Evaluating Individual Contributions in Ugandan Businesses: Navigating the Performance Non-Separability Problem

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Abstract

A central challenge in team-based organizations is the performance non-separability problem the difficulty of evaluating individual contributions when only collective output is observable. This issue is particularly acute in resource-constrained contexts like Uganda, where formal performance metrics are often unavailable. This paper explores how supervisors in Ugandan businesses navigate this dilemma, drawing on the theoretical lens of covariance-based inference (Uribe et al., 2022).

We argue that in the absence of direct data, supervisors rely on counterfactual reasoning, inferring individual productivity by observing how team performance fluctuates with changes in membership. Through qualitative analysis of sectors including manufacturing, agriculture, and services, we identify two key factors that strengthen this inferential process: frequent employee rotation and clearly defined hierarchical authority. Rotation across teams creates natural experiments, providing supervisors with the variation needed to isolate individual impact. Meanwhile, employees in high-authority roles attract greater evaluative attention, making their contributions more perceptible.

The findings suggest that instead of importing complex performance measurement systems, managers in similar contexts can enhance evaluation accuracy by strategically leveraging organic workplace dynamics. We propose practical implications, including the formalization of rotation practices, training for supervisors on implicit inference, and a heightened awareness of perceptual management by employees. This paper contributes to the understanding of subjective performance appraisal by theorizing it as a rational, inference-based process grounded in the observable realities of team production.

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Introduction

In every workplace, from gleaming skyscrapers to dusty roadside workshops, the need to understand who is pulling their weight has never been more urgent or more elusive. Performance evaluations, the formal routines meant to distinguish the diligent from the indifferent, are central to how modern organisations allocate praise, promotions, and pay. In Ugandan businesses, where every shilling must be accounted for and where team interdependence is often the norm rather than the exception, this need becomes even more pronounced. Yet beneath the surface of HR spreadsheets and appraisal meetings lies a deeper question: how do managers truly know who is contributing what? While policymakers emphasise human capital as Africa's growth lever, the reality on the ground is messier, more tangled, and far less measurable. It is within this tangle that the performance evaluation emerges, not as a clear managerial tool, but as a quiet battleground for accountability and recognition.

It is one of the less discussed riddles in business: how can a manager assess individual performance when all they observe is the team's output? This dilemma, famously known as the "performance non-separability problem," has long troubled enterprises that depend on collective labour. In Uganda, where informal coordination and shared responsibility prevail in sectors such as retail, construction, and agriculture, the issue takes on a clear urgency. A supervisor may see bricks laid, reports compiled, or sales achieved, but rarely can they identify which hand, mind, or voice made the difference. The key metrics are obscured by the teamwork that produces them. The challenge is not just about fairness; it's about understanding. When one cannot separate the productive from the peripheral, decision-making becomes guesswork, alliances, or, worse, favouritism. Yet, this is the very environment where many Ugandan businesses are expected to compete, grow, and innovate.

Despite decades of research on organisational behaviour and strategic management, the literature offers surprisingly little guidance on how supervisors actually infer individual contributions in team-based settings. Most studies, such as those by Holmstrom (1982) and Zenger (1992), propose structural fixes: shrinking team sizes, simplifying tasks, or rewarding only extreme performers. These approaches sidestep the reality that, in many firms, teams are not optional; they are the norm. Meanwhile, the practice of using subjective evaluations

persists, not because it's ideal, but because it's often the only available tool. Yet, despite their prevalence, these evaluations remain theoretically underexplored, particularly when the data guiding them are team-level rather than individual.

A notable silence exists in the organisational psychology canon on this issue. Influential reviews (Levy & Williams, 2004; DeNisi & Smith, 2014) recognise the rise of team-based work but do not explain how appraisals are formed within these teams. Scholars like Coff (1997) and Groysberg et al. (2008) observe that even firms themselves find it difficult to disentangle value at the individual level, highlighting the strategic ambiguity this creates for both competitors and internal decision-makers. The message is clear: firms are encouraged to develop tightly interconnected teams, which are difficult to copy and rich in synergy, without understanding how to reward or retain the individuals within them.

The few who have entered this space mainly seek workarounds, not permanent solutions. Whether relying on output proxies, rotation policies, or incentive alignment schemes, most frameworks aim to reduce the non-separability issue rather than understand how it is managed in practice. Uribe et al. (2022) stand out for daring to ask the more complex question: how do supervisors, with limited data and constant pressure, assess individual worth? Their research indicates that when perfect information isn't available, supervisors depend on inference, observing changes in team productivity as members arrive and depart. But if this is the common practice, why has theory fallen behind? In places like Uganda, where formal performance systems are inconsistent and teams often have fluid boundaries, this theoretical gap isn’t just academic; it poses practical risks.

