . this gets my hands dirty [but] I realize that because someone does handling, I am able to pick “two leaves and a bud,” the highest quality. Then I pick with passion.

This worker also describes how performing a facilitative supplementary task—in this case, “foliar handling”—reminded her of how other tasks (and workers) support her core task, thus increasing her identification with tea picking and her motivation when she is performing this core task. Consider also the example of removing weeds from around tea bushes described to us by a worker (fieldnotes). The thought that they might someday harvest tea from the very plant they are weeding rekindles the worker’s sense of attachment with the plants and identification with the core task of picking tea.

A supervisor (I11) at the plantation identified the same phenomenon described by the workers. He said,

When a picker does weeding, that’s manual work he has to do right through the day. . . . Don’t get me wrong, many tasks have manual work! [But] when he does weeding . . . he then understands—to get to the tea picking [stage], it’s not magic, so many things need to happen.

The supervisor’s words show his belief that participating in the spectrum of facilitative tasks needed to perform the core task, rather than spending

time on manual non-facilitative tasks, reminds workers of all the work that is involved, which in turn increases their performance of the core task.

Workers explained that not all supplementary tasks fueled their identification with tea picking; only facilitative tasks had this effect. One worker (I22) said, “If I am assigned to work in the factory, that’s totally different. It’s unrelated to tea picking. . . . It doesn’t affect my tea picking.” Another worker (I10) similarly said, “There have been times when I’ve been asked to help repair the fences. While I’m good at it, it’s so far away from my main work. I do it because I’m asked to, but it doesn’t . . . do anything for me.” Yet another worker (I18) said, “Once in a while, they [management] ask me to sweep roads. It’s not difficult and I don’t mind, but I don’t particularly enjoy it and I don’t see the connection to my main job.” Perhaps because tasks such as sweeping roads do not involve tea plants directly, workers do not feel that performing non-facilitative tasks is contributing toward the production of tea. The lack of direct involvement with tea plants also means that performing these supplementary tasks does not give rise to any additional feelings of attachment toward the core task of tea picking among workers.

Further, a few workers seemed to predict that the positive effect of performing facilitative over non-facilitative supplementary tasks on tea-picking productivity dissipates over time. One worker (I22) explained, “When I am assigned to pruning, I am reminded how much love and care the tea plants need in order for them to produce healthy leaves that I can pick. Then I forget about this until I am assigned to pruning or weeding again.” Another worker (I7) added, “Sometimes, I’m asked to apply fertilizer. When I have this change and then come back to picking tea, I’m especially in touch with the plants and pick with great care and really enjoy it. But this is for a few days, then I go back to my regular ways of picking tea.” These quotes suggest that performing facilitative supplementary tasks infuses workers with a burst of core task identification (in a way that performing non-facilitative tasks does not), which motivates them to be more productive in their core task for a while, before the effect fades away. Overall, the qualitative data suggest that working on facilitative rather than non-facilitative supplementary tasks temporarily motivates productivity in the core task by increasing core task identification.

Quantitative Evidence

Having uncovered the mechanism of core task identification, I wanted to validate insights derived from my qualitative data with quantitative tests. First, I wanted to investigate the longevity of the effect of facilitative supplementary tasks on productivity, as my qualitative data point to a short-lived positive effect on tea picking productivity from performing facilitative supplementary tasks, keeping the number of supplementary tasks constant. To do that, I analyzed the effect of a worker performing any facilitative

Table 5. Longevity of Productivity Effects

	<i>Core task productivity</i>	
	<i>(Two weeks)</i>	<i>(Four weeks)</i>
Facilitative supplementary tasks	6.153*** (1.345)	-0.555 (1.026)
Observations	14,644	14,027
Clusters	222	222
R^2	0.448	0.537
Number supp. tasks fixed effects	Yes	Yes
Month/year fixed effects	Yes	Yes
Worker fixed effects	Yes	Yes

