Target Setting: Global Evidence

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Abstract: We use the World Bank Enterprise Survey (WBES) to study target setting decisions of 10,253 manufacturing firms operating within 85 countries and 24 industries between 2017 and 2022. We focus on a relevant target for manufacturing firms – production targets – as the specific research setting by which to provide evidence on how target transparency and horizon affect target achievement. We find that target transparency and target horizon decrease target achievement. These effects vary predictably with theorized control, worker retention, and decision-making roles of targets. Our study leverages rich survey data to provide large-scale, theory-consistent evidence on target setting decisions taken by manufacturing firms across the globe. Our findings complement and extend extant experimental and field evidence on target setting practices of firms.

Data Availability: The data used are publicly available from the sources cited in the text.

Keywords: target transparency; target horizon; target achievement

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I. Introduction

Targets are a key component of management control systems and help firms achieve favorable performance. Yet, our understanding of target setting decisions taken by firms in practice is limited, as data about targets is rarely publicly available in archival databases (Arnold and Artz 2015; Feichter, Grabner, Moers 2018). We leverage the World Bank Enterprise Survey (WBES), which covers a range of factors that shape the business environment. We focus specifically on the management practices questionnaire and examine target setting practices of 10,253 manufacturing firms in 85 countries and 24 industries between 2017 and 2022. We study how target transparency and horizon affect target achievement and how these relationships vary with the purpose of targets.

The WBES is similar to the U.S. Census Bureau Management and Organizational Practices Survey (MOPS) used in extant accounting and economics research but includes a larger cross-section of countries and a longer time-series (Bloom and Van Reenen 2007; Bloom, Brynjolfsoon, Foster, Jarmin, Patankik, Saprota-Eksten, J. Van Reenen 2019; Labro and Omartian 2024). The World Bank collects the data using face-to-face interviews (in-person or virtual) with top managers and business owners and the average interview lasts longer than one hour. The survey respondents can also include accountants and human resource managers. Firms are selected through a stratified random sample of the universe of firms in the population of interest. Stratification is based on firm size (i.e., 5-19 workers, 20-99 workers, 100+ workers), business sector (e.g., manufacturing), and geographic region within an economy (e.g., major cities within a country). The WBES sample is representative of the private sector of businesses with at least 5 workers and 1% private ownership. More than 90% of WBES questions are objective and less than 10% of the questions are subjective (i.e., asking the respondents for opinions) (World Bank 2024). The hierarchical position of survey respondents, the face-to-face interviews, the stratified random sample, the objective questions, and the administration by an international financial institution all support WBES dataset validity.

To account for differences in languages and cultures across countries, the World Bank initially translates its questionnaire using a professional third-party translator. Language is further refined during 4 days of intensive training with local enumerators where each question is discussed in detail to ensure the meaning is retained. Further improvements are made during a piloting phase where real-world businesses are interviewed to evaluate all aspects of the systems.[1] WBES has been used in auditing and financial reporting research, but not management accounting research (Cheng, Sun, Ye, and Zhang 2020; Hope, Jiang, and Vyas 2021; Ai, Lin, and Newton 2024). As with prior work, we remove observations marked by the interviewer as untruthful or unreliable.

We begin by characterizing our sample. The average firm in our sample has 150 workers, generates all its sales revenue from one product, routinely experiences power outages, is privately owned, with the largest shareholder owning all shares. Our sample thus largely consists of small- and medium-sized enterprises (SMEs), which account for majority of firms globally (McKenize and Woodruff 2017), yet are underexplored in the management accounting literature (Chenhall 2003; Lopez and Hiebel 2015; Armitage et al. 2016; Matějka and Ray 2017; Armitage et al. 2020).

We focus specifically on production targets, which are well-suited for our manufacturing firm context. The WBES notes, "examples of production targets are: production volume, quality, efficiency, waste, or on-time delivery", in line with prior research which finds that manufacturing firms emphasize efficiency, quality, as well as customer responsiveness measures (Lillis 2002).

Extant research has studied performance implications of production targets. Hughes and Thevarajan (1995) theorize that in setting production targets, firms are motivated by both short-term operational decisions (i.e., scheduling current production, assigning labor, and resolving work stoppages) and long-term strategic decisions (i.e., reconfiguring plant layouts, worker training, and

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production process R&D). Their core insight is that, in the presence of moral hazard where worker efforts are unobservable, raising short-term production targets incentivize workers to allocate greater effort to strategic decisions that improve the production process. Webb, Williamson, and Zhang (2013) find that easier production targets allow workers to identify more production efficiencies, while challenging production targets better motivate productive effort. Brüggen, Feichter, and Williamson (2018) find complementarities in that the presence of input (i.e., how much time to spend on a task) and output (i.e., how much to produce) targets for routine tasks (e.g., product manufacturing) motivate better performance on creative tasks (e.g., searching for methods to increase production process efficiencies).[2] We employ production targets as a specific setting to shed light on two understudied aspects of targets more generally – transparency and horizon.

Our dataset contains granular target achievement data. When asked "how easy or difficult was it to achieve its production targets", 7% of firms indicate targets were achieved without much effort, 18% of firms indicate targets were achieved with some effort, 34% of firms indicate targets were achieved with normal effort, 25% of firms indicate targets were achieved with more than normal effort, 8% of firms indicate targets were only achieved with extraordinary effort, and 8% of firms indicate targets were not achieved. Our data captures *ex-post* perceptions of achievement difficulty, not *ex-ante* estimates of achievability (Merchant and Manzoni 1989), although the two can be positively correlated to each other (Matějka, Mahlendorf, and Schäffer 2024). Our research design controls for external factors and worker performance that can affect achievement difficulty.

Target transparency is extensively discussed in practice as well as in experimental and field

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[2] Caruana and Einav (2008) study publicly observable production targets set by the big three U.S. auto manufacturers from a competition lens. They find that firms start by steadily increasing production targets, and only as production levels get closer to production targets, do they start gradually reducing production targets, in line with a hump-shaped pattern. Brüggen, Krishnan, and Sedatole (2011) study the same three auto manufacturers, finding that three factors drive their short-term production decisions: (1) the tendency for managerial accounting systems to absorb all costs including excess capacity to current production, (2) the neglect of intangible costs by traditional accounting systems, and (3) performance measurement systems that place a high degree of emphasis on short-term financial margins.

research but limited large-scale evidence exists on its role in target setting (Fisher, Maines, Peffer, and Sprinkle 2002; Feichter et al. 2018, Arnold, Artz, and Tafkov 2024). Our dataset contains transparency of target data and indicates to whom targets are disclosed. 22% of firms disclose targets only to senior managers, 28% of firms disclose targets to most managers and some production workers, 15% of firms disclose targets to most managers and most production workers, and 35% of firms disclose targets to all managers and most production workers.[3] We leverage this rich survey data from practice to investigate how target transparency affects target achievement.

Our first prediction is that transparent targets encourage less achievable targets. Target transparency allows firms to signal a high-performance policy to workers credibly, as workers can access information about whether a firm's policy (i.e. setting less achievable targets) is consistently implemented across the firm, mitigating resistance to difficult targets. We find that less achievable targets are set by firms that set more transparent targets. This evidence is consistent with the expectation that firms use target transparency to motivate individual effort in manufacturing settings where the need for help among workers is low (Arnold et al. 2024). We infer that the need for help is low by the emphasis of the survey responses on "effort" as opposed to "ability". However, the need for help may not be universally low among manufacturing firms (Holzhacker, Kramer, Matějka, and Hoffmeister 2019). In supplemental analysis, we confirm that our results are concentrated among the subsample of manufacturing firms where the need for help is likely lower (i.e., when managers' performance bonus is based on their own or their team's performance as opposed to the establishment's or firm's performance, thereby deemphasizing collaboration and cohesion as per Labro and Omartian (2024)). We also confirm that our results hold when removing small firms (i.e. less than 20 workers as per the WBES definition), as workers at these small firms

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[3] For comparative purposes, Feichter et al. (2018) report that 69% of survey respondents, which comprise of executive directors for compensation & benefits at 62 large U.S. and European firms, disclose targets to other business groups.

are likely co-located and have frequent interactions, diminishing the impact of target transparency.

Our dataset also contains rich target horizon data, which we leverage to investigate how target horizon affects target achievement. When asked "what best describes the time frame of production targets", 31% of firms indicate the main focus was on short-term targets (less than one year), 48% of firms indicate the main focus was on medium-term targets (combination of short-term and long-term targets), and 21% of firms indicate the main focus was long-term targets (one year or more). Our second prediction is that longer-horizon targets, by allowing for more flexibility in allocating individual effort over time, will encourage less achievable targets. Over longer-horizons, workers can experiment with the most effective effort allocation approach for the task, thereby affording them flexibility. Workers at SMEs require considerable flexibility (Davila, Foster, and Oyon 2009). We find that less achievable targets are set by firms that set longer-horizon targets, consistent with it being a wasteful target setting practice for firms to allow extra time to workers to achieve relatively easier targets (Ionnaou, Li and Serafeim 2016). However, the goal setting literature suggests that shorter-horizon targets can be more effective effort motivators for workers (Locke and Latham 1990; Locke and Latham 2002). Thus, theory suggests that a tradeoff exists between the motivational benefits of shorter-horizon targets and the flexibility in effort allocation afforded to workers by longer-horizon targets. In supplemental analysis, we confirm that our results are concentrated among the subsample of manufacturing firms where the motivational benefits of shorter-horizon targets are muted due to the presence of extraneous factors (i.e., when environmental uncertainty is high as captured by electricity being an obstacle to firm operations, thereby diminishing workers' effort-performance relationship as per Anand (2017)).[4]

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[4] Hirst (1987) defines uncertainty as "the extent to which a task is affected by events or stimuli external to the focal organization and to tasks performed by others in the focal organization". Jiang, He, Liu, and Huo (2024) also study a sample of WBES firms and identify the reliability of electricity as posing significant operational challenges for firms.

Our third and final prediction is that the strength of the target transparency and horizon effects on target achievement vary with the intended role of targets. The literature has identified three major target purposes: (1) control, particularly for performance evaluation, (2) retention of workers, particularly in tight labor markets, and (3) decision-making, particularly as a tool for planning (Arnold and Artz 2015; Matějka and Ray 2017; Labro and Omartian 2024). Given that we examine SMEs, it is likely that a single target is used for all purposes as opposed to multiple targets for multiple purposes (Arnold and Artz 2019). Consistent with the performance evaluation role of targets, we find that the negative impact of target transparency and horizon on target achievement is concentrated among firms that use production target performance to determine promotion of non-managerial workers. Consistent with the retention role of targets, we find that the negative impact of target transparency and horizon on target achievement is concentrated among firms that have greater worker retention concerns (i.e., above median decreases in country-level local unemployment rate as per Labro and Omartian (2024)). Consistent with the planning role of targets, we find that the negative impact of target transparency and horizon on target achievement is concentrated among firms that adequately plan for and utilize available production capacity. This collective evidence is consistent with targets playing simultaneous control, worker retention, and decision-making roles (Arnold and Artz 2019, Arnold, Artz and Grasser 2023).

We conduct several robustness tests. First, while our baseline sample removes observations marked as untruthful or unreliable, we take this data validity exercise one step further and remove observations marked as somewhat truthful and where estimates are computed with some precision. Second, given the constrained nature of the dependent variable, we use ordered logistic, as opposed to ordinary least squares (OLS), regressions. Third, we remove the years 2020 and 2021 from our estimation due to the global pandemic. We find that our results are unaltered by the three changes.