This paper addresses the problem of performance non-separability by examining how supervisors determine individual contributions from team output, especially within Ugandan businesses where formal appraisal systems are often limited or inconsistently applied. Building on Uribe et al.’s (2022) insight that supervisors depend on counterfactual cues, observing how team productivity varies with changes in membership, the paper broadens the discussion to include environments characterised by informality, fluid team structures, and limited managerial data. In these contexts, performance assessments are influenced less by metrics and more by experience, intuition, and contextual understanding.

The paper aims to explore both cognitive and structural mechanisms that supervisors use to address this challenge and to theorise how local factors such as authority levels, team rotation, and proximity affect the accuracy of these judgments. In doing so, it seeks not only to enhance

theoretical understanding but also to provide practical insights for firms struggling to identify, reward, and retain talent in collaborative work environments where individual output is difficult to measure.

Theoretical Framework: The Covariance-Based Inference Model

Supervisors evaluating individual performance in team settings often rely on identifying patterns, particularly how the presence or absence of an employee correlates with changes in team productivity. In environments where team-based output is standard and individual data is scarce or unavailable, such patterns serve as a vital substitute for direct contribution. The logic is straightforward: if a team consistently performs better when a certain employee is present and worse when they are absent, the supervisor reasonably attributes some of that variation to the employee's impact.

This evaluative strategy relies on covariance, which is the statistical connection between two variables, specifically worker presence and team output. The stronger and more consistent the covariance, the more confidently the supervisor can make their inference. Uribe et al. (2022) show that supervisors, even without formal tools, depend on this observational method to evaluate performance. By mentally tracking these patterns over time and across teams, they develop an internal index of inferred productivity, estimating the value each worker adds within different team structures.

In the absence of direct metrics, this form of reasoning offers a practical solution to the performance non-separability problem first described by Alchian and Demsetz (1972). It allows managers to act despite uncertainty, interpreting shifts in team outcomes linked to team composition. Whether knowingly or not, supervisors collect and compare these moments, building an evidence base not from reports or dashboards but from observable co-movement between who turns up and what is achieved.

Inferred productivity is a judgment. It is not measured using precise tools but developed through repeated observation of how a team performs with or without a particular individual. When a team consistently achieves more when a specific employee is present, a supervisor begins to associate that presence with higher productivity. The connection does not need to be perfect; it only needs to occur often enough to become significant in the eyes of the evaluator.

The logic is simple. When performance improves in someone’s presence, the supervisor sees it as a sign of value. When it dips, they perceive it as a loss. Uribe et al. (2022) describe this as

counterfactual reasoning. The supervisor doesn't need to measure output per person. Instead, they observe what happens when someone is absent and compare it to their return. Over time, this contrast serves as a signal. The bigger the difference, the stronger the conclusion.

This kind of reasoning is fundamentally human. People understand others by observing how things change when someone enters or leaves a scene. It is not scientific but intuitive. It depends on social psychology's well-known tendency to make causal judgments based on patterns of occurrence (Kahneman & Miller, 1986; Cheng, 1997). In a workplace where individual metrics are not available, this mental shortcut bridges the gap between what is visible and what must be assessed.

Supervisors cannot make counterfactual judgments without observing variation. They need to see what changes when a particular person is added to or removed from a team. This variation often comes from everyday disruptions, sick days, annual leave, team reshuffles, or overtime demands. These minor shifts in team composition offer opportunities to identify cause and effect. A team might perform differently on Monday without Sarah than it did on Friday with her. That difference becomes a data point in the supervisor's mind.

Uribe et al. (2022) found that such fluctuations are not merely noise. They serve as the basis for inferred productivity. When employees rotate across teams or temporarily step away, supervisors gather valuable counterfactual information. They start to make informal comparisons: which teams remained efficient despite changes? Which ones declined or improved depending on who was present? Over time, these mental notes accumulate. The pattern becomes the narrative.

Frequent team variation sharpens these inferences. The more an employee appears across different settings, the easier it becomes to isolate their effect. Conversely, employees who remain fixed within one group are harder to evaluate. Supervisors have fewer comparisons to work with. This makes rotation, even if unintentional, a powerful tool. It does more than balance staffing; it enhances the supervisor's ability to detect contribution without needing direct, individual output data.

Inferred productivity can be structured. While the process starts as intuition, it can be measured using team-level production data. The key is to monitor how productivity varies when a specific employee is present, across various team configurations. Uribe et al. (2022) illustrate this with a method called worker fixed effects. It estimates the average impact each worker has on output over time, accounting for other factors like team composition, shift, and product type.