Notes: Worker-week level observations. All estimates are from ordinary least squares (OLS) models. Facilitative supplementary tasks = 1 if any facilitative tasks performed in a given week. Core task productivity: kg of tea picked in the following two weeks or four weeks. Standard errors clustered by worker are in parentheses.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

supplementary tasks in a given week on core task productivity in the following two weeks and the following four weeks (see Table 5). Note that the switch in dependent variables here resulted in a small reduction in the number of observations compared to Table 2.¹³ All estimates are from OLS models that include number of supplementary tasks, month/year, and worker fixed effects in both models. Standard errors clustered by worker are in parentheses. In the two-week analysis, I find that two weeks after performing a supplementary task, productivity was 6.153 kg higher when workers performed a facilitative task than when they performed a non-facilitative task. This change amounts to approximately an 8.8% increase in productivity, which is substantively large and statistically significant. In the four-week analysis, the coefficient for facilitative supplementary tasks drops to -0.555, which is small and statistically insignificant, indicating that performing facilitative supplementary tasks had no effect on productivity for the longer time span of four weeks.

This analysis is illuminating: It shows that simply adding any facilitative supplementary task to a worker's portfolio in place of a non-facilitative one can generate a productivity boost of close to 10% lasting for two full weeks after the facilitative supplementary task was performed, but the effect then begins to dissipate with the passing of additional time. This result is consistent with the mechanism of core task identification, given that unlike commitment and learning, a situational-identification effect should fade away with greater distance from the reinforcing cue, in this case facilitative tasks.

Additionally, if the mechanism of core task identification is important, the effect of performing facilitative supplementary tasks on core task

¹³Weeks at the end of the data set were cut off from this analysis if two-week or four-week productivity could not be calculated.

Table 6. Heterogeneity in Support of Mechanism

	Core task productivity	
	(below median exposure to supplementary tasks)	(equal to or above median exposure to supplementary tasks)
Facilitative supplementary tasks	9.923*** (1.930)	5.678* (1.850)
<i>Chow test</i>		313.69***
Observations	7,235	7,730
Clusters	110	112
R^2	0.379	0.374
Number supp. tasks fixed effects	Yes	Yes
Month/year fixed effects	Yes	Yes
Worker fixed effects	Yes	Yes

Notes: Worker-week level observations. All estimates are from ordinary least squares (OLS) models. Facilitative supplementary tasks = 1 if any facilitative tasks performed in a given week. Core task productivity: kg of tea picked the following week. Median exposure to supplementary tasks in any given week: 5%. Chow test: Is difference in regression coefficients between two subsamples statistically significant? Standard errors clustered by worker are in parentheses.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

productivity should be greater among workers with less exposure overall to supplementary tasks; identification-triggering cues from performing facilitative tasks should be strongest for these workers. Thus, for workers with less exposure to supplementary tasks, performing a facilitative supplementary task should instill a stronger reminder of the support structure underlying their core task (as compared to workers who have engaged with the tasks plenty of times), thus boosting core task identification and motivating greater productivity. I thus predict that this group of workers will demonstrate a greater increase in productivity as a result of performing facilitative supplementary tasks compared to workers with more exposure to supplementary tasks.

In Table 6, I perform split-sample analyses, where I look at heterogeneity among different groups of workers at the plantation to quantitatively evaluate whether my proposed mechanism of core task identification underlies the relationship between facilitative supplementary tasks and productivity. All of the estimates are from OLS models, with observations at the worker-week level. The models include fixed effects for worker, month/year, and number of supplementary tasks. The standard errors clustered by worker are in parentheses. Since this is a split-sample analysis, the sum of observations in models (1) and (2) adds up to the total number of observations in Table 2.