Our findings contribute to the target setting literature. We examine target setting by 10,253 firms operating across 85 countries and 24 industries. Our global and SME focus extends extant research, which emphasizes large firms in developed countries (Libby and Lindsay 2010; Arnold and Artz 2015; Ioannou et al. 2016; Feichter et al. 2018; Arnold and Artz 2019). By using rich survey data, we provide novel insights on two understudied aspects of target setting. Our emphasis on target transparency and target horizon address calls by Ioannou et al. (2016) in the "need for more research on long-term targets", by Feichter et al. (2018) that "future research could examine the extent of variation in the time horizon of targets" as well as Arnold et al. (2024)'s assertion that "target transparency has received little attention in the academic literature. The prevalence of such [target transparency] policies in practice and the specific form they take is not clear."[5]

Our findings also contribute to a broader understanding of the value of management control systems. Economics research points to the importance of aggregate management practices (Bloom et al. 2012; 2013; McKenzie and Woodruff 2017). The management practices include target setting but these are rarely disaggregated (Labor and Omartian 2024). By conducting a detailed inquiry into distinct characteristics of target setting, including how they relate to one another, we provide nuanced insights from the management accounting literature to the broader economics literature, which we believe contributes to "help understand one of the oldest questions in economics and business: why is there such large heterogeneity in management practices?" (Bloom et al. 2019).

The remainder of this paper is organized as follows. Section II presents background information and develops our hypotheses. Section III describes our research design. Section IV provides the empirical results. Section V presents additional analyses and Section VI concludes.

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[5] Longer-horizon targets are not uncommon in practice, as CEO contracts often have multi-year targets (De Angelis and Girnstein 2015) and targets to reduce carbon emissions have an average horizon of 4 years (Ionnaou et al. 2016). 69% of firms in our sample have target horizons over one year, suggesting most production targets are not short-term.

II. Background and Hypothesis Development
Background and Prior Literature

Target setting is a widely adopted management control practice among organizations, as evidenced by a survey of more than 500 managers in medium- and large-sized firms (Libby and Lindsay 2010). Targets are not only perceived by individuals as value added (Libby and Lindsay 2010) but are also associated with better performance (Locke and Latham 2002). Hirst and Yetton (1999) find that, in two simulated chemical production plants, individuals assigned a specific, difficult target for number of production units outperform those with "do-your-best" goals. Gopalakrishnan et al. (2015) demonstrates that setting specific cost goals in the task of redesigning a LEGO model truck results in greater cost reductions than generic goals. Extant accounting research, using surveys, interviews, as well as archival analyses, documents the benefits of target setting (Hansen and Van der Stede 2004; Marginson and Ogden 2005; Arnold and Artz 2015).

Interviews by Merchant and Manzoni (1989) suggest that challenging but achievable targets facilitate control, planning, and motivation. As targets become less achievable, they motivate individuals to exert more effort toward the goal (Otley 1999; Locke and Latham 2002). However, when targets become extremely unachievable, they can decrease worker commitment or create anxiety, leading to negative motivational effects (Beilock et al. 2004). Arnold and Artz (2015) document that the optimal level of target difficulty for performance is below the most challenging level, and this is likely due to the non-monotonic effect between target difficulty and effort (Matějka and Ray 2017). The optimal target difficulty level is also not universally applicable but depends critically on the circumstances and environment of a firm (Arnold and Artz 2019).

The literature often studies firms from a single country, including the United States (Indjejikian, Matějka, Merchant, and Van der Stede 2014; Matějka and Ray 2017; Kim et al. 2023), the United Kingdom (Marginson and Ogden 2005), Germany (Arnold and Artz 2015), Spain

(Aranda et al. 2014), Mexico (Frucot 1991), and China (O'Connor et al. 2004; 2011; Wei 2021; Balakrishnan et al. 2023). Evidence on target setting decisions taken by SMEs globally is scarce (Haka and Heitger 2004; Lopez and Hiebel 2015; Matějka and Ray 2017; Armitage et al. 2020).[6]

As much of the literature emphasizes larger firms in developed counties, most inferences regarding target setting emphasize earnings targets (Indjejikian et al. 2014; Matějka and Ray 2017), sales targets (Bouwens and Kroos 2017), cost targets (Gopalakrishnan et al. 2015), and budgetary targets (Merchant and Manzoni 1989; Fisher et al. 2002; Hansen and Van der Stede 2004; Arnold and Artz 2019). Many SMEs operate globally in the manufacturing sector, where production targets related to efficiency, quality, response time, and on-time delivery performance are much more prevalent (Matějka and Ray 2017; Armitage et al. 2020; Labro and Omartian 2024).

Feichter et al. (2018) conduct in-depth interviews and surveys of managers of 62 large U.S. and European firms and conclude, "research mainly focuses on few key areas in target setting, neglecting many other aspects of target setting in organizations. Hence, relatively little is known about how performance targets are actually set". They specifically point to target transparency and target horizon as a source of "future research directions", noting the lack of evidence in this area.

We examine production target setting decisions of manufacturing sector SMEs because that is the emphasis of the WBES.[7] This represents the specific research setting with which we can leverage rich, large-scale survey data to shed light on target setting practices of firms more generally. We emphasize three target setting characteristics - target transparency, target horizon, and target achievement – as well as three target setting roles – performance evaluation, retention, and planning. These aspects are of interest beyond just production targets of manufacturing firms.

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[6] Ioannouu et al. (2016), Feichter et al. (2018), Arnold and Artz (2019) study targets in firms across multiple countries.
[7] We examine small (5-19 workers), medium (20-99 workers), and large (100+ workers) firms as per the WBES. Definitions of "SMEs" vary, but our sample firms are mostly from what prior research describes as SMEs (e.g., less than 250, 500, or 1100 workers as per Lopez and Hiebel (2015), Armitage et al. (2020), and Matějka and Ray (2017)).

Hypothesis Development – Target Transparency (H1)

Target transparency has benefits. First, by providing workers with access to target information, target transparency can facilitate goal alignment (Feichter et al. 2018). Second, by providing workers an opportunity to identify role models among peers, target transparency can improve worker performance (Sull and Sull 2018). Third, by allowing a firm to communicate credibly that targets are implemented consistently across a firm, target transparency can reduce possible resistance to difficult targets (Bol et al. 2010; Arnold et al. 2024). Fourth, by providing agency to workers, target transparency can engender worker retention (Labro and Omartian 2024).

Target transparency also has costs. First, by rendering target decisions interrelated (i.e., adjusting one worker's target induces fairness concerns among other workers), target transparency can decrease the likelihood of setting individual worker targets (Ordonez, Schweitzer, Galinsky, and Bazerman 2009). Second, by promoting consistency across workers, target transparency can decrease the flexibility firms have in setting targets tailored to individual workers' performance potential (Feichter et al. 2018). Third, by making information accessible, target transparency can increase potential for conflict between workers and/or managers (Bol, Kramer, and Maas 2016).[8]

The net effect of target transparency on target achievement depends on whether the need for help among workers is low or high. Target transparency is expected to decrease target achievement when the need for help is low. This is premised on the idea that, under low need for help, firms can signal a high-performance policy (i.e., motivate individual effort) credibly (i.e., the policy is consistently implemented), thereby mitigating resistance to challenging targets. Workers' perceptions are dependent on whether policies are applied consistently, and target transparency

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[8] Our dataset captures transparency of firm-level targets. It does not capture transparency of individual worker-level targets (Arnold et al. 2024) nor transparency of business unit-level targets (Feichter et al. 2018). Sull and Sull (2018) argue that transparency of firm-level targets increases incentive alignment between workers, business units, and firms.

gives workers agency via access to information, thereby reducing resistance to targets. As such, firms can set more challenging targets, thereby decreasing target achievement (Arnold et al. 2024).

We expect that target transparency is used by sample firms to motivate high-performance as opposed to cooperation among workers and helping of one another. Manufacturing contexts where extrinsic monetary incentives are set based on individual-level performance are less likely to induce collaboration and investment in co-worker interactions (Labro and Omartian 2024).[9] The WBES responses also explicitly reference "effort", suggesting that task type is more likely to be effort than ability driven (Arnold et al. 2022). As such, the need for help among workers is likely lower, and target transparency should result in increased target levels (Arnold et al. 2024). With high target transparency, firms can signal a high-performance policy with challenging targets for everyone, and workers can assess whether the policy is consistently implemented for all workers. We therefore predict a negative association between target transparency and target achievement.

H1: Ceteris paribus, firms with more transparent targets set less achievable targets.

Hypothesis Development – Target Horizon (H2)

Shorter-horizon targets have motivational benefits (Locke and Latham 1990; Locke and Latham 2002). First, as targets become more motivating when an individual is close to reaching them, shorter-horizon targets are effective at motivating individual effort (Heath, Larrick, and Wu 1999). Second, as decomposing a target into multiple targets means that individuals can achieve more targets and thereby attain greater satisfaction from target achievement, shorter-horizon targets are effective at motivating individual effort (Locke and Latham 2002). Bandura and Simon (1977) argue that individuals internalize that shorter-horizon targets are more effective motivators.

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[9] We examine responses to, "What were managers' performance bonuses mostly based on?" (1 = own performance, 2 = team's performance, 3= establishment's performance, 4 = firm's performance). The mean value of this variable is below 2, suggesting that for the average firm in our sample, managers' bonus compensation is only dependent on workers within their span of control (i.e., own or team performance), not on workers outside their span of control.

Longer-horizon targets afford individuals more flexibility in allocating effort across time (Kirschenbaum 1985; Read, Loewenstein and Rabin 1999). First, initial failure of shorter-horizon targets can be demotivating (Anand, Webb and Wong 2023). Longer-horizon targets that allow for flexibility in effort allocation across time are potentially effective at avoiding demotivation and improving performance (Kirschenbaum, Humphrey, and Malett 1981). Second, allowing extra time to achieve easier targets is considered wasteful, suggesting that longer-horizon targets are better suited for less achievable targets. Over longer-horizons, individuals can better experiment with and make decisions about the most effective way to achieve targets (Ionnaou et al. 2016).

The net effect of target horizon on target achievement depends critically on uncertainty in in workers' effort-performance relationship. Target horizon is expected to decrease target achievement when environmental uncertainty is high. Negative realizations of uncertainty have a greater impact on workers' effort-performance relationship in the short-run than the long-run. This is premised on the idea that, under high uncertainty, individuals cannot exert enough effort to overcome negative realizations of uncertainty, thereby mitigating the motivational benefits of shorter-horizon targets. Under high environmental uncertainty, the flexibility benefits of longer-horizon targets dominate the motivational benefits of shorter-horizon targets, and firms can set more challenging targets, which in turn decrease workers' target achievement (Anand 2017).

We expect that target horizon is used by sample firms to afford workers more flexibility in allocating effort across time as opposed to motivating effort. SMEs, particularly globally, face considerable environmental uncertainty and flexibility in management control systems is of utmost importance in the face of uncertainty (Chenhall 2003; Lopez and Hiebel 2015; Armitage et al. 2016; Armitage et al. 2020). As such, the motivational benefits of shorter-horizon targets are likely lower, and longer-horizons targets should result in increased target levels (Ionnaou et al. 2016;

Anand 2017). With longer-horizon targets, workers can use flexibility to allocate effort across time. We therefore predict a negative association between target horizon and target achievement.

H2: Ceteris paribus, firms with longer-horizon targets set less achievable targets.