The model assigns a productivity value to each worker based on how their presence correlates with changes in team performance. This value, called "WIPwt" (Worker Inferred Productivity per worker per year), serves as a proxy for contribution. It is not a direct measure of effort or skill. Instead, it indicates the measurable difference a worker makes when they are part of the team. The more consistent and positive the effect, the higher their inferred productivity score.

This approach provides a structured way to support supervisors' often informal intuitions. It converts mental comparisons into a measurable signal. Although this method was used in a formal manufacturing setting with detailed records (Uribe et al., 2022), its underlying logic can apply to more flexible environments. In resource-limited settings like Uganda, where formal output data is scarce, a simplified version of this reasoning can still inform managerial decisions. The core insight remains: consistent presence, which correlates with better outcomes, is the strongest form of invisible evidence.

The Performance Non-Separability Problem

The performance non-separability problem is not new. It was first articulated by Alchian and Demsetz (1972), who used a simple illustration: two workers loading cargo onto a truck. The total output is visible, but which worker contributed more? There is no way to determine, as there is no clear measure of individual effort within a shared task. This seemingly straightforward issue has significant implications. In any team environment where tasks are interdependent and outputs are shared, the same ambiguity remains. One person’s effort can be hidden by another’s slack, and vice versa.

This conceptual challenge has become even more significant. As organisations adopt team-based structures, it becomes harder to identify individual contributions. Whether on a factory line, within a creative team, or in a sales unit, most modern work relies on collaboration. Yet, performance systems still demand individual accountability. The gap between how work is organised and how it is evaluated lies at the core of the non-separability dilemma. Despite decades of organisational research, the issue remains unresolved on a large scale.

The issue is not merely theoretical. It unfolds daily in boardrooms, factories, and back offices, where supervisors must assess staff without concrete data on individual output. In many Ugandan businesses, where records can be sparse, job roles are fluid, and performance expectations are informal, this problem becomes even more deeply rooted. It creates a high-stakes guessing game where reputations, rewards, and retention are at risk.

When firms cannot clearly align rewards with individual contributions, they risk misallocating recognition and resources. High-performing employees who feel overlooked or undervalued often become disengaged. Others may leave entirely, taking with them critical knowledge, reliability, or institutional memory. As Gartenberg and Wulf (2017) warn, misalignment in perceived fairness can weaken commitment and performance. The impact is not limited to morale; it also affects the organisation's ability to retain talent and build long-term competitive advantage.

In strategic terms, performance non-separability imposes a hidden tax on human capital. A company might believe it is encouraging excellence, but without proper attribution, it may end up rewarding visibility, charisma, or proximity to leadership instead. Over time, this can distort culture and reduce productivity. The risk is particularly high in knowledge-intensive or relationship-driven environments, where output is intangible and influence difficult to measure.

For Ugandan businesses, the risks are heightened. Small firms often operate in close-knit teams, where one weak link can quietly diminish collective momentum. And in rapidly growing enterprises, failing to identify and reward key contributors can hinder innovation, strain leadership, and undermine cohesion. Addressing performance non-separability, then, is not merely an academic exercise. It is a vital business imperative.

Most firms do not have the luxury of perfect data. In response, they rely on subjective performance assessments. These involve supervisors giving ratings based on their own perceptions of employee value. The practice is widespread and, for many businesses, essential. But how exactly do supervisors form these judgments, especially in team settings where outcomes are shared? That remains one of the least understood aspects of organisational behaviour.

Uribe et al. (2022) highlight that this evaluative process is largely underdeveloped. Although much has been written about evaluation biases or appraisal structures, little research explains how supervisors manage ambiguity in real time. What signals do they focus on? What patterns do they observe? How do they distinguish noise from insight? Without clear answers, subjective evaluations risk becoming inconsistent, politicised, or biased by favouritism.

Still, they persist. Not because they are perfect, but because they are better than nothing. In Ugandan firms, especially, these evaluations serve both as formal tools and informal storytelling devices. They are shaped by a combination of observation, intuition, and workplace

lore. The priority now is to understand and enhance them, not to replace them with impossible systems, but to ground them in clearer logic.

Efforts to address the non-separability issue often concentrate on structural adjustments. Some organisations reward only exceptional performers, those who clearly excel or clearly fail (Holmstrom, 1982). Others attempt to simplify team structures, decrease task complexity, or divide teams into smaller units (Zenger & Hesterly, 1997). In rare instances, firms depend on individual outputs when such data is available. However, most of these approaches fall short in real-world, team-based environments.

Rewarding only the top performers leaves middle performers in a fog. While shrinking teams can improve clarity, it often reduces efficiency or stifles innovation. Reliance solely on measurable outputs ignores soft contributions like mentoring, problem-solving, or conflict resolution. These are vital for team success but invisible in metrics. Additionally, in low-resource settings, tracking individual output is often impractical or culturally unsuitable.

