Dynamic Vacillation Between Competing Organizational Goals: Insights from Emergency Medical Services

Timothy Gubler
Marriott School of Business
Brigham Young University
timgub@byu.edu

Haibo Liu
School of Business
University of California, Riverside
haiboliu@ucr.edu

Alexandru Roman
Jack H. Brown College of Business and Public Administration
Cal State University, San Bernardino
ARoman@csusb.edu

Draft: 2/9/2023

Abstract
We study how Emergency Medical Service (EMS) crews attend to competing financial and social health goals during 9-1-1 calls. Prior work has highlighted performance challenges from pursuing competing organization-level goals. However, less is known about how organizations resolve these challenges when goals are interdependent and non-separable in key tasks. We propose that EMS crews will dynamically vacillate between competing goals across calls, which allows for concurrent pursuit of competing goals. Using quasi-random assignment of patients to crews in 31 US states, we find that crews routinely prioritize the agency's financial goal by providing more services to higher-paying patients. This reduces when patient health needs are critical, but increases with agency financial need. Surprisingly, most US EMS agencies engage in dynamic vacillation, regardless of profit orientation.

Managerial Summary
We study how Emergency Medical Service (EMS) crews attend to competing financial and social health goals during 9-1-1 calls. Prior work has highlighted that pursing competing goals can harm organization performance, and have proposed solutions. However, we know little about how organizations resolve these challenges when goals must be pursued at the same time. We propose that autonomous EMS crews will dynamically vacillate between competing goals across calls, which allows for concurrent pursuit of competing goals. Analyzing EMS call data from 31 US states, we find that crews routinely prioritize the agency's financial goal, providing more services to higher-paying patients. This reduces when patient health needs are critical, but increases with agency financial need. Most US EMS agencies engage in vacillation, regardless of profit orientation.

Keywords: Multiple goals, goal conflict, healthcare management, healthcare inequity, behavioral strategy

1. INTRODUCTION

Modern organizations often concurrently pursue competing financial and social goals central to the purpose of their organization (e.g., Battilana, Obloj, Pache, & Sengul 2020; Cyert & March, 1963; Ethiraj & Levinthal, 2009; Gaba & Greve, 2019; Hu & Bettis, 2018; Kim, 2022; Obloj & Sengul, 2020). For instance, healthcare organizations may seek to maintain profitability while also providing care that improves patient health and results in high satisfaction (Berwick, Nolan, & Whittington, 2008; Roth, Tucker, Venkataraman, & Chilingerian, 2019). Airlines, automobile manufacturers, and public utilities may pursue social goals of safety and reliability while simultaneously striving to minimize financial costs (Gaba & Greve, 2019; Hu & Bettis, 2018; Kim, 2022). Microfinance lenders may strive for business model sustainability and growth while also working to alleviate poverty (Armendariz & Morduch, 2010; Morduch, 1999; Wry & Zhao, 2018). In the past decade, companies have faced growing expectations to pursue various social goals alongside financial objectives (Battilana et al., 2020; Deloitte, 2019; Mudaliar & Dithrich, 2019).[1]

Yet, prior work has found that pursuing multiple competing goals can impose significant challenges on organizations that reduce performance. In essence, competing goals are weakly or negatively correlated and consequently cannot be reduced in the short term to a single dimension objective function (Gaba & Greve, 2019; Wry & Zhao, 2018). Concurrent pursuit of competing goals can lead to confusion and loss of focus for organizations as decision-makers seek to maximize on multiple dimensions and allocate limited resources to achieve goals but lack a concrete definition of "high" performance or a robust method for quantifying tradeoffs between conflicting goals (Ethiraj

[1] The multiple goals literature has focused on tensions arising from organizations pursuing multiple goals on any dimension. This might include multiple goals in the financial dimension, as in Obloj and Sengul's study of French manufacturing firms (2020). It could also include tensions arising from for-profit firms adopting peripheral social goals, such as CSR, to buttress its core business or to address pressing stakeholder demands (e.g., Burbano, 2016; Eccles, Ioannou, & Serafeim, 2014; Elfenbein & McManus, 2010; Flammer, 2015; Gubler, Larkin, and Pierce, 2018; Hawn, Chatterji, & Mitchell, 2017; Margolis & Walsh, 2003; Burbano, Delmas, & Martin, 2021). Our focus is on tensions arising from the simultaneous pursuit of competing financial and social goals, when both goals are central to the purpose of the organization, but the nature of the tasks required to deliver value necessitates employees deal with both goals concurrently.