Hypothesis Development – Target Purposes (H3)

Targets can be used for many purposes within an organization. We emphasize three core roles studied in prior target setting research. First, targets serve a control purpose in performance evaluation, delegation of decision rights, and in directing managerial behavior (Arnold and Artz 2015). Second, targets serve as an important worker retention tool (Matějka and Ray 2017; Labro and Omartian 2024). Third, targets serve as a decision-making tool in planning, coordination, and resource allocation (Hansen and Van der Stede 2004; Widener 2007). While these roles can be incongruent, firms often use similar target setting practices to serve these different roles (Libby and Lindsay 2010; Becker, Mahlendorf, Schäffer, and Thaten 2016; Arnold and Artz 2019).

Armitage et al. (2016; 2020) study SMEs and specifically emphasize the performance evaluation and planning functions of targets. Matějka and Ray (2017) study SMEs and specifically emphasize the performance evaluation and retention functions of targets. Labro and Omartian (2024) study manufacturing firms of varying size and specifically emphasize the performance evaluation and retention functions of targets. Collectively, these studies suggest that targets serve to a) link workers' performance evaluation and rewards to target achievement, b) offer agency to workers by strategically using targets to foster longer-term commitment when faced with the threat of departing workers, and c) implement and coordinate a plan of action for target achievement. To the extent that production target setting decisions of manufacturing sector SMEs are driven by similar considerations, we expect that the negative impact of target transparency and horizon on target achievement is concentrated among sample firms that are motivated by these three purposes.

Given the performance evaluation role of targets, we expect that the negative impact of target transparency and horizon on target achievement is concentrated among firms that use target performance to help determine promotion of non-managerial workers. Promotions arise as a consequence of performance evaluation, and we expect that target characteristics play an important role in facilitating this long-term extrinsic incentive (Ioannou et al. 2016; Arnold and Artz 2019).[10]

Given the retention role of targets, we expect that the negative impact of target transparency and horizon on target achievement is concentrated among firms that have greater worker retention concerns.[11] Target characteristics represent a lever through which firms can offer more agency and variable compensation to workers (Matějka and Ray 2017; Kim et al. 2023; Labro and Omartian 2024), and we expect that target characteristics play an important role in worker retention.[12]

Given the planning role of targets, we expect that the negative impact of target transparency and horizon on target achievement is concentrated among firms that adequately utilize available capacity in the production process. Targets are an important information source for planning, and we expect that target characteristics play an important role for planning for the production process (Hansen and Van der Stede 2004; Widener 2007; Arnold and Artz 2015 2019; Ioannou et al. 2016).

H3: Ceteris paribus, firms with more transparent targets and longer-horizon targets set

less achievable targets, when driven by motivations related to:

a) performance evaluation

b) worker retention

c) planning

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[10] Bonuses also arise as a consequence of performance evaluation, and prior research finds that target horizon (Ioannou et al. 2016) and transparency (Arnold et al. 2024) play an important role in facilitating this short-term extrinsic incentive. We find similar evidence if we look at bonus payments but emphasize promotions in our test to offer novel evidence. Short-term extrinsic incentives have been studied more extensively in the literature (Corgnet et al. 2015).

[11] Consistent with Labro and Omartian (2024), we find higher target transparency and achievement for these firms.

[12] Our specific prediction is that when faced with worker retention concerns, firms ensure that less achievable targets are coupled with more transparent targets (which workers value because it provides them *agency* through access to information) and longer-horizon targets (which workers value because it provides them *flexibility* in effort allocation).

III. Research Design

Sample

We use standardized surveys administered by the World Bank, which began conducting surveys of entities with five or more workers worldwide in the early 2000s. The primary objective of these surveys is to collect information about a country's business environment, how individual firms experience it, how it evolves, and the constraints that affect firm performance and growth. The World Bank follows a consistent sampling methodology to select a sample of firms to be surveyed each year, creating a distinct sample of firms in each WBES. The survey contains standardized global, country-level, and industry-specific questions, with some changes to the questions over time. WBES provides comparable indicators of the business environment across the globe, thus enabling researchers and policymakers to assess the important constraints to enterprise performance and the growth of the private sector. As such, the WBES dataset contains both firm performance measures (e.g., sales, historical sales, costs of production) and rich information about business environment features, such as access to finance, infrastructure, market competition, and labor. Most variables reflect objective facts (e.g., whether the firm has its financial report audited), and less than 10% are based on survey respondents' opinions of current situations.

One notable advantage of the WBES is its high-quality data. The World Bank undertakes a series of procedures to mitigate data validity concerns stemming from sample bias or untruthful responses. Specifically, the World Bank sends its private contractors to conduct face-to-face interviews (in-person or virtual) with the owners, top managers, and other relevant staff members (e.g., accountants) of surveyed firms. To ensure the most truthful disclosure of firm data, the World Bank keeps the identities of the respondent firms anonymous and confidential. This is important given that the questionnaire includes some sensitive questions (e.g., informal payments to public officials). As such, the WBES survey data we employ is widely considered to be high-quality.

Our sample comprises of global firms surveyed in WBES Manufacturing Module regarding operations for fiscal years 2017-2022. We start our sample in fiscal year 2017 because that is when questions related to management practices were first introduced.[13] We end our sample in fiscal year 2022 based on the latest available dataset.[14] This provides us with an initial sample of 26,990 manufacturing firms from around the globe. To ensure the reliability of the survey responses, we remove 303 observations where the responses are marked as untruthful by interviewers. We also remove 944 observations where the responses are marked as providing arbitrary and unreliable numbers by interviewers (Cheng et al. 2020). We then remove 7,360 observations with missing responses to production target related questions.[15]We further remove 1,631 and 6,499 observations due to missing data required to construct firm and country level control variables, respectively. The sample selection criteria described above generates a final sample of 10,253 observations, representing firms across 85 countries, 24 industries, and 6 fiscal years. We report our sample construction process, including the number of observations removed at each step, in Table 1.

Table 2, Panel A reports the sample distribution by country. The ten countries with the largest representation in our sample are Denmark, Finland, France, Germany, Hungary, India, Indonesia, Malaysia, Pakistan, and Portugal, suggesting a broad range of coverage from countries across the globe. [16] We find that target transparency is 2.614 on average, which is closest to the answer of "most managers and most production workers.", Central African Republic, Lesotho, Samoa, Vanuatu, and Sweden have the highest target transparency whereas Chad, Lebanon, India, Timor-Leste, and Ukraine, have the lowest target transparency. We find that target horizon is 1.906

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[13] The World Bank adapted and implemented a subset of the survey questions from Bloom and Van Reenan (2007).
[14] The surveys are typically conducted in calendar years after the completion of a fiscal year. For example, in Table 2, Panel C, of the 3,167 observations we have for fiscal year 2022, 534 responses were collected in calendar year 2022, 2,529 responses were collected in calendar year 2023, and 104 responses were collected in calendar year 2024.
[15] This implies that approximately 1/3 (7,360/26,990) firms do not have, or provide information on, production targets.
[16] WBES focuses on developing countries. Developed countries are included when outside funding is made available.

on average, which is closest to the answer of "main focus was on short-term and long-term targets." India, Jordan, Lesotho, Tanzania, and Uzbekistan are the five countries with the longest target horizon whereas France, Ireland, New Zealand, Paraguay, and Samoa are the five countries with the shortest target horizon. For ease of interpretation, we multiply the responses for target achievement by negative -1 such that "achieved without much effort" (i.e., 1) is considered most achievable and "targets were not achieved" (i.e., 6) is considered least achievable. We find that target achievement is -3.346 on average, which is the closest to the answer "achieved with normal amount of effort." Barbados, Chad, Jordan, Pakistan, and Togo have the most achievable targets whereas Bangladesh, Bosnia and Herze, Cambodia, Central African Republic, and Spain have the least achievable targets. Relative to U.S. based manufacturing firms (Bloom et al. 2019), our sample of global manufacturing firms have lower target transparency and higher achievement.[17]

Table 2, Panel B reports the sample distribution by industry, following the World Bank's classification of sectors based on the International Standard Industrial Classification (ISIC). The five industries with the highest representation in our sample are food products, wearing apparel, rubber and plastic products, fabricated metal products, as well as machinery and equipment. Firms in the computer, electronic, as well as the optical products industry have the most transparent targets and the longest horizon targets, respectively. Firms in the textiles (repair and installation of machinery and equipment) industry have the least (most) achievable targets. Table 2, Panel C reports the sample distribution by fiscal year. Observations in 2021, 2020, and 2018, have the least transparent targets, shortest horizon targets, and easiest to achieve targets, respectively.[18]

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[17] Target horizon is not directly comparable between our sample and Bloom et al. (2019). We are interested in the *length* of the target horizon so we rate "short-term and long-term targets" as a 2 (i.e., a medium-horizon target). Bloom et al. (2019) are interested in the *number of different horizons used* so rate "short-term and long-term targets" as a 3.
[18] The smaller number of observations for fiscal years 2017, 2019, and 2020 can be explained as follows: For 2017, the management practice questions were not fully implemented until the end of 2017, precluding inclusion of most firms. For 2019 and 2020, the World Bank dedicated staff resources away from the Enterprise Survey and towards the COVID-19 survey. Our results are insensitive to excluding these three fiscal years from our empirical analysis.

Research Design

To examine the relation between target achievement and target transparency (*H1*) as well as target horizon (*H2*), we estimate the following Ordinary Least Squares (OLS) models:

$$Target\_Achievement_{i,t} = \alpha_1\, Target\_Transparency_{i,t} + \alpha_{2\text{-}18}\, Firm\ Characteristics_{i,t}$$
$$+\ \alpha_{19\text{-}24}\, Country\ Characteristics_{i,t} + Country\ FE + Year\ FE + Industry\ FE + \varepsilon \qquad (1)$$

$$Target\_Achievement_{i\ i,t} = \beta_1\, Target\_Horizon_{i,t} + \beta_{2\text{-}18}\, Firm\ Characteristics_{i,t}$$
$$+\ \beta_{19\text{-}24}\, Country\ Characteristics_{i,t} + Country\ FE + Year\ FE + Industry\ FE + \varepsilon \qquad (2)$$

Our dependent variable in Equations (1) and (2) is target achievement (*Target_Achievement*). We construct this variable based on answers to the WBES question "How easy or difficult was it for this establishment to achieve those production targets overall?". Specifically, we construct an ordinal variable ranging from negative one to six, where a more negative value indicates a less achievable target. We code *Target_Achievement* to negative one to six for each of the following answers: (1) "achieved without much effort", (2) "achieved with some effort", (3) "achieved with normal amount of effort", (4) "achieved with more than normal effort", (5) "only achieved with extraordinary effort", and (6) "targets were not achieved", respectively.

Our variable of interest in Equation (1) is target transparency (*Target_Transparency*). We construct this variable based on answers to the WBES question "Who was aware of the production targets at this establishment?". We construct an ordinal variable ranging from one to four, where a higher value indicates higher target transparency. We code *Target_Transparency* from one through four for each of the following answers: (1) "only senior managers", (2) "most managers and some production workers", (3) "most managers and most production workers", and (4) "all managers and most production workers", respectively. Our variable of interest in Equation (2) is target horizon (*Target_Horizon*). We construct this variable based on answers to the WBES question "What best describes the time frame of production targets at this establishment?". We

construct an ordinal variable ranging from one to three, where a higher value indicates longer-horizon targets. We code *Target_Horizon* from one through three for each of the following answers: (1) "main focus was on short-term, less than one year", (2) "combination of short-term and long-term targets", and (3) "main focus was on long-term, one year or more", respectively.[19,20]

To examine how the relation between target achievement, transparency and horizon varies with target purpose (*H3*), we use three measures to capture the performance evaluation, retention, and planning target roles. For performance evaluation, our measure is based on the WBES question "What was the primary way non-managers were promoted at this establishment?" We construct an indicator variable, *Performance Evaluation*, equal to one if the response was "based solely on performance and ability", and zero otherwise. For worker retention, our measure is based on the approach of Labro and Omartian (2024). We construct an indicator variable, *Retention*, equal to one if the decrease in country-level unemployment rate from the previous to current year, scaled by unemployment rate in the previous year, is above median, and zero otherwise. For planning, our measure is based on the WBES question "What was this establishment's output produced as a percentage of the maximum output possible if using all the physical capital available (capacity utilization)?" We construct an indicator variable, *Planning*, equal to one if the capacity utilization is above median (i.e., 80 percent or higher), and zero otherwise.[21] Using all three target purpose measures, we conduct subsample analyses of Equations (1) and (2) as tests of *H3a-c*.