I divide the workers into two groups based on their overall exposure to supplementary tasks. Using the median exposure to supplementary tasks (5% in any given week) as the cutoff, in Table 6, model (1), I estimate the effect of facilitative supplementary tasks on core task productivity for workers with below-median exposure to supplementary tasks. In model (2),

I estimate the same regression for workers with above-median exposure to supplementary tasks. Here, I find support for my prediction. For workers with below-median exposure to supplementary tasks, the effect of performing facilitative supplementary tasks on core productivity was an additional 9.923 kg of tea (a 14% increase in productivity). Meanwhile, model (2) reports that the effect on core task productivity for workers with above-median exposure to supplementary tasks was lower, at 5.678 kg of tea, or an 8.5% increase in productivity. I further tested the statistical significance of the difference in regression coefficients between the two subsamples using a Chow test (Chow 1960). The large and significant value of the Chow test (313.69) indicates that the regression coefficient in the below-median exposure to supplementary tasks subsample is statistically significantly larger than the regression coefficient in the above-median exposure to supplementary tasks subsample.¹⁴ I expect that the effect on workers with more exposure is smaller because the core task identification cue from performing facilitative tasks is diluted for them. Note that these workers still demonstrate a productivity boost from being reminded about facilitative supplementary tasks (rather than non-facilitative tasks), but the boost is larger for workers new to supplementary tasks.

Alternative Mechanisms

Apart from the mechanism of core task identification, which I focus on in this article, the literature has discussed two key mechanisms—learning and commitment—through which performing facilitative supplementary tasks could affect core task productivity. Performing facilitative supplementary tasks could offer opportunities for workers to learn about their core tasks or could instill organizational commitment or loyalty toward the tea plantation, and thereby affect productivity. In fact, both of these mechanisms have some face validity in my qualitative data. For example, after asking one worker, “How do you like working on the plantation?” she (I7) said, “It is interesting; while doing the work, it develops my interest in how to do it better, it gives me ideas of different methods of doing the work.” While this quote does not speak directly to the link between facilitative supplementary tasks and core task productivity, it demonstrates workers’ interest in learning. Upon asking another worker, “What is your favorite among so many tasks?” she said, “I like tea picking because it gives fame to the company . . . because ultimately, this is what gives our company its name [status], right?” Again, while this quote does not speak to the specific channel I theorize in this article, it speaks broadly to organizational commitment being a factor at play.

¹⁴I also ran the Chow test using models without fixed effects. The Chow test statistic remains robust with this alternative specification, giving me confidence that the fixed effects are not producing the large and significant value of the Chow test.

I do not dispute the possible presence of these mechanisms in my setting, but I posit that neither the “learning” nor the “commitment” channels are sufficient to explain the pattern of results for two reasons. First, we would expect the learning and commitment channels to have more long-lasting effects on productivity; for example, if a worker learns a more efficient way to perform their core task from working on a facilitative supplementary task, they will switch to always employing this more efficient technique, thus leading to a more sustained increase in productivity. Prior scholarship has indicated that organizational commitment often produces a sustained impact on worker performance as well (Westover, Westover, and Westover 2010). I find, however, that the effect of performing facilitative supplementary tasks as compared to non-facilitative tasks results in only a short-term increase in productivity.

Second, the learning and commitment mechanisms are more likely to operate when one is dealing with workers who are new to an organization. Newer employees have room to learn and establish loyalty toward their organization. By contrast, the knowledge that can be acquired by performing certain supplementary tasks is limited if workers already have a good understanding of how things run in the organization. Similarly, employees who have been with the same organization for years have likely already developed a sense of loyalty. The average tea picker in my setting is very experienced (with more than 15 years of experience). As such, the learning and commitment channels are likely insufficient to explain the productivity effects I observe. One veteran worker (I8) described her limited opportunities for learning: “Each one of us knows every task in the estate. We know applying fertilizers, grafting, spraying, everything. We are doing this work for the past 25 years, and we know all the different types of work.” Another veteran worker (I23) described her well-established loyalty toward the organization: “The average experience of the workforce is around 20 . . . that means to say, most of us workers are here because we are emotionally connected with [the company].” Together, the short-term boosts in productivity and the long tenure of employees at this organization suggest that the learning and commitment mechanisms cannot alone explain the patterns at play in this setting.