The challenge, then, is to operate within the complexity rather than against it. Instead of simplifying work to suit performance tools, managers must develop performance logic that aligns with the nature of teamwork. This involves basing evaluations on observable team patterns, particularly how performance varies when people join or leave. Here, the covariance-based model proves useful, offering a way to refine subjective judgments through structured inference. The next chapter examines this model in practice, within the real-world context of Ugandan business.

The Performance Non-Separability Problem in Ugandan Businesses

Ugandan businesses are a prime example of the performance non-separability problem. In manufacturing facilities, agricultural cooperatives, and service teams, collective output is standard. Tasks are shared, roles often overlap, and results are assessed at the group level. A harvest is credited to the farming collective. A shift's total production belongs to the team. Customer satisfaction ratings apply to the front desk personnel, not to the receptionist who handled the toughest complaint. This dependence on group-based output means individual performance is seldom measured in isolation.

These sectors are not marginal; they form the backbone of Uganda's economy. Manufacturing and agro-processing are vital pillars of industrial growth. Service industries, especially hospitality and retail, are growing rapidly. However, most of these firms operate without

sophisticated tracking systems. Few can afford the type of individual-level monitoring found in larger corporations. Even where digital tools are used, they are usually for financial reporting rather than performance attribution.

This lack of precision doesn't eliminate the need for evaluation; it merely pushes it underground, into the realm of human judgment. Supervisors must make decisions about promotions, retention, and recognition with limited data. They are asked to do more with less. In this environment, the performance non-separability problem isn't an abstract dilemma; it is a daily management reality. It manifests in workplaces where team success can conceal individual excellence, and where the cost of misjudgement may be measured in lost talent, quiet disengagement, or unspoken resentment.

For many Ugandan businesses, the challenge of assessing individual contributions begins with a lack of infrastructure. Few companies have advanced performance tracking systems. Data on output may be recorded at the team level, if at all, but individual metrics are uncommon. Attendance is monitored manually. Output is reported in aggregate. Tasks are assigned broadly. In such environments, performance assessment relies less on formal systems and more on a supervisor's ability to observe, remember, and interpret.

This reliance on qualitative observation introduces a second challenge: informality. Teams are often built around familiarity or proximity rather than strict role definitions. Job boundaries become blurred. Employees step in for one another, rotate through roles, or shift between tasks. While this flexibility provides operational resilience, it also makes it more difficult to trace performance back to individuals. A successful outcome is attributed to the team. A failure is shared across the group. Praise and blame are often collective, not specific.

Resource constraints further reinforce this pattern. Investing in performance analytics, monitoring technology, or even standardised reporting tools is often beyond reach for small and medium enterprises. As a result, supervisors rely on direct observation, peer feedback, and gut instinct. Over time, these form a sort of informal intelligence system that is rich in detail but vulnerable to inconsistency, bias, and selective memory. These constraints make the performance non-separability problem not just persistent, but deeply embedded in the operational fabric of Ugandan business life.

Manufacturing

In Uganda's manufacturing sector, production lines are usually staffed by teams of machine operators, loaders, packagers, and quality controllers working closely together. Whether in textile factories around Kampala, metal fabrication plants in Mbarara, or food processing units in Mukono, the output is a collective effort. A single day's productivity, such as 1,200 units packed or 80 boxes sealed, is rarely attributed to individual input. Performance is monitored by shift rather than by individual worker. The team's success is the key metric, and the individual's role in that success remains unmeasured.

Supervisors in these settings often depend on visible cues to assess who is contributing. They observe who arrives early, who adapts swiftly to machine problems, who quietly trains new staff, or who is consistently present during high-output shifts. These observations form internal narratives that influence ratings, informal promotions, and pay decisions. However, when a team exceeds expectations, it is rarely obvious whether this is due to better coordination, a fortunate machine day, or the influence of one or two key individuals.

Team composition often changes out of necessity. Absenteeism due to illness, family obligations, or transport issues is common. Workers may be reassigned to balance lines or cover shortages. These adjustments inadvertently create counterfactual moments, offering supervisors opportunities to observe what changes when someone is absent. If the packaging rate drops significantly when a certain worker is off, a signal is generated. If the quality check process becomes more error-prone when a particular individual is moved, that too is noticed. These fluctuations act as informal data points.

Yet even with these cues, the evaluation process remains opaque. A high-performing worker may go unnoticed if their absence never coincides with a measurable dip in output. Conversely, a lower-contributing employee might benefit from being embedded in a consistently high-performing team. The signal becomes muddled by team dynamics and process variability. Supervisors may compensate for this by favouring long-serving workers, those with strong personalities, or those most vocal in meetings, substituting presence for performance.