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[19]As our objective is to measure target horizon, we classify "combination of short-term and long-term targets" as medium horizon targets (i.e., a mix of short-term targets less than one year and long-term targets greater than one year). We assign a score of 2 to these responses. Our results are insensitive to assigning a score of 3, as the WBES does, although this scoring methodology places primacy on having a mix of targets, as opposed to target horizon itself.
[20] We note that, in any given fiscal year, not all targets would have reached the end of their target horizon. We assume that workers, in commenting on target achievement, are responding based on the elapsed horizon. For example, if a firm has a target horizon of two years, workers assessment of achievement difficulty is based on 50% of the target.
[21] Capacity utilization closer to 100 percent is suggestive of operational planning being successfully implemented at firms. Poor capacity utilization can result from inadequate operational planning and result in significant costs (e.g., idle capacity costs, lost sales due to alternative uses for capacity, unused worker capacity) (Arnold and Artz 2019).

Control Variables

As we use a large sample with cross-firm, cross-industry, and cross-country variation, we directly control for measurable and observable characteristics that can affect both our outcome variable (i.e., target achievement) as well as our variables of interest (i.e., target transparency and target horizon). We do note, however, that we find similar results without inclusion of controls.

Our first set of control variables relates to firm fundamentals. Larger firms are more likely to achieve targets (Ioannou et al. 2016; Kim et al. 2023) and/or have more formalized target setting practices (Arnold and Artz 2015). Thus, we control for firm size, measured as natural log of the number of permanent, full-time employees (*Size*). Target setting practices evolve over time as firms mature (Aranda et al. 2017), so we control for firm age, measured as natural log of the number of years the firm is in operation (*Age*). As individual managers are important in setting targets and industry-relevant experience can impact their target setting decisions (Aranda et al. 2017; Arnold et al. 2022), we control for the manager's industry-specific experience (*Manager)*.

Our second set of control variables relate to firm ownership. As public firms are more likely to prioritize maximizing shareholder wealth and external market pressure can affect internal target setting (Arnold and Artz 2015), we control for whether firms are publicly traded (*Public*). We also control for whether the state/government owns the surveyed firm (*State*), as these firms face institutional pressures that can affect their target setting decisions (Wei 2021; Balakrishnan et al. 2023). We further control for whether the firm is part of a larger group (*Part*) as SMEs are often part of larger corporate-level entities, and this can impede target achievement (Matějka and Ray 2017). As SMEs often have owner-managers that drive major target setting decisions (Armitage et al. 2020), we also control for whether the largest shareholder owns all of the shares (*Block*).

Our third set of control variables relate to the firms' bank financing condition, measured

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as whether firms have an existing loan (*Loan*) and whether firms use banks to finance working capital (*Finance*), as the need for capital can impede target achievement (Matějka and Ray 2017).

Our fourth set of control relate to government relations. Target setting decisions of firms with significant government interactions can be impacted by social and political objectives (Wei 2021; Balakrishnan et al. 2023). We control for firms' government relations, measured as whether the firm has a government contract (*Gov*), the amount of time senior management spends dealing with government regulations (*Time*), and the firm's perception of political instability (*Instability*).

Our fifth set of control variables relates to the firms' product market conditions, as competition and dynamism can impact targets (Arnold and Artz 2015). We control for whether the firm relies solely on its main product to generate sales (*Main*) and the quality of the products, measured as whether the firm has an internationally recognized quality certification (*Quality*).

As infrastructure-related constraints can create uncertainty and operational challenges in meeting targets (Hirst 1987; Kim et al. 2023 Jiang et al. 2024), we control for the influence of informality in an economy (*Informality*) and whether a firm experiences power outages (*Outages*).

Our measure of target achievement (*Target_Achievement*) is likely a function of *ex-ante* target difficulty when setting the target as well as *ex-post* worker performance and external factors after having set the target. The extensive list of controls outlined above is intended to account for the influence of external factors. To account for the impact of worker performance, we control for labor productivity (*Productivity*), defined as the natural log of the value added per employee, where value added is computed as the value of sales minus labor and material costs for the year (Banker, Datar, and Rajan 1987; Banker, Huang, Li, and Zhao 2021; Berger, Choi, and Tomar 2024).[22]

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[22] We identify sales, labor costs, material costs, and employees from the questions, "What were this firm's total annual sales?", "Total annual cost of labor including wages, salaries, bonuses, and social security payments", "Total annual cost of raw materials and intermediate goods used in production", and "Num. permanent, full-time employees".

As target setting practices can be different among developed and developing countries (Bloom et al. 2019), we control for developing countries using the World Bank's classification (*Developing*), which is based on the annual Gross National Product per person (World Bank 1978).

We also include a set of time-varying country characteristics to account for the influence of country-level factors on individual firms following Cheng et al. (2020). These controls include GDP growth (*Growth*), GDP (*GDP*), rate of inflation (*Inflation*), and size of the population (*Population*). We also control for the institutional environment (*Institution*). Specifically, we use the World Development Indicators from the World Bank to capture six dimensions of a country's institutional environment, including government effectiveness, regulatory quality, corruption, political stability, rule of law, and voice and accountability. We then calculate the first principal component of these indicators following Cheng et al. (2020) and include this in our model.

We include country fixed effects and industry fixed effects to account for the time-invariant country and industry characteristics that may affect firm behavior (Arnold et al. 2019). We also include year fixed effects to account for the unobservable characteristics of the years covered in our sample.[23] We cluster standard errors by country. We winsorize all continuous variables at the 1st and 99th percentiles to reduce outlier influence. All variables are defined in Appendix A. The full set of questions on management practices that we employ in our analysis are in Appendix B.

Descriptive Statistics

Table 3 reports the descriptive statistics of our final sample. Regarding firm fundamentals, we find that our sample firms have 150 workers, on average. The firms in our sample are substantially smaller in size than those included in other target setting studies, thus offering valuable insights into SMEs.[24] Our sample firms have been in operations for 20 years, on average.

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[23] Because all firms appear only once in the WBES, we do not include firm fixed effects or cluster at the firm level.
[24] For example, more than 90% of sample firms in Arnold and Artz (2015) have over 1,000 workers.

Managers have an average of 16 years of experience in the industry. Regarding ownership characteristics, 7.9, 1.0, 19.3, and 41.8 percent of our sample firms are publicly traded, have state ownership, are a part of a larger corporate group, and are entirely owned by the largest shareholder, respectively. Regarding bank financing, 51.5 and 42.7 percent of our sample firms have an existing loan and use banks to finance working capital, respectively. Regarding government relations, 15.3 percent of our sample firms have a government contract, and managers spend an average of 10.8 percent of their time dealing with government regulations. Firms view political instability as a minor to moderate obstacle, on average. Regarding product markets, 53.0 percent of our sample firms generate all of their sales from their main product and 50.8 percent have an internationally-recognized quality certification. Regarding infrastructure, our sample firms, on average, view informality in the economy as a minor to moderate obstacle, and 40.7 percent experience power outages. Regarding country characteristics, 54.2 percent of our sample firms are from developing countries. Our sample countries have an average GDP growth rate of 2.8 percent with a GDP per capita of $9,036, an inflation rate of 6.5 percent, and a population of over 23 million, respectively.

Finally, 64.2 percent of sample firms make worker promotion decisions solely on performance and ability. The average production capacity utilization is 78.2 percent and the average decrease in unemployment rate is 6.9 percent. Furthermore, 54.3 percent of sample firms make managers' performance bonuses contingent on their own or their team's performance and 58.8 percent of sample firms deal with environmental uncertainty arising from electricity.[25]

Table 4 reports the Pearson correlation for our variables. Target transparency and target horizon are both negatively correlated with target achievement. The correlation coefficients generally remain below 0.3, suggesting little evidence of multicollinearity among the variables.

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[25] For each of these variables, the sample size is smaller than the baseline sample due to lack of data availability.

Distribution of Target Characteristics

Table 5, Panel A reports the distribution of our sample firms' target achievement. We find that the most common category is "achieved with normal amount of effort", followed by "achieved with more than normal effort". We also find that as target achievement becomes more extreme (i.e., very easy or very difficult), there are fewer firms that fall in each of the respective categories.

Table 5, Panel B reports the distribution of our sample firms' target transparency. We find that the least common category of transparency is "most managers and most production workers" and the other categories (i.e., "only senior managers", "most managers and some production workers", and "all managers and most production workers") are relatively evenly distributed.

Table 5, Panel C reports the distribution of our sample firms' target horizon. We find that the most common category of horizon is "combination of short-term and long-term targets" with half of our sample firms falling into this category. There are considerably more firms in the category of "main focus was on short-term targets" than "main focus was on long-term targets".[26]

IV. Empirical Results

Target Transparency and Achievement

Table 6, Column (1) reports the results from estimating Equation (1). We find that the coefficient estimate on *Target_Transparency* is negative and significant (*p-value* < 0.01). These results indicate that firms with more transparent targets set less achievable targets, supporting *H1*.

Target Horizon and Achievement

Table 6, Column (2) reports the results from estimating Equation (2). We find that the coefficient estimate on *Target_Horizon* is positive and significant (*p-value* < 0.05). These results indicate that firms with longer-horizon targets set less achievable targets, supporting *H2*.

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[26] Cai, Gallani, and Shin (2023) study a manufacturing firm with 500 workers and find that monthly production targets are set at the beginning of the year, at challenging levels, and target setting is used to identify exceptional workers.

Target Transparency, Horizon, and Achievement

As a robustness test, we include both target transparency and target horizon as our variables of interest and assess whether these characteristics have incremental effects on target achievement. Table 6, Column (3) reports the results from estimating the relation between target achievement and our two variables of interest, *Target_Transparency* and *Target_Horizon*. We find that the coefficient estimates on *Target_Transparency* and *Target_Horizon* are both negative and significant (*p-value* < 0.01 and 0.05, respectively). These results confirm that our predictions regarding *H1* and *H2* are incremental to one another, providing further support for our hypotheses.

Several control variables are consistently significant in Table 6, Columns (1) to (3). The coefficient estimate on *Loan* is negative and significant (*p-value* < 0.01), suggesting the need for capital can impede target achievement (Matějka and Ray 2017). The coefficient estimates on *Time* and *Instability* are also negative and significant (*p-value* < 0.05 and 0.01, respectively), suggesting significant government interactions can impede target achievement (Wei 2021; Balakrishnan et al. 2023). The coefficient estimate on *Informality* is negative and significant (*p-value* < 0.05), suggesting informality in the economy can impede target achievement (Hirst 1987; Kim et al. 2023 Jiang et al. 2024). The coefficient estimate on *Productivity* is positive and significant (*p-value* < 0.05), suggesting worker productivity can enhance target achievement (Matějka et al. 2024). Finally, several of the time-varying country-level control variables (*GDP, Inflation, Population,* and *Institution*) are significant, underscoring the importance of these controls (Cheng et al. 2020).