Conclusion

The goal of this article was to investigate how the nature of supplementary tasks performed as part of a worker’s task bundle affects the worker’s productivity in their core tasks, comparing workers with the same number of supplementary tasks in their bundles. I collected both quantitative and qualitative data for this study at a large tea plantation in India. Based on my analysis, I argue that the effect of supplementary tasks on productivity depends on the nature of those tasks: Productivity increases when workers perform facilitative supplementary tasks compared to when they perform

the same number of non-facilitative tasks. Facilitative tasks are those that are in service of the core task whereas non-facilitative tasks are those that do not support the core task in any direct way. I find strong evidence of this relationship in my quantitative analysis, which shows a 10% increase in core task productivity as a result of performing facilitative supplementary tasks, holding constant the number of tasks; this effect lasts approximately two weeks.

My evidence further suggests that one link between facilitative supplementary tasks and productivity is core task identification, which I define as the attachment that one feels toward one's core task. When a worker performs facilitative (as compared to non-facilitative) supplementary tasks, I argue that their core task identification increases because they are reminded of how their core task is supported by a host of supplementary tasks. This awareness motivates the worker, increasing their productivity relative to workers assigned only non-facilitative tasks. Qualitative and quantitative data show evidence in support of the core task identification mechanism.

Contributions to the Study of Tasks

This article makes four contributions to the study of tasks. First, it distinguishes between the nature and number of supplementary tasks in a worker's task bundle. Prior theoretical work has considered both the nature and number of tasks within a bundle, but empirical measurement and analysis has often conflated the two concepts. This article makes explicit the difference between these two characteristics of task bundles and draws attention to the importance of studying the nature of supplementary tasks. Here, I am interested in how the *nature* of supplementary tasks affects workers' productivity, keeping constant the *number* of tasks performed.

Second, in theorizing about the nature of supplementary tasks, this research highlights the importance of whether supplementary tasks are *facilitative* of one's core task: Do supplementary tasks assist in the performance of the core task in some way or do they have no bearing on it? This article demonstrates that paying attention to the nature of supplementary tasks matters because facilitative and non-facilitative supplementary tasks affect core task productivity in different ways. I find that performing facilitative supplementary tasks improves productivity, assuming the number of tasks is held constant. This finding offers some insight into the classic debate in the literature regarding when task variety is beneficial. In particular, it suggests that perhaps the studies that argued that variety helps productivity (for example, see Parker et al. 2017) considered task bundles in which the supplementary tasks were facilitative of the core task, and perhaps the studies that argued that variety hurts (for example, see Meiran 2000) considered task bundles in which the supplementary tasks were not facilitative of the core task. This article thus submits that unpacking the concept of "task

variety” could help shed light on the existing theories about the relationship between task bundles and productivity; it may be that these existing theories are not in fact contradictory, but rather that they omit an important variable.

Third, the existing literature has focused on the antecedents of task bundles and the long-term consequences of task bundles but has not considered the immediate outcome of worker productivity. Productivity is important to investigate because workers are often evaluated based on how productive they are at work, and worker productivity has implications for both workers’ careers and organizations’ profitability and growth. This productivity is the outcome of interest in my study.

Finally, this article uncovers the mechanism of core task identification as one key reason why facilitative supplementary tasks improve core task productivity relative to non-facilitative tasks. In theorizing about this mechanism, I bring the large literature on identification, beginning with Marx (1954 [1844]), to the study of task bundles. I find that, for example, when a worker engages in pruning, she gets more attached to tea picking because she is reminded that other workers are pruning tea plants for her benefit; she thus experiences higher core task identification, which motivates greater productivity in the short-term than if she had been assigned non-facilitative tasks, assuming the same number of supplementary tasks in both scenarios. This mechanism brings a human element to the study of tasks by highlighting the fact that workers are not robots mindlessly executing one task after another, but instead they bring emotion and attachment to the tasks they perform.