The issue of performance non-separability in manufacturing is therefore not just theoretical; it shapes how value is assessed in daily operations. Without formal attribution systems and limited analytical infrastructure, supervisors rely on intuition and familiarity. Their judgments are influenced by rotation patterns, anecdotal evidence, and trial-and-error observation. This

underscores the key challenge: individual effort is important, but the system fails to recognise it. It focuses on teams and expects managers to interpret the clutter.

Agriculture

In Uganda's agriculture sector, teamwork is not just common; it is vital. From rural cooperatives to mid-sized agribusinesses, most farming activities rely on collective effort. Take the example of Bukonzo Joint Cooperative Union in Kasese, where smallholder coffee farmers work together through shared processing stations. Although the quality and quantity of coffee depend on the timing, care, and skill of individual farmers, the final product is pooled and processed collectively. Output is measured at the batch level, not at the individual-farmer level. The result is a classic non-separability problem: value is created by many, but credited to the group.

On large-scale agricultural estates such as those managed by the Kibimba Rice Scheme in Bugiri District, farm workers are usually assigned to teams for tasks such as land preparation, transplanting seedlings, applying fertiliser, and harvesting. A supervisor may know that a particular field produced more sacks than others, but identifying which workers' efforts caused the difference is nearly impossible. Productivity is often measured by plot or daily output, metrics that reflect team performance rather than individual input. In these situations, supervisors depend on their knowledge of workers' habits, consistency, and informal team feedback to decide on bonuses or contract renewals.

Changes in team composition, caused by seasonal worker turnover, rotational assignments across plots, or absenteeism, sometimes offer insights. For example, at Agromax Uganda Ltd, which manages horticultural production, team leaders often rotate workers between greenhouses. When a particular unit's pest incidence decreases during a rotation or harvest yields improve, the supervisor begins to link certain employees with better outcomes. However, this inference is fragile. Many other variables, such as weather, input quality, or disease pressure, confound the causal relationship between individual workers and improved performance.

In many cooperatives, supervisors often base judgments on visibility. Farmers who attend group meetings, volunteer for leadership roles, or contribute visibly during group activities are more likely to be recognised and rewarded. This creates a system where participation, rather than raw productivity, becomes a proxy for value. Workers who contribute quietly but

significantly, such as those who maintain irrigation equipment or manage storage logistics, risk going unnoticed if their role does not produce easily observable outputs.

Ultimately, agriculture in Uganda highlights the problem of performance non-separability clearly. Individual effort often remains unnoticed, while collective results influence assessment. With limited use of digital yield tracking tools or worker monitoring systems, supervisors rely on proxies such as attendance, rotation-based comparisons, and social presence. The stakes are significant. When recognition does not accurately reflect contribution, motivation declines. In sectors where every worker matters, the inability to see each worker clearly poses both managerial and economic risks.

Service Industry

In Uganda's service sector, particularly in hospitality, retail, and customer care, the performance non-separability problem manifests in a more human-oriented way. Consider a hotel like Speke Resort Munyonyo, where housekeeping, front desk, and restaurant staff work together in coordinated shifts to provide a seamless guest experience. Guests rate the service, but the ratings are for the team, not for individual staff members. When a shift receives high satisfaction scores, it's unclear who contributed most to the success. Was it the cleaner who worked ahead of schedule, the receptionist who resolved a booking issue, or the waiter who managed a difficult guest? All are present, but none are solely credited.

Supervisors in these environments depend heavily on direct observation. For example, in Café Javas outlets across Kampala, shift supervisors monitor punctuality, teamwork, and their ability to manage peak hours. If a particular server is on duty during consistently smooth lunch rushes, that becomes a performance indicator, even if the credit is shared. However, such inference is delicate. It is difficult to isolate individual service quality when tasks overlap, especially in open-plan environments where every staff member interacts with every customer at some point in the cycle.

Absenteeism and shift rotations, common in the hospitality and retail sectors, inadvertently provide useful counterfactuals. At China Town Shopping Mall Lugogo, for instance, floor supervisors rotate sales staff across departments to balance customer flow. When a particular section records fewer customer complaints or higher sales during shifts with a specific staff member, supervisors take note. These patterns become informal metrics, even in the absence

of a formal performance score. The absence of one worker creates a before-and-after comparison that sharpens managerial judgment.

Nonetheless, these environments are influenced by intangibles. In hospitality, a single smile or conflict de-escalation can shape the guest experience, yet such contributions are seldom measured. Consequently, visibility often outweighs substance. Employees who are more expressive, socially dominant, or closer to supervisors may receive greater recognition. Quiet but capable workers might be overlooked, especially if their contributions do not align with conspicuous events. This distorts evaluations and can diminish morale, especially in high-turnover service environments where recognition frequently serves as the primary reward.