Purpose of Targets

In Table 7, Panel A, we split the sample based on the variable *Performance Evaluation,* which captures whether workers' promotions are based on performance. We find that the negative relation between target transparency and horizon with target achievement is concentrated in the

subsample of firms where promotions are based on performance (*p-value* < 0.01), supporting *H3a.* This suggests that the target setting practices we examine serve a performance evaluation role.

In Table 7, Panel B, we split the sample based on the variable *Retention,* which captures whether firms have major worker retention concerns. We find that the negative relation between target transparency and horizon with target achievement is concentrated in the subsample of firms where worker retention concerns are higher (*p-value* < 0.01 and 0.10, respectively), supporting *H3b.* This suggests that the target setting practices we examine serve a worker retention role.

In Table 7, Panel C, we split the sample based on the variable *Planning,* which captures whether operational planning is done with respect to production capacity. We find that the negative relation between target transparency and horizon with target achievement is concentrated in the subsample of firms where operational planning is more likely (*p-value* < 0.01), supporting *H3c.* This suggests that the target setting practices we examine serve an operational planning role.

V. Additional Analyses
Maintained Assumptions

This evidence in Table 6, Columns (1) and (3) is consistent with the expectation that firms use target transparency to motivate individual effort in manufacturing settings where the need for help among workers is low (Arnold et al. 2024). We infer that the need for help is low by the emphasis of the survey responses on "effort" as opposed to "ability". However, the need for help may not be universally low among manufacturing firms (Holzhacker et al. 2019), providing a source of tension for *H1*. We use cross-sectional variation among sample firms in need for help.

In Table 8, Panel A, we split the sample based on the variable *Need For Help,* which captures whether managers' performance bonus is mostly based on their own performance or their team's performance as opposed to the establishment's performance or the firm's performance. Labro and Omartian (2024) argue that bonus targets that do not involve workers outside of one's

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own span of control do not encourage group collaboration and/or social cohesion. We find that the negative relation between target transparency and horizon with target achievement is concentrated in the subsample of firms where bonuses are based on own performance or team's performance (*p-value* < 0.05 and 0.01, respectively), supporting our assumption that the need for help is low.[27]

This evidence in Table 6, Columns (2) and (3) is consistent with the expectation that firms use target horizon to facilitate worker flexibility in allocating individual effort over time (Davila et al. 2009). We assume that the motivational benefits of shorter-horizon targets are less important because environmental uncertainty diminishes workers' effort-performance relationship (Anand 2017). However, environmental uncertainty may not be universally high among firms, providing a source of tension for *H2*. We use cross-sectional variation among sample firms in uncertainty.

In Table 8, Panel B, we split the sample based on the variable *Environmental Uncertainty,* which captures whether the firm perceives electricity as an obstacle to firm operations. Jiang et al. (2024) study a sample of WBES firms and identify the reliability of electricity as posing significant operational challenges for manufacturing firms. We find that the negative relation between target transparency and horizon with target achievement is largely concentrated in the subsample of firms where the firm perceives electricity to be an obstacle to firm operations (*p-value* < 0.05 and 0.01, respectively), supporting our assumption that environmental uncertainty is high.

Survey Responses

Our baseline sample removes observations marked as untruthful or unreliable. Following Cheng et al. (2020), in Table 9, Panel A we take this validity exercise one step further and remove observations marked as somewhat truthful (Column (1)), or where estimates are computed with some precision (Column (2)), or both (Column (3)). Despite the significant loss of observations,

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[27] In line with individual focus when need for help is low, Berger, Fiolleau, and MacTavish (2019) find that relative performance evaluation and individual incentives encourage counterproductive knowledge sharing among workers.

we find that the coefficient estimates on *Target_Transparency* and *Target_Horizon* are both negative and significant (*p-value* < 0.01 and 0.05, respectively) across all three columns. These results confirm our predictions regarding *H1* and *H2* using a subsample of very high-quality data.

Our definition for *Target_Achievement* follows WBES and includes the response "Targets were not achieved" as the least achievable target. However, given that targets were not achieved, this specific response does not indicate the level of effort that workers exerted and is thus phrased differently from the other five possible responses. In Table 9, Panel B we remove observations where the response was "Targets were not achieved". Despite the slight loss of observations, we find that the coefficient estimates on *Target_Transparency* and *Target_Horizon* are both negative and significant (*p-value* < 0.01) across all three columns. These results confirm our predictions regarding *H1* and *H2* using a subsample that only includes unambiguous worker effort statements.

Robustness Tests

In Table 10, Panel A, we drop sample firms classified by WBES as small firms (i.e., between 5 to 19 workers). Workers at these small firms are likely co-located and have frequent interactions, potentially diminishing the impact of target transparency (i.e. regardless of whether a firm is transparent or not with its production targets, workers can glean the information from co-workers or managers). Despite the significant loss of observations, we find that the coefficient estimates on *Target_Transparency* and *Target_Horizon* are both negative and significant (*p-value* < 0.05) across both columns, suggesting the smallest firms are not driving our results. [28]

In Table 10, Panel B, we use order logistic, as opposed to OLS, regressions as the dependent variable (*Target_Achievement)* is categorical. We find that the coefficient estimates on

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[28] Table 10, Column (1) does not include control variables, while Table 10, Column (2) does include control variables.

Target_Transparency and *Target_Horizon* are both negative and significant (*p-value* < 0.01 and 0.01, respectively) across both columns, suggesting our estimation approach is not driving results.

In Table 10, Panel C, we drop fiscal years 2020 and 2021 as the World Bank shifted resources away from WBES during this period and the global pandemic created upheaval for sample firms. Despite the significant loss of observations, we find that the coefficient estimates on *Target_Transparency* and *Target_Horizon* are both negative and significant (*p-value* < 0.05 and 0.10, respectively) across both columns, suggesting that the pandemic is not driving results. [29]

VI. Conclusion

In this paper, we explore an important component of management control systems – the setting of targets. Using a novel dataset compiled by the World Bank with coverage of 10,253 manufacturing firms in 24 industries from 85 countries across the globe between 2017 and 2022, we examine two underexplored aspects of targets – target transparency and target horizon. We find that target transparency varies widely among manufacturing firms across the globe, as more than 85% of firms in some countries (e.g., Finland, Sweeden) disclose production targets to all managers and most production workers, while less than 50% of firms in other countries (e.g., India, Ukraine) disclose targets to all managers and most production workers. We find that target horizon varies widely among manufacturing firms across the globe, as more than 85% of firms in some countries (e.g., Jordon, Tanzania) mainly focus on longer-horizon targets, while less than 50% of firms in other countries (e.g., New Zealand, Samoa) mainly focus on longer-horizon targets.

We find that firms that set more transparent targets set less achievable targets. Moreover, we find that firms that set longer horizon targets also set less achievable targets. These relationships are concentrated among firms that use targets for performance evaluation, worker retention, and

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[29] We find similar inferences if we also exclude fiscal year 2019, for which surveys were administered in 2019-2021.

operational planning purposes. The richness of our data allows us to construct novel measures of target transparency, horizon, and achievement and offer evidence on the multiple roles of targets. The large number of countries, years, industries, and firms in our dataset facilitates, to the best of our knowledge, the most expansive global evidence on target setting decisions taken by firms.

As with most surveys, data accuracy is a potential threat to the evidence we provide. While we take steps to mitigate the threat in our baseline sample (e.g., remove observations marked as untruthful or unreliable), and conduct supplemental tests on an even more restrictive sample (i.e., also remove observations marked as somewhat truthful and where estimates are computed with some precision), our evidence should be interpreted with this caveat in mind. As firm identity is kept anonymous, we are unable to verify the accuracy of confidential survey response data by validating it against publicly observable archival data (Arnold and Artz 2015). Moreover, while our dataset allows us to offer novel large-scale measures of transparency of targets (i.e., managers and/or workers to which final targets are disclosed), our dataset does not capture transparency of process (i.e., managers and/or workers involvement in the target setting process). Relatedly, certain information sources used in setting targets (e.g., participative budgeting, target ratcheting) are not included in our dataset and we are unable to shed light on these issues. Furthermore, our measure of target achievement is a backward-looking measure and can be influenced by both the ex-ante achievement difficulty and ex-post environmental conditions (i.e., a target can be set easy *ex-ante*, but if a negative shock occurs, it will make it more difficult to achieve *ex-post).* While we control for many factors that capture environmental conditions, we are not able to definitively distinguish between these two drivers of target achievement. As with prior studies, this represents an inherent limitation of our empirical approach (Matějka et al. 2024). We encourage future research to explore novel datasets that extend our large-scale global evidence on target setting decisions of firms.

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Appendix A. Variable Definitions and Sources

Variable	Definition [Sources]
Target_Transparency	The transparency of production targets, measured as an ordinal variable ranging from 1 to 4. *Target_Transparency* = 1 when the answer is "Only senior managers", 2 when the answer is "Most managers and some production workers", 3 when the answer is "Most managers and most production workers", 4 when the answer is "All managers and most production workers." [WBES question "Over fiscal year [Insert last complete fiscal year], who was aware of the production targets at this establishment?"]
Target_Horizon	The horizon of production targets, measured as an ordinal variable ranging from 1 to 3, from the shortest to the longest horizon. *Target_Horizon* = 1 when the answer is "Main focus was on short term targets", 2 when the answer is "Combination of short-term and long-term targets", and 3 when the answer is "Main focus was on long term targets." [WBES question "Over fiscal year [Insert last complete fiscal year], what best describes the time frame of production targets at this establishment?"]
Target_Achievement	The difficulty of achieving the production target, measured as an ordinal variable ranging from -1 to -6, from the least difficult to the most difficult target achievement. *Target_Achievement* = -1 when the answer is "Achieved without much effort", -2 when the answer is "Achieved with some effort", -3 when the answer is "Achieved with normal amount of effort", -4 when the answer is "Achieved with more than normal effort", -5 when the answer is "Only achieved with extraordinary effort", and -6 when the answer is "Targets were not achieved." [WBES question "Over fiscal year [Insert last complete fiscal year], how easy or difficult was it for this establishment to achieve its production targets overall?"]
Size	Natural log of the number of permanent, full-time employees. [WBES classification "How many permanent, full-time individuals worked in this establishment? "]
Age	Natural log of the number of years the firm has been in operations. [WBES question "In what year did this establishment begin operations?"]
Manager	Natural log of the number of years the top manager has worked in the industry. [WBES question "How many years of experience working in this sector does the top manager have?"]
Public	Indicator variable equal to one if the firm's legal status is a shareholding company with shares traded in the stock market, and zero otherwise. [WBES question "What is this firm's current legal status?"]
State	Indicator variable equal to one if the firm is owned by the government or the state, and zero otherwise. [WBES question "What percentage of this firm is owned by government or state"]
Part	Indicator variable equal to one if the firm is a part of a large group, and zero otherwise. [WBES question "Firm is part of a large firm"]
Block	Indicator variable equal to one if the largest shareholder owns all the shares, and zero otherwise. [WBES question "What percentage of this firm does the largest owner or owners own?"]
Finance	Indicator variable equal to one if the firm uses banks to finance working capital, and zero otherwise. [WBES question "Estimate the proportion of this establishment's working capital, that is the funds available for day-to-day operations, that was financed from banks?"]
Loan	Indicator variable equal to one if the firm currently has a loan from a financial institution, and zero otherwise. [WBES question "Does this establishment have a line of credit or a loan from a financial institution?"]
Gov	Indicator variable equal to one if the firm has a government contract, and zero otherwise. [WBES question "Has this establishment secured or attempted to secure a government contract? "]
Time	Percent of senior management's time spent in dealing with business-government relations. [WBES question "What percentage of total senior management's time was spent on dealing with requirements imposed by government regulations?"]