& Levinthal, 2009; Hu & Bettis, 2018; Jensen, 2002; Obloj & Sengul, 2020; Pache & Santos, 2010; Simon, 1972). Jensen (2002, p. 237), for instance, argues that "purposeful behavior requires the existence of a single-valued objective function," and that it is not logically possible for firms to simultaneously maximize on multiple competing dimensions. Obloj & Sengul's (2020) empirical study of French manufacturing firms supports this argument. They found that performance on any single organizational objective decreased with the number of objectives being pursued. These findings echo earlier empirical results by Ethiraj and Levinthal (2009) using a computational modeling approach.

To address these performance challenges, organizational scholars have provided three potential solutions. The first is temporal separation, where the organization specifies a single goal to be pursued for a window of time (usually years) and then shifts focus sequentially over time between goals (Cyert & March, 1963; Ethiraj & Levinthal, 2009; Joseph & Wilson 2018; Pfeffer & Salancik, 1978). The second is spatial separation using organizational design choices. This allows for single-goal maximization by one group or division, and then draws on coordination mechanisms to support the organization's simultaneous pursuit of competing goals (Ethiraj & Levinthal, 2009; Obloj & Sengul, 2020). Finally, organizations may simultaneously pursue competing goals by specifying an aggregation rule. This policy delineates aspiration levels for each goal and quantifies tradeoffs (Gaba & Greve, 2019; Kaplan & Norton, 2005; Jensen, 2002; Simon, 1955; 1972).

While promising in many situations, these current solutions require either: 1) some potential for temporal or spatial separability of goals in key tasks, or 2) the ability for management to set organization-level policies that dictate how decision-makers should tradeoff between competing goals. Yet, in many cases these requirements do not hold because the nature of the task associated with the goals requires concurrent consideration of the goals by a single decision-making entity, and actions taken to achieve one goal may negatively affect the pursuit of the other goal (Battiliana, Walker & Dorsey 2012; Hart & Zingales, 2017). Additionally, quantifying the value of the social goal relative to

the financial goal for many tasks at the organization level may be complex and legally or ethically fraught, which leads to difficulty in specifying blanket tradeoffs policies (Gaba & Greve, 2019; Wry & Zhao, 2018). An example of the above challenges is healthcare physicians. When developing patient treatment plans (a key task involving both the core social and financial goals of healthcare), doctors must simultaneously consider patient health needs and hospital financial viability (Cooper & Chown, 2022). Temporal (i.e., across days or months) or spatial (i.e., across hospital floor) separation of these goals is unreasonable. Moreover, actions taken to achieve the social goal (e.g., running multiple tests to search for potential health issues on low-paying patients) negatively impact the pursuit of the financial goal, and vice versa. Setting organization-level policies to dictate the prioritization of one goal over another for every doctor and every case is hopelessly complex and may give rise to legal and ethical challenges. Current solutions in the literature for attending to competing goals do not apply in this and related cases. We seek to help address this shortcoming.

In this paper we investigate how Emergency Medical Service (EMS) crews attend to concurrent but competing financial and social health goals during 9-1-1 calls. Both goals are core to the purpose of EMS agencies, and neither can be neglected. In addition to its goal of financial viability, EMS agencies strive to address patient health needs, and are required by law to provide sufficient service to satisfy patient medical needs regardless of patient ability to pay or other concerns. However, chronic underfunding leads most EMS agencies to rely on patient payments — mainly through insurance reimbursement based on service provisions provided — to stay financially viable to serve future patients (CMS, 2019; NEMSAC, 2016; Munjal, Margolis, & Kellermann, 2019). In the U.S., patient ability to pay varies greatly based on insurance type, with public insurances typically reimbursing below cost of service and private insurance above cost.[2] This creates tension in achieving both these financial

[2] Reimbursements to EMS agencies are typically highest for private insurance patients, followed by Medicare and then Medicaid patients (CMS, 2019; NEMSAC, 2016; Munjal et al., 2019). EMS agencies may recoup losses incurred from below-cost reimbursements by public insurance patients through providing more services to private insurance patients.

and social health goals because each goal calls for opposing crewmember actions. If always prioritizing the social goal, EMS crews should provide similar service to patients with similar conditions, regardless of patient ability to pay. Whereas, if always prioritizing the financial goal, crews should provide the minimum necessary medical care to low ability to pay patients and take actions to increase take home revenues from high ability to pay patients by performing more procedures and spending more time with these patients. In the latter case, the EMS agency deviates from its social goal if it provides services based on patient ability to pay instead of patient health needs.