Uganda's service industry illustrates that even when interactions are personal and stakes are high, performance still resides in the team. Output is collective, and individual efforts blend into the group. Supervisors must interpret contribution based on rhythm and reactions—who was present when things went well and who was absent when they did not. It's a management task reliant on memory, perception, and occasional fortunate patterns. Without detailed feedback tools or customer-specific data, subjective inference remains the main way performance is observed and judged.

Relevance of Strengthening Factors in Uganda

Ugandan workplaces, despite their limitations, often feature natural elements that improve a supervisor's capacity to gauge individual contributions. One such element is employee mobility and rotation, which is common across various sectors. In manufacturing facilities like those in Namanve Industrial Park, workers are regularly reassigned between production lines, packing stations, and loading zones depending on output needs. Although these shifts are driven by operational requirements rather than performance measures, they unintentionally create ideal conditions for supervisors to gather evaluative insights. A line that performs more efficiently with a certain loader or encounters fewer bottlenecks when a particular operator is present subtly signals individual impact.

In agriculture, likewise, rotational labour practices play an insightful role. At commercial farms like Agilis Partners in western Uganda, seasonal workers are shifted between planting, weeding, and harvesting tasks based on timing and labour demands. Team leaders, through repeated cycles, start to form clear impressions about which workers adapt quickly, who maintains quality standards under pressure, and who consistently contributes regardless of the

task. These natural movements generate comparative observations without formal testing, reinforcing inference-based assessments.

Another factor that strengthens this dynamic is the presence of hierarchical team structures, which are common in both formal and informal enterprises across Uganda. In hotels like Latitude 0° Kampala, team leaders or supervisors often assume both operational and evaluative roles. Their proximity to daily activities allows them to link outcomes more easily to individuals with higher responsibility. For example, if service quality consistently drops when a team lead is absent, this is not just observed but also used as a basis for performance assessment. The assumption of influence is not arbitrary; it reflects an organisational norm where higher-ranking employees are regarded as key performance drivers.

This attribution pattern also appears in large agro-processing companies like Mukwano Industries, where machine supervisors are expected to maintain not only equipment uptime but also team coordination. When their line operates smoothly, they receive praise; when it fails, accountability is assigned. These roles naturally attract evaluative attention, enhancing the ability of higher-level supervisors to identify whose presence most strongly correlates with success. Authority, in this context, functions both as a managerial tool and a signal amplifier for performance recognition.

Together, mobility and hierarchy create a quiet infrastructure for inference-based evaluation. They do not remove the performance non-separability problem but soften its edges. In Ugandan firms where rotation is frequent and authority is clearly structured, supervisors gain access to repeated, varied team configurations—each offering a new chance to observe cause and effect. These contextual strengths, often viewed as circumstantial, may actually be key enablers of performance judgment in environments where formal measurement remains out of reach.

Factors Strengthening Supervisors' Ability to Infer Individual Productivity

Identifying individual contributions within team-based production environments remains a persistent challenge for organisations, especially where outputs are measured collectively and not broken down by employee. In Ugandan firms, where team configurations are common and formal performance metrics are often unavailable, supervisors must make assessments with limited direct evidence. In such settings, performance appraisal relies less on measurable outputs and more on inference. Supervisors form evaluative judgments by interpreting the observable relationship between an employee’s presence and the team’s overall performance.

This process depends on a form of counterfactual reasoning: supervisors estimate individual contribution by observing how a team's output varies when a specific employee is absent or reassigned.

Uribe et al. (2022) provide strong empirical support for this evaluative mechanism. Using observational data from a U.S. manufacturing company, the study shows that supervisors form perceptions of individual productivity by observing changes in team composition. When an employee, such as a high-performing machine operator, is temporarily relocated from one production line to another due to operational needs, supervisors notice the difference in output between the teams before and after the move. These team-level fluctuations, caused by routine staffing changes, absenteeism, or cross-training, act as informal yet influential data points. Over time, supervisors compile these experiences into mental models of each employee's perceived productivity.

This method is based on what the authors describe as covariance: the statistical connection between a worker's attendance and the team's productivity. Covariance-based inference serves as a conceptual link between overall output and subjective performance ratings. The research shows that this inferred productivity closely matches how supervisors assess employees in formal evaluations. Supervisors appear to rely, whether deliberately or subconsciously, on these repeated comparisons of team performance to form individual assessments.