Instability	Categorical variable that captures the degree to which political instability is an obstacle to the current operations, with a higher value indicating a more severe obstacle. [WBES question "How much of an obstacle: political instability"]
Main	Indicator variable equal to one if the firm generates all of its sales from its main product, and zero otherwise. [WBES question "What percentage of total sales does this main activity or product represent?"]
Quality	Indicator variable equal to one if the firm has an internationally-recognized quality certification, and zero otherwise. [WBES question "Does this establishment have an internationally-recognized quality certification?"]
Informality	Categorical variable that captures the degree to which informality in an economy is an obstacle to the current operations, with a higher value indicating a more severe obstacle. [WBES question "How much of an obstacle: practices of competitors in the informal sector"]
Outages	Indicator variable equal to one if the firm experiences power outages, and zero otherwise. [WBES question "Did this firm experience power outages?"]
Productivity	Natural log of the value added per employee. Value added is computed as value of sales minus labor and material costs. [WBES question "What were this firm's total annual sales?"] [WBES questions "Total annual cost of labor including wages, salaries, bonuses, social security payments"] ["Total annual cost of raw materials and intermediate goods used in production"] [WBES question "How many permanent, full-time individuals worked in this establishment? "]
Developing	Indicator variable equal to one if the country is classified as a developing country by the World Bank, and zero otherwise. [World Bank]
Growth	The growth rate of GDP per capita. [World Bank World Development Indicators]
GDP	Natural log of GDP per capita. [World Bank World Development Indicators]
Inflation	The rate of inflation. [World Bank World Development Indicators]
Population	Natural log of population. [World Bank World Development Indicators]
Institution	The first principal component of the six indicators (government effectiveness, regulatory quality, corruption, political stability, rule of law, and voice and accountability). All six indicators range from −2.5 (weak) to +2.5 (strong). [World Bank Worldwide Governance Indicators]
Performance Evaluation	Indicator variable equal to one if the primary way non-managers are promoted is based solely on performance and ability, and zero otherwise. [WBES question "What was the primary way non-managers were promoted?"]
Planning	Indicator variable equal to one if capacity utilization is above median, and zero otherwise. [WBES question "In fiscal year [Insert last complete fiscal year], what was this establishment's output produced as percentage of the maximum output possible if using all the physical capacity available (capacity utilization)"]
Retention	The change in unemployment rate from previous to current year scaled by unemployment rate in the previous year. [World Bank World Development Indicators]
Need For Help	Indicator variable equal to one if managers' performance bonuses are mostly based on their own or team performance, and zero otherwise. [WBES question "What were managers' performance bonuses mostly based on ?"]
Environmental Uncertainty	Indicator variable equal to one if the establishment perceives electricity to operations as no obstacle, and zero otherwise. [WBES question "How much of an obstacle: electricity to operations of this establishment"]

Appendix B. Management Practices Questionnaire

Question	Answer
R.1 Over fiscal year [Insert last complete fiscal year], what best describes what happened at this establishment when a problem in the production process arose?	[1] We fixed it but did not take further action; [2] We fixed it and took action to make sure it did not happen again; [3] We fixed it and took action to make sure that it did not happen again, and had a continuous improvement process to anticipate problems like these in advance; [4] No action was taken.
R.2 Over fiscal year [Insert last complete fiscal year], did this establishment monitor any performance indicators?	[1] Yes; [2] No.
R.3 Over fiscal year [Insert last complete fiscal year], how many performance indicators were monitored at this establishment?	[1] 1-2 indicators; [2] 3-9 indicators; [3] 10 or more indicators.
R.4 Over fiscal year [Insert last complete fiscal year], did this establishment have production targets? Examples of production targets are: production volume, quality, efficiency, waste, or on-time delivery.	[1] Yes; [2] No.
R.5 Over fiscal year [Insert last complete fiscal year], what best describes the time frame of production targets at this establishment?	[1] Main focus was on short term, less than one year; [2] Main focus was on long term, one year or more; [3] Combination of short-term and long-term targets
R.6 Over fiscal year [Insert last complete fiscal year], how easy or difficult was it for this establishment to achieve its production targets overall?	[1] Achieved without much effort; [2] Achieved with some effort; [3] Achieved with normal amount effort; [4] Achieved with more than normal effort; [5] Only achieved with extraordinary effort; [6] Targets were not achieved.
R.7 Over fiscal year [Insert last complete fiscal year], who was aware of the production targets at this establishment?	[1] Only senior managers; [2] Most managers and some production workers; [3] Most managers and most production workers; [4] All managers and most production workers.
R.8 Over fiscal year [Insert last complete fiscal year], did this establishment have performance bonuses for managers?	[1] Yes; [2] No.
R.9 Over fiscal year [Insert last complete fiscal year], what were managers' performance bonuses mostly based on?	[1] Their own performance; [2] Their team's performance; [3] The establishment's performance; [4] The firm's performance.
R.10 Over fiscal year [Insert last complete fiscal year], what was the primary way non-managers were promoted at this establishment?	[1] Based solely on performance and ability; [2] Based partly on performance and ability, and partly on other factors (for example, tenure or family connections); [3] Based mainly on factors other than performance and ability (for example, tenure or family connections); [4] Non-managers are normally not promoted.
R.11 Over fiscal year [Insert last complete fiscal year], when was an under-performing non-manager reassigned or dismissed?	[1] Within 6 months of identifying under-performance; [2] After 6 months of identifying under-performance; [3] Rarely or never.

TABLE 1 Sample Selection

Description		Number of Observations
Firms surveyed in WBES Manufacturing Module regarding operations for fiscal years 2017-2022		26,990
Remove responses with untruthful responses	(303)	26,687
Remove responses using arbitrary and unreliable numbers	(944)	25,743
Remove firms with missing data on production targets	(7,360)	18,383
Remove firms with missing data to construct firm-level controls	(1,631)	16,752
Remove firms with missing data to construct country-level controls	(6,499)	10,253
Final sample		10,253

Notes: This table reports the sample selection with the number of observations removed and retained in each step.

TABLE 2 Sample Distribution
Panel A. Observations by Country

Country	Observations (*n*)	*Target_Transparency*	*Target_Horizon*	*Target_Achievement*
Albania	53	2.245	2.038	-3.340
Armenia	44	2.318	2.136	-3.773
Austria	102	3.118	1.745	-3.843
Azerbaijan	9	2.778	1.778	-3.000
Bangladesh	194	2.175	2.072	-4.479
Barbados	5	2.800	2.000	-2.600
Belarus	125	2.272	1.720	-3.352
Belgium	133	2.820	1.850	-3.602
Bosnia and Herze	68	2.191	2.015	-4.118
Botswana	25	2.920	1.920	-2.920
Bulgaria	249	2.233	1.956	-2.851
Cambodia	166	2.464	2.205	-4.175
Central African Republic	4	3.750	2.250	-4.250
Chad	9	1.556	1.889	-2.333
Colombia	138	3.333	1.717	-3.355
Costa Rica	15	2.800	1.600	-3.267
Croatia	164	2.482	1.939	-3.866
Cyprus	15	2.467	1.933	-3.267
Czechia	157	3.153	2.057	-3.516
Denmark	382	3.199	1.859	-3.314
Estonia	140	2.764	2.071	-3.171
Finland	309	3.379	1.803	-3.430
France	431	3.125	1.573	-3.898
Georgia	93	2.409	1.925	-3.226
Germany	304	2.990	1.753	-3.720
Ghana	42	3.048	1.976	-2.881
Greece	275	2.215	1.822	-3.262
Hungary	359	2.696	1.838	-2.981
India	445	1.939	2.258	-3.142
Indonesia	350	2.026	1.880	-3.406
Iraq	83	2.000	2.024	-2.759
Ireland	92	2.750	1.489	-3.326
Italy	117	2.410	2.051	-2.752
Jordan	18	3.056	2.556	-1.500
Kazakhstan	146	1.993	1.822	-2.658
Kenya	217	2.857	2.037	-3.645
Kosovo	11	1.909	2.000	-3.182
Kyrgyz Republic	86	2.081	1.872	-3.023
Latvia	50	2.760	2.100	-3.220
Lebanon	47	1.426	1.936	-3.553
Lesotho	2	4.000	2.500	-3.500

Lithuania	55	2.455	1.982	-3.273
Luxembourg	9	3.444	2.000	-2.667
Madagascar	42	2.429	2.048	-3.857
Malaysia	289	2.761	1.945	-3.374
Malta	24	2.792	1.792	-3.958
Mauritius	21	2.571	2.095	-2.810
Mexico	219	3.370	2.064	-2.753
Moldova	44	2.455	2.023	-3.182
Mongolia	61	2.885	1.869	-3.967
Montenegro	41	2.171	2.000	-3.854
Morocco	62	2.306	2.065	-2.935
Mozambique	122	2.238	1.639	-3.098
Nepal	105	2.105	2.038	-4.581
Netherlands	192	2.932	1.849	-3.396
New Zealand	2	3.000	1.500	-4.000
North Macedonia	104	2.423	2.058	-3.308
Pakistan	286	2.206	1.909	-2.402
Paraguay	47	2.447	1.553	-2.723
Peru	263	2.966	1.749	-3.373
Philippines	95	2.821	2.042	-3.084
Poland	49	2.347	2.184	-2.796
Portugal	339	2.622	1.906	-3.310
Romania	275	2.735	1.647	-3.156
Rwanda	145	2.703	2.007	-3.352
Samoa	7	3.571	1.429	-3.857
Saudi Arabia	167	2.096	1.946	-2.922
Serbia	38	2.026	1.737	-3.211
Sierra Leone	12	3.000	1.917	-2.917
Singapore	13	2.923	2.231	-3.154
Slovak Republic	112	3.188	2.107	-3.018
Slovenia	65	2.877	1.769	-3.431
Spain	252	2.460	1.651	-4.147
Suriname	26	2.654	1.577	-2.808
Sweden	202	3.550	1.842	-3.470
Tajikistan	23	2.435	1.783	-2.957
Tanzania	25	2.560	2.560	-2.720
Timor-Leste	23	1.696	1.783	-2.739
Togo	16	3.063	2.063	-2.500
Tunisia	83	2.434	1.976	-3.506
Ukraine	246	1.720	2.020	-2.622
Uzbekistan	171	2.380	2.240	-3.550
Vanuatu	1	4.000	2.000	-3.000
Viet Nam	92	2.696	1.924	-3.826
Zambia	114	2.921	1.956	-3.921
Total/Average	10,253	2.614	1.906	-3.346