Limitation

Note that the estimation strategy used in this article is regression models with worker fixed effects, thus controlling for between-worker differences in productivity. While the concern around *which* workers are performing supplementary tasks is eliminated, there still remains a concern around timing of worker assignment to supplementary tasks—namely, the possibility that the timing of *when* workers are assigned to facilitative supplementary tasks is correlated with their productivity. It would be useful for future research to use experimental research designs to randomly assign workers to tasks to causally estimate the effects of performing facilitative supplementary tasks on subsequent core task productivity.

Policy Implications

While the setting for this study is a single tea plantation in southern India, I believe that these findings are generalizable to other contexts, especially settings where a clear divide can be made between core and supplementary work tasks and where supplementary tasks vary in the extent to which they are facilitative of the core task. As Appendix A outlines, plantations in

southern and northern India vary on a variety of dimensions. Although I imagine that specific data on tea-picking productivity will look different in the north as compared to the south given their respective ecological and climate conditions, I expect the theory put forth in this article to generalize to plantations in other regions of India. In other plantations as well, there will be a group of supplementary tasks that are facilitative of the core task of tea picking and another group of supplementary tasks that are non-facilitative, and I would expect differential effects on tea-picking productivity from performing facilitative as compared to non-facilitative supplementary tasks. There might be differences in the portfolio of supplementary tasks performed within a given plantation, as well as the classification of these tasks into the facilitative and non-facilitative categories, but the broad theory should nevertheless be applicable.

To take an example closer to home, an academic's core task is ideating and writing research papers. Two key supplementary tasks that are important parts of our job are advising students and serving on committees. For many of us, advising students is a facilitative supplementary task: Engaging deeply with someone else's work often informs our own research by, for example, exposing us to new literatures or new econometric tools. I have often left student meetings excited to get back to my own work. By contrast, for many academics, committee work is a non-facilitative supplementary task, especially if the issues being discussed in the committee are unrelated to their research. As such, this a non-facilitative supplementary task that could detract from research productivity more so than advising students does. While this is just one example, we can identify a wide variety of contexts outside of India and outside of blue-collar work to which the theories presented in this article could apply.

For example, these findings have implications for the study of job crafting, or the idea that individual employees can change their jobs to make their work more meaningful (Wrzesniewski and Dutton 2001). Scholars have highlighted one form of job crafting, "task crafting," which entails changing the number, scope, or type of tasks done at work. For example, when design engineers altered their own jobs by engaging in relational tasks in addition to design tasks, their work became more meaningful. My article adds to this body of work by suggesting that task crafting is perhaps more effective in making work meaningful when workers take on an additional facilitative supplementary task, as opposed to an additional non-facilitative task.

These findings also have implications for the study of innovation. Using extended case studies from Apple and NASA, scholars have argued that the task composition of jobs could affect the rate and direction of innovation, as well as the suitability of various models of innovation such as open versus organization-centered innovation (Baldwin and Von Hippel 2011; Lakhani, Lifshitz-Assaf, and Tushman 2012). The idea is that when jobs can be decomposed into "critical" tasks, and can be modularized and re-configured

as needed, knowledge workers could be more or less innovative (Baldwin and Clark 2000). This article suggests that innovation scholars would benefit from understanding the work of innovating as a mix of core and facilitative versus non-facilitative supplementary tasks. When workers must perform a certain number of tasks aside from their core tasks, facilitative supplementary tasks should be preferred over non-facilitative in order to maximize core task productivity.

Because of its generalizability, this research offers practical recommendations for HR managers designing jobs in organizations. This article suggests that it would be useful for organizations to figure out which supplementary tasks are facilitative of workers' core tasks and which ones are not. In this article, the classification was rooted in whether or not supplementary tasks entailed working with the tea plants, but this classification is likely to vary from context to context depending on how workers interpret connections between tasks. Most important, exposure to facilitative rather than non-facilitative supplementary tasks may allow workers to be more productive due to higher levels of identification with their core tasks.

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