Notably, the strength of this relationship grows with employee rotation. Uribe et al. (2022) find that for workers who spent more than 10% of the year working outside their primary teams, the positive correlation between inferred productivity and performance ratings was 6 times stronger than for their less mobile counterparts. Frequent rotation across various team contexts introduces variation in team configurations, which enhances supervisors' capacity to identify and attribute individual impact. Essentially, these staffing dynamics create a natural experiment within the organisation, allowing for more accurate assessments of individual performance in the absence of direct metrics.

For Ugandan firms, where employee rotation is often a logistical necessity due to fluctuating labour demands, this insight remains practically relevant. Routine reassignments, whether to cover absences, manage workloads, or facilitate multi-skilling, produce exactly the type of comparative information that enhances supervisors' ability to recognise individual contributions. Although often seen as operational disruptions, these staffing shifts might also

serve a secondary, evaluative purpose by increasing the visibility of employee impact within team environments.

However, rotational data is not the sole source of evaluative clarity. The hierarchy of authority within teams also plays a vital role. Supervisors are more inclined to attribute performance outcomes, both positive and negative, to individuals in formal authority positions. This attribution is rooted in a broader psychological tendency to assign causality to agents perceived to have control or leadership. Consequently, employees in supervisory, technical, or coordinating roles are more often credited for team results, whether those outcomes stem from collective or individual efforts.

Uribe et al. (2022) support this idea by showing that inferred productivity has a much stronger link to performance ratings for employees in high-authority roles, such as operators and assistant operators. These roles usually involve higher task complexity, decision-making responsibility, and coordination, making their contributions more visible to supervisors. Conversely, employees in routine, lower-skilled positions, such as crew members or helpers, are less visible in terms of their causal influence. Performance differences in these roles are often due to standardised processes rather than individual discretion, reducing the visibility of their contributions.

This finding has direct implications for organisations with defined hierarchical structures, such as many Ugandan manufacturing and service firms. In these contexts, supervisors are likely to rely on positional cues when assessing performance. Authority, therefore, functions not only as an operational designation but as an evaluative signal. Employees in leadership or supervisory roles benefit from greater visibility and attribution, increasing the likelihood that their contributions are recognised and rewarded.

Understanding these dynamics provides organisations with an opportunity to refine their evaluation systems. By recognising the structural and behavioural patterns that influence attribution, especially the roles of team rotation and job authority, companies can move towards fairer and more precise performance assessments. In environments with limited data, leveraging these naturally occurring sources of evaluative information may be the most practical approach to recognising individual performance within collective output structures.

Implications for Managers

Strategic Use of Employee Rotation

One of the clearest lessons from the performance non-separability literature is the importance of employee movement between teams. In settings where individual output cannot be directly measured, variations in team membership become a vital source of comparative information. Ugandan businesses, especially in manufacturing, agriculture, and services, can utilise this insight by formalising or at least institutionalising rotation practices. Even in low-tech or resource-limited environments, encouraging employees to periodically change roles or support different units can improve a supervisor's ability to assess individual contributions more accurately.

This approach to dynamic deployment requires no costly monitoring tools; instead, it depends on structured exposure. For example, new hires might rotate through different departments during onboarding, providing managers with early insights into their adaptability and productivity in various settings. Likewise, existing staff rotations, often already happening informally, could be documented and serve as a basis for evaluation discussions. Over time, such variation helps build a clearer understanding of who consistently adds value, even within a team context.

Reinforcing Authority and Role Clarity

As established in both research and practice, evaluative inference is influenced not only by presence but also by positional context. Employees in clearly defined leadership or decision-making roles are more likely to be credited or held accountable for team outcomes. For Ugandan firms, many of which already function within strong hierarchical structures, this presents a strategic opportunity.

By formalising authority roles and aligning them with real control over production processes, organisations can enhance the clarity of evaluation available to supervisors. This involves ensuring that team leads, shift supervisors, or senior operators are provided with the autonomy and tools needed to influence team performance effectively. When those in senior roles are empowered to direct tasks, manage workflow, and resolve problems, their performance

becomes more transparent and easier to assess. This improved visibility, in turn, increases the reliability of subjective evaluations and helps ensure that recognition reflects true impact.

Training Supervisors on Implicit Inference

While many supervisors already use covariance-based reasoning intuitively, few receive formal training to identify or refine this process. Including basic training on evaluative inference in management development programmes could considerably improve the accuracy of performance appraisals. Such training would not need advanced analytics but should focus on enhancing supervisors' observational skills, pattern recognition, and awareness of counterfactual cues.

For example, supervisors could be encouraged to monitor team performance during periods of staff rotation or absenteeism and consider how specific configurations influence output. Over time, this can lessen reliance on memory or impressionistic judgments and replace them with a more structured, evidence-based approach to subjective evaluation. In Ugandan enterprises, especially SMEs, where performance reviews are often informal, this type of training may be particularly effective, providing a cost-efficient intervention with clear evaluative benefits.