Panel B. Observations by Industry

Industry	Observations (*n*)	Target_ Transparency	Target_ Horizon	Target_ Achievement
Food products	2,165	2.523	1.912	-3.268
Beverages	259	2.486	1.919	-3.266
Tobacco products	17	2.588	2.000	-3.176
Textiles	494	2.702	1.887	-3.575
Wearing apparel	974	2.532	1.877	-3.378
Leather and related product	200	2.480	1.950	-3.530
Wood	322	2.686	1.866	-3.304
Paper	167	2.713	1.814	-3.240
Publishing, printing, and recorded media	140	2.714	1.864	-3.307
Coke and refined petroleum products	16	2.375	1.875	-3.563
Chemicals and chemical product	429	2.552	1.925	-3.231
Pharmaceuticals, medicinal chemical, and botanical product	134	2.567	1.940	-3.269
Rubber and plastics products	607	2.639	1.895	-3.283
Other non-metallic mineral product	592	2.422	1.980	-3.318
Basic metals	254	2.406	1.898	-3.382
Fabricated metal products	1,210	2.740	1.892	-3.400
Computer, electronic, and optical products	188	2.830	2.011	-3.378
Electrical equipment	298	2.651	1.866	-3.352
Machinery and equipment	913	2.832	1.901	-3.399
Motor vehicles, trailers, and semi-trailers	253	2.589	1.976	-3.245
Other transport equipment	82	2.793	1.756	-3.573
Furniture	353	2.598	1.949	-3.487
Other manufacturing	173	2.780	1.844	-3.260
Repair and installation of machinery and equipment	13	2.385	2.000	-3.154
Total/Average	10,253	2.614	1.906	-3.346

Panel C. Observations by Year

Year	Observations (*n*)	*Target_ Transparency*	*Target_ Horizon*	*Target_ Achievement*
2017	522	2.523	1.822	-3.320
2018	2,799	2.460	1.998	-3.209
2019	1,535	3.048	1.816	-3.360
2020	1,158	2.984	1.714	-3.921
2021	1,072	2.237	1.927	-3.400
2022	3,167	2.548	1.945	-3.234
Total/Average	10,253	2.614	1.906	-3.346

Notes: This table reports the sample distribution. Panel A reports the sample composition by country. Panel B reports the sample composition by industry, as defined by ISIC. Panel C reports the sample composition by fiscal year. All variables are defined in Appendix A.

TABLE 3 Summary Statistics

VARIABLES	N	Mean	Std Dev	P10	P25	P50	P75	P90
Target characteristics								
Target_Transparency	10,253	2.614	1.173	1.000	2.000	2.000	4.000	4.000
Target_Horizon	10,253	1.906	0.717	1.000	1.000	2.000	2.000	3.000
Target_Achievement	10,253	-3.346	1.276	-5.000	-4.000	-3.000	-3.000	-2.000
Firm fundamentals								
Size	10,253	4.153	1.254	2.499	3.252	4.094	5.017	5.784
Age	10,253	3.138	0.722	2.079	2.708	3.178	3.584	4.043
Manager	10,253	2.888	0.734	1.946	2.565	2.996	3.401	3.689
Ownership								
Public	10,253	0.079	0.269	0.000	0.000	0.000	0.000	0.000
State	10,253	0.007	0.084	0.000	0.000	0.000	0.000	0.000
Part	10,253	0.193	0.395	0.000	0.000	0.000	0.000	1.000
Block	10,253	0.418	0.493	0.000	0.000	0.000	1.000	1.000
Bank financing								
Loan	10,253	0.515	0.500	0.000	0.000	1.000	1.000	1.000
Finance	10,253	0.427	0.495	0.000	0.000	0.000	1.000	1.000
Government relations								
Gov	10,253	0.153	0.360	0.000	0.000	0.000	0.000	1.000
Time	10,253	10.829	17.077	0.000	0.000	5.000	15.000	30.000
Instability	10,253	1.355	1.382	0.000	0.000	1.000	2.000	3.000
Product markets								
Main	10,253	0.530	0.499	0.000	0.000	1.000	1.000	1.000
Quality	10,253	0.508	0.500	0.000	0.000	1.000	1.000	1.000
Infrastructure								
Informality	10,253	0.994	1.206	0.000	0.000	0.000	2.000	3.000
Outages	10,253	0.407	0.491	0.000	0.000	0.000	1.000	1.000
Worker performance								
Productivity	10,253	12.456	2.670	9.539	10.552	11.881	13.998	16.422

Country characteristics

Developing	10,253	0.542	0.498	0.000	0.000	1.000	1.000	1.000
Growth	10,253	2.822	4.081	-2.495	1.290	3.323	5.431	6.550
GDP	10,253	9.109	1.263	7.346	8.101	9.285	10.120	10.739
Inflation	10,253	6.512	5.939	1.138	2.019	4.838	8.241	14.867
Population	10,253	16.963	1.582	15.165	15.996	16.727	17.764	19.260
Institution	10,253	0.345	0.888	-0.782	-0.349	0.209	1.079	1.789

Cross-sectional variables

Performance Evaluation	9,111	0.642	0.480	0.000	0.000	1.000	1.000	1.000
Planning	9,897	0.782	0.206	0.500	0.700	0.800	0.950	1.000
Retention	8,754	-0.069	0.155	-0.235	-0.157	-0.090	-0.022	0.123
Need For Help	5,263	0.543	0.498	0.000	0.000	1.000	1.000	1.000
Environmental Uncertainty	10,242	0.588	0.492	0.000	0.000	1.000	1.000	1.000

Notes: This table reports the descriptive statistics of the sample. We winsorize the continuous variables at the 1st and 99th percentiles. All variables are defined in Appendix A.

TABLE 4 Pearson Correlation Table

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1-Target_Transparency	1															
2-Target_Horizon	-0.015	1														
3-Target_Achievement	-0.065***	-0.025**	1													
4-Size	0.008	0.087***	0.001	1												
5-Age	0.097***	-0.044***	-0.030***	0.179***	1											
6-Manager	0	-0.012	-0.019*	0.045***	0.301***	1										
7-Public	-0.020*	0.01	0.014	0.181***	0.155***	0.022**	1									
8-State	0.001	-0.01	0.004	0.095***	0.044***	-0.054***	0.192***	1								
9-Part	0.038**	0.006	-0.023**	0.189***	0.131***	0.035***	0.085***	0.003	1							
10-Block	-0.027***	-0.025**	-0.022**	-0.166***	-0.124***	-0.100***	-0.120***	-0.071***	-0.018*	1						
11-Loan	0.103***	-0.032***	-0.109***	0.073***	0.120***	0.106***	0.016*	0.014	0.029***	-0.152***	1					
12-Finance	0.048***	0.014	-0.080***	0.103***	0.084***	0.066***	0.017*	0.005	0.039***	-0.108***	0.586***	1				
13-Gov	-0.027***	-0.008	-0.006	0.014	0.032***	0.003	0.067***	0.062***	0.035***	-0.056***	0.059***	0.049***	1			
14-Time	0.015	0.032***	-0.045***	0.042***	0.012	0.032***	0.023**	0.044***	-0.011	-0.023**	0.055***	0.069***	0.044***	1		
15-Instability	-0.089***	0.003	-0.013	0.058***	0.013	0.087***	0.004	-0.044***	-0.020**	-0.111***	0.053***	0.054***	0.076***	0.054***	1	
16-Main	-0.097***	0.051***	0.042***	0.056***	-0.111***	-0.051***	0.002	-0.005	-0.068***	0.083***	-0.166***	-0.126***	-0.080***	-0.013	0.015	1
17-Quality	0.065***	0.032***	-0.017*	0.342***	0.230***	0.107***	0.103***	0.015	0.145***	-0.113***	0.124***	0.100***	0.029***	0.026***	-0.020**	-0.069***
18-Informality	-0.080***	0.043***	0.006	-0.048***	-0.061***	-0.023*	-0.042***	-0.022**	-0.056***	0.017*	-0.019*	0.025**	0.042***	0.060***	0.286***	-0.006
19-Outages	0.007	0.031***	-0.067***	0.014	-0.056***	-0.014	-0.063***	-0.036***	0	-0.013	0.015	0.028***	0.019*	-0.014	0.078***	-0.035***
20-Productivity	-0.072***	0.072***	0.029***	0.109***	-0.070***	-0.090***	-0.042***	0.011	0.011	-0.001	-0.111***	-0.038***	0.004	-0.027***	0.011	0.127***
21-Developing	-0.185***	0.109***	0.053***	0.096***	-0.246***	-0.156***	-0.022**	0.075***	-0.121***	0.044***	-0.180***	-0.032***	0.025**	0.020**	0.200***	0.163***
22-Growth	-0.138***	0.096***	0.126***	0.142***	-0.186***	-0.028***	0.032***	0.022**	-0.104***	-0.055***	-0.061***	-0.004	0.005	-0.003	0.069***	0.144***
23-GDP	0.223***	-0.121***	-0.033***	-0.108***	0.281***	0.161***	0.032***	-0.047***	0.094***	-0.044***	0.238***	0.092***	-0.034***	-0.009	-0.182***	-0.212***
24-Inflation	-0.133***	0.036***	0.112***	0.035***	-0.192***	-0.120***	-0.006	0.118***	-0.105***	-0.065***	-0.147***	-0.079***	0.036***	-0.014	0.121***	0.145***
25-Population	-0.112***	0.051***	0.012	-0.006	-0.015	-0.067***	-0.072***	-0.016*	0.032***	0.067***	-0.022**	-0.046***	0.055***	0.063***	0.052***	
26-Institution	0.244***	-0.096***	-0.069***	-0.142***	0.279***	0.157***	0.022**	-0.092***	0.120***	-0.003	0.199***	0.080***	-0.024**	-0.021**	-0.248***	-0.191***
27-Performance Evaluation	0.019*	-0.019**	-0.028***	-0.037***	0	-0.01	0.016	-0.002	-0.016	0.040***	-0.004	-0.011	-0.038***	-0.049***	-0.021**	0.022**
28-Planning	0.018*	0.022***	-0.069***	0.115***	0.012	0.006	0.006	0.005	0.005	-0.001	-0.021**	-0.031***	-0.038***	0.019*	0.004	0.046***
29-Retention	0.047***	-0.035***	-0.086***	-0.107***	0.004	-0.082***	-0.038***	0.097***	0.019*	0.070***	-0.033***	-0.054***	0.012	-0.028***	-0.158***	0.002
30-Need For Help	-0.072***	-0.052***	-0.009	-0.204***	-0.072***	0.050***	-0.063***	-0.036***	-0.096***	0.002	-0.006	0.006	-0.024**	0.024***	0.005	0.011
31-Environmental Uncertainty	-0.067***	0.061***	-0.021**	0.047***	-0.064***	0.018*	-0.056***	-0.041***	-0.024**	-0.047***	0.023**	0.044***	0.029***	0.079***	0.280***	0.040***

	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
17-Quality	1														
18-Informality	-0.138***	1													
19-Outages	-0.044***	0.119***	1												
20-Productivity	-0.024**	0.042***	0.063***	1											
21-Developing	-0.261***	0.313***	0.151***	0.323***	1										
22-Growth	-0.065***	0.132***	0.043***	0.157***	0.387***	1									
23-GDP	0.258***	-0.268***	-0.190***	-0.334***	-0.843***	-0.380***	1								
24-Inflation	-0.129***	0.083***	0.029***	0.256***	0.361***	0.284***	-0.384***	1							
25-Population	-0.105***	0.118***	-0.041***	0.284***	0.336***	0	-0.367***	0.089***	1						
26-Institution	0.241***	-0.293***	-0.131***	-0.324***	-0.821***	-0.392***	0.878***	-0.526***	-0.346***	1					
27-Performance Evaluation	-0.015	-0.057***	-0.024**	-0.001	0.018*	-0.046***	0.011	-0.057***	-0.034***	0.049***	1				
28-Planning	0.043***	-0.025*	0.007	0.090***	-0.010	0.024**	-0.024**	-0.025**	0.083***	-0.019*	-0.028***	1			
29-Retention	0.013	-0.142***	0.007	0.029***	-0.122***	-0.476***	0.125***	0.152***	-0.108***	0.125***	0.053***	0.041***	1		
30-Need For Help	-0.150***	0.044***	0.006	-0.055***	0.014	0.018*	-0.048***	0.014	0.050***	-0.026***	0.028***	-0.053***	-0.015	1	
31-Environmental Uncertainty	-0.062***	0.241***	0.259***	0.049***	0.209***	0.052***	-0.226***	0.093***	0.074***	-0.259***	-0.056***	-0.006	-0.115***	0.019*	1

Notes: This table reports the Pearson correlations between the variables. Variables are defined in Appendix A. *, **, and *** denote two-tailed statistical significance at the 10, 5, and 1 percent levels.