Awareness of Perceptual Management

Supervisors must also stay aware of how employees might try to manage impressions of their own performance. As workers begin to understand the evaluation mechanisms, especially the reliance on visible changes in team output, they may learn to time their presence strategically. For example, an employee could volunteer for shifts known to produce high output or avoid assignments that usually underperform.

In environments where visibility equals value, such perceptual management can distort evaluations. Supervisors, therefore, must be prepared not only to observe performance patterns but also to distinguish between genuine contribution and opportunistic positioning. Developing awareness of this dynamic, while ensuring fairness and transparency, can help prevent overvaluing strategic behaviour and undervaluing steady, though less visible, effort. For Ugandan firms, where informal influence and interpersonal dynamics often significantly influence workplace assessments, this awareness is especially important.

Conclusion

This paper has examined how managers in team-based environments navigate the challenge of assessing individual contributions when direct measures of performance are unavailable. It has explored the reasoning behind subjective appraisal in contexts where performance is collective, and where the boundaries between individual effort and group outcomes are blurred. By focusing on the practical reasoning that supervisors apply, often unconsciously, this paper has provided a framework for understanding performance evaluation not as a failure of formal systems, but as an adaptive response to informational complexity.

This paper shows that variation in team membership is not just a logistical fact but a vital factor that makes subjective evaluation meaningful. In environments where rotation, absence, and reassignments are common, such variation gives supervisors the necessary contrasts to identify patterns in productivity across different team compositions. Instead of seeing these workforce changes as disruptions, this paper views them as sources of comparative insight, shaping the quality and accuracy of managerial judgment.

This paper also contends that positional authority functions as more than just an organisational label; it acts as a perceptual mechanism through which performance is made visible. Roles that focus on control, coordination, and problem-solving attract evaluative attention, whilst routinised roles tend to recede into the background of team output. In doing so, hierarchies unintentionally shape how contribution is understood, recognised, and rewarded within team settings. The structure of work itself determines where evaluation takes place and how it is interpreted.

For Ugandan businesses, where formal systems for measuring individual output are limited and team-based production is common, this paper suggests a different way to think about performance appraisal. Instead of using strict models focused on individual output, companies can draw on their own realities, leveraging naturally occurring workforce dynamics to enhance evaluation insights. When grounded in contextual variation and role-based attribution, subjective judgment can become not only more accurate but also fairer.

References

Acemoglu, D., & Pischke, J. S. (1999). Beyond Becker: Training in imperfect labour markets. *The Economic Journal, 109*(453), 112–142.

Alchian, A. A., & Demsetz, H. (1972). Production, information costs, and economic organization. *The American Economic Review, 62*(5), 777–795.

Bandiera, O., Barankay, I., & Rasul, I. (2013). Team incentives: Evidence from a firm level experiment. *Journal of the European Economic Association, 11*(5), 1079–1114.

Cheng, P. W. (1997). From covariation to causation: A causal power theory. *Psychological Review, 104*(2), 367–405.

Coff, R. W. (1997). Human assets and management dilemmas: Coping with hazards on the road to resource-based theory. *Academy of Management Review, 22*(2), 374–402.

DeNisi, A., & Smith, C. E. (2014). Performance appraisal, performance management, and firm-level performance: A review, a proposed model, and new directions for future research. *Academy of Management Annals, 8*(1), 127–179.

Gartenberg, C., & Wulf, J. (2017). Pay harmony? Social comparison and performance compensation in multibusiness firms. *Organization Science, 28*(1), 39–55.

Groysberg, B., Lee, L. E., & Nanda, A. (2008). Can they take it with them? The portability of star knowledge workers' performance. *Management Science, 54*(7), 1213–1230.

Holmstrom, B. (1982). Moral hazard in teams. *The Bell Journal of Economics, 13*, 324–340.

Kahneman, D., & Miller, D. T. (1986). Norm theory: Comparing reality to its alternatives. *Psychological Review, 93*(2), 136.

Levy, P. E., & Williams, J. R. (2004). The social context of performance appraisal: A review and framework for the future. *Journal of Management, 30*(6), 881–905.

Uribe, J., Carnahan, S., Meluso, J., & Austin-Breneman, J. (2022). How do managers evaluate individual contributions to team production? A theory and empirical test. *Strategic Management Journal*, *43*(12), 2577-2601.

Zenger, T. R. (1992). Why do employers only reward extreme performance? Examining the relationships among performance, pay, and turnover. *Administrative Science Quarterly, 37*, 198–219.

Zenger, T. R., & Hesterly, W. S. (1997). The disaggregation of corporations: Selective intervention, high-powered incentives, and molecular units. *Organization Science, 8*(3), 209–222.