TABLE 5 Distribution of Target Characteristics
Panel A. Distribution of Target Achievement

Target Achievement	Observations (n)	Observations (%)
Achieved without much effort	687	6.70
Achieved with some effort	1,829	17.84
Achieved with normal amount of effort	3,476	33.90
Achieved with more than normal effort	2,583	25.19
Only achieved with extraordinary effort	870	8.49
Targets were not achieved	808	7.88
Total	10,253	100.00

Panel B. Distribution of Target Transparency

Target Transparency	Observations (n)	Observations (%)
Only senior managers	2,296	22.39
Most managers and some production workers	2,900	28.28
Most managers and most production workers	1,519	14.82
All managers and most production workers	3,538	34.51
Total	10,253	100.00

Panel C. Distribution of Target Horizon

Target Horizon	Observations (n)	Observations (%)
Main focus was on short-term targets	3,164	30.86
Combination of short-term and long-term targets	4,889	47.68
Main focus was on long-term targets	2,200	21.46
Total	10,253	100.00

Notes: This table reports the distribution of target characteristics. Panel A reports the distribution of target achievement. Panel B reports the distribution of target transparency. Panel C reports the distribution of target horizon. Variables are defined in Appendix A.

TABLE 6 Target Transparency, Horizon, and Achievement

	(1)		(2)		(3)	
			Target_Achievement			
Target_ Transparency	-0.045***	(0.005)			-0.044***	(0.006)
Target_Horizon			-0.069**	(0.013)	-0.068**	(0.014)
Size	-0.020	(0.228)	-0.020	(0.232)	-0.018	(0.266)
Age	-0.033	(0.134)	-0.036	(0.102)	-0.034	(0.120)
Manager	0.010	(0.706)	0.014	(0.602)	0.011	(0.668)
Public	-0.001	(0.980)	0.001	(0.990)	-0.003	(0.964)
State	0.202	(0.116)	0.172	(0.164)	0.189	(0.135)
Part	-0.043	(0.392)	-0.044	(0.368)	-0.043	(0.384)
Block	0.000	(1.000)	-0.006	(0.873)	-0.005	(0.898)
Loan	-0.149***	(0.001)	-0.151***	(0.001)	-0.149***	(0.001)
Finance	-0.056	(0.192)	-0.055	(0.205)	-0.055	(0.202)
Gov	0.011	(0.801)	0.012	(0.776)	0.010	(0.818)
Time	-0.003**	(0.018)	-0.003**	(0.020)	-0.003**	(0.021)
Instability	-0.059***	(0.000)	-0.058***	(0.001)	-0.059***	(0.001)
Main	0.031	(0.465)	0.036	(0.398)	0.034	(0.436)
Quality	-0.036	(0.229)	-0.036	(0.234)	-0.033	(0.275)
Informality	-0.047**	(0.018)	-0.045**	(0.022)	-0.046**	(0.020)
Outages	-0.059	(0.257)	-0.056	(0.280)	-0.057	(0.267)
Productivity	0.042**	(0.016)	0.044**	(0.014)	0.043**	(0.014)
Developing	-0.163	(0.193)	-0.117	(0.324)	-0.127	(0.292)
Growth	-0.002	(0.927)	-0.001	(0.935)	-0.002	(0.910)
GDP	3.605***	(0.008)	3.681***	(0.005)	3.631***	(0.006)
Inflation	-0.037**	(0.031)	-0.037**	(0.028)	-0.037**	(0.029)
Population	4.022*	(0.051)	4.080**	(0.043)	3.991*	(0.051)
Institution	0.991*	(0.063)	1.040**	(0.044)	1.023**	(0.049)
Constant	-92.854***	(0.010)	-94.394***	(0.007)	-92.553***	(0.009)
Country FE	Yes		Yes		Yes	
Year FE	Yes		Yes		Yes	
Industry FE	Yes		Yes		Yes	
Observations	10,253		10,253		10,253	
Adjusted R-squared	0.151		0.151		0.152	

Notes: This table reports the results of testing for the relation between target transparency, target horizon, and target achievement. *P-values* appear in parentheses next to the coefficient estimates. *, **, and *** denote two-tailed statistical significance at the 10, 5, and 1 percent levels. Variables are defined in Appendix A.

TABLE 7 Roles of Targets
Panel A. Performance Evaluation

	(1)		(2)	
	Yes		No	
	Target_Achievement			
Target_Transparency	-0.057***	(0.009)	-0.014	(0.567)
Target_Horizon	-0.090***	(0.007)	-0.033	(0.351)
Controls and constant	Yes		Yes	
Country, Year, and Industry FE	Yes		Yes	
Observations	5,845		3,266	
Adjusted R-squared	0.167		0.154	

Panel B. Worker Retention Concerns

	(1)		(2)	
	High		Low	
	Target_Achievement			
Target_Transparency	-0.077***	(0.001)	-0.017	(0.563)
Target_Horizon	-0.067*	(0.055)	-0.019	(0.585)
Controls and constant	Yes		Yes	
Country, Year, and Industry FE	Yes		Yes	
Observations	4,503		4,251	
Adjusted R-squared	0.101		0.147	

Panel C. Operational Planning

	(1)		(2)	
	High		Low	
	Target_Achievement			
Target_Transparency	-0.061***	(0.006)	-0.017	(0.430)
Target_Horizon	-0.100***	(0.001)	0.001	(0.988)
Controls and constant	Yes		Yes	
Country, Year, and Industry FE	Yes		Yes	
Observations	6,000		3,897	
Adjusted R-squared	0.155		0.165	

Notes: This table reports the results of testing for the target purpose. Panel A splits the sample based on whether non-managers are promoted based solely on performance and ability. Panel B splits the sample based on whether the year-over-year decrease in country-level unemployment rate is above or below the sample median. Panel C splits the sample based on whether production capacity utilization is above or below the sample median. *P-values* appear in parentheses next to the coefficient estimates. *, **, and *** denote two-tailed statistical significance at the 10, 5, and 1 percent levels. Variables are defined in Appendix A.

TABLE 8 Maintained Assumptions
Panel A. Need for Help

	(1)		(2)	
	Their own or team performance		Establishment or firm performance	
	Target_Achievement			
Target_Transparency	-0.061**	(0.032)	-0.008	(0.739)
Target_Horizon	-0.132***	(0.001)	-0.035	(0.379)
Controls and constant	Yes		Yes	
Country, Year, and Industry FE	Yes		Yes	
Observations	2,862		2,401	
Adjusted R-squared	0.210		0.122	

Panel B. Environmental Uncertainty

	(1)		(2)	
	Low		High	
	Target_Achievement			
Target_Transparency	-0.032*	(0.094)	-0.049**	(0.031)
Target_Horizon	-0.056	(0.125)	-0.088***	(0.001)
Controls and constant	Yes		Yes	
Country, Year, and Industry FE	Yes		Yes	
Observations	4,224		6,018	
Adjusted R-squared	0.147		0.172	

Notes: This table reports the results of testing for maintained assumption. Panel A splits the sample based on whether managers' performance bonuses are mostly based on their own performance or team performance as opposed to establishment or firm performance. Panel B splits the sample based on whether the establishment perceives electricity as no obstacle to firm operations (low) or not (high). *P-values* appear in parentheses next to the coefficient estimates. *, **, and *** denote two-tailed statistical significance at the 10, 5, and 1 percent levels. Variables are defined in Appendix A.

TABLE 9 Survey Responses
Panel A. Reliability of Survey Responses

	(1)		(2)		(3)	
	Target_Achievement					
Target_ Transparency	-0.056***	(0.000)	-0.069***	(0.001)	-0.069***	(0.000)
Target_Horizon	-0.069**	(0.022)	-0.069**	(0.020)	-0.077**	(0.024)
Controls and constant	Yes		Yes		Yes	
Country, Year, and Industry FE	Yes		Yes		Yes	
Observations	8,118		6,214		5,530	
Adjusted R-squared	0.151		0.165		0.163	

Panel B. Redefining Target Achievement by removing "Targets were not achieved"

	(1)		(2)		(3)	
	Target_Achievement					
Target_ Transparency	-0.054***	(0.001)			-0.053***	(0.001)
Target_Horizon			-0.087***	(0.001)	-0.085***	(0.001)
Controls and constant	Yes		Yes		Yes	
Country, Year, and Industry FE	Yes		Yes		Yes	
Observations	9,445		9,445		9,445	
Adjusted R-squared	0.122		0.122		0.125	

Notes: This table reports the results of alternative samples of survey responses. Panel A, Column (1) removes responses that are "somewhat truthful.", Column (2) removes responses using "estimates computed with some precision.", Column (3) removes responses that are "somewhat truthful" and responses using "estimates computed with some precision." In Panel B, *Target Achievement* is defined from a range of -1 to -5, after removing a possibly ambiguous response related to -6 "Targets were not achieved". *P-values* appear in parentheses next to the coefficient estimates. *, **, and *** denote two-tailed statistical significance at the 10, 5, and 1 percent levels. Variables are defined in Appendix A.

TABLE 10 Robustness Tests
Panel A. Medium and Large Firms

	(1)		(2)	
		Target_Achievement		
Target_ Transparency	-0.040**	(0.026)	-0.039**	(0.030)
Target_Horizon	-0.068**	(0.019)	-0.060**	(0.032)
Controls and constant	No		Yes	
Country, Year, and Industry FE	Yes		Yes	
Observations	8,605		8,605	
Pseudo R-squared	0.142		0.159	

Panel B. Ordered Logistic Regression

	(1)		(2)	
		Target_Achievement		
Target_ Transparency	-0.074***	(0.005)	-0.072***	(0.007)
Target_Horizon	-0.137***	(0.003)	-0.121***	(0.009)
Controls and constant	No		Yes	
Country, Year, and Industry FE	Yes		Yes	
Observations	10,253		10,253	
Pseudo R-squared	0.049		0.056	

Panel C. Removing COVID-19 Years

	(1)		(2)	
		Target_Achievement		
Target_ Transparency	-0.053**	(0.012)	-0.052**	(0.014)
Target_Horizon	-0.069**	(0.017)	-0.055*	(0.051)
Controls and constant	No		Yes	
Country, Year, and Industry FE	Yes		Yes	
Observations	8,023		8,023	
Adjusted R-squared	0.121		0.142	

Notes: This table reports the results of robustness tests. Panel A removes observations that are classified as small firms by the World Bank. Panel B estimates the regressions using an Ordered Logistic Regression. Panel C removes years 2020 and 2021 from the sample. Column (1) does not include firm-level and country-level controls while column (2) does include firm-level and country-level controls. *P-values* appear in parentheses next to the coefficient estimates. *, **, and *** denote two-tailed statistical significance at the 10, 5, and 1 percent levels. Variables are defined in Appendix A.