We argue that EMS crews will on average attend to the financial goal over the social health goal, given the widespread funding pressures present in the EMS industry and the fact that most EMS calls are relatively non-urgent. More importantly, we theorize that EMS crews will dynamically vacillate between the competing financial and social goals *across* calls to concurrently achieve both goals. This vacillation depends on the relative importance of each goal on a particular call, which is in turn influenced by patient health needs and by agency financial needs. When patient health needs are paramount, we expect crews to focus more on the social health goal, and to consequently treat patients similarly based on health condition. Alternatively, when patient health needs are less pressing, and particularly when agency financial need is high, we expect crews to focus more on the financial goal, resulting in service overprovision for high ability to pay patients. Finally, we argue that the crew's baseline focus on a single goal will be influenced by the profit orientation of their agency: Crews in for-profit agencies will focus relatively more on the financial goal, while non-profit agencies will focus relatively more on the social health goal.

We test these predictions using a multi-year (2012-2016) sample of EMS data for 31 states from the US National EMS Information System (NEMSIS). We exploit quasi-random assignment of patients (and their corresponding ability to pay through insurance) to EMS crews to investigate within-EMS unit responses to differences in patient ability to pay given a patient's health needs. After

controlling for call and patient characteristics, location effects, and time effects, our unit fixed effect models suggest evidence of service overprovision for high ability to pay patients on average. EMS crews spend more time with and perform more procedures for private insurance patients than for lower ability to pay Medicaid patients (5.1% and 5.9% differences, respectively).[3] This implies a baseline focus on the agency's financial goal. However, we find these service provision differences are reduced on calls with more serious patient health needs (a shift towards the social goal) but are exacerbated when agencies have higher financial need (a shift towards the financial goal). Dynamic vacillation between goals across calls thus allows crews to concurrently pursue both goals. Strikingly, we find that formal agency profit orientation does not influence these effects. Crews in formally for-profit and non-profit agencies behave similarly, suggesting the challenges and solutions from pursuing multiple competing goals extend across different organization types and may be a function of financial pressure rather than formal organizational structure. Multiple robustness checks and subsample analyses rule out alternative explanations driving this pattern of results.

These findings contribute to recent work on tensions arising from multiple goals in organizations, including in hybrid organizations (e.g., Battilana & Lee, 2014; Battilana, Sengul, Pache, & Model, 2015; Battilana et al., 2020; Doherty, Haugh, & Lyon, 2014; Ethiraj & Levinthal, 2009; Gaba & Greve, 2019; Hu & Bettis, 2018; Obloj & Sengul, 2020; Pache & Santos, 2013; Kim, 2022). Specifically, our paper highlights the unique challenges that arise when goals are not easily separable temporally or spatially in tasks, and when management cannot set clear policies to specify tradeoffs between goals. The results of this paper uncover a new avenue for managing these tensions—frontline employee vacillation among competing goals—through which organizations can concurrently pursue multiple competing goals while potentially avoiding the negative effects shown in the literature (Ethiraj & Levinthal, 2009;

[3] The results for calls with Medicare patients fall in-between the private and Medicaid patient results and are consistent with our theory. For parsimony and ease of exposition, we focus our paper on Medicaid vs private insurance. However, we present the models with the Medicare results in tables A2 through A6 of the Appendix.

Jensen, 2002). Such vacillation provides a novel solution for attending to competing goals as it does not require organization-level change efforts or establishing and maintaining complex policies. However, this solution may require employees to be intrinsically motivated and individually aligned with the social goal of the organization. Future work should continue to investigate this solution, including how it can be established and effectively managed.

Relatedly, our study takes a contingency approach to studying competing goals in organizations. Most work to date on multiple goals has been theoretical, and existing empirical work has primarily focused on the main effect from simultaneously pursuing multiple objectives (e.g., Ethiraj & Levinthal, 2009; Hu & Bettis, 2018; Obloj & Sengul, 2020). Only recently has work started to take a contingency approach to explore the social and financial tradeoffs in specific contexts (e.g., Gaba & Greve, 2019; Kim, 2022; Wry & Zhao, 2018). Our paper uncovers conditions that enhance a greater social goal pursuit and conditions that lead to a financial goal pursuit for EMS crews. By so doing, we have shown the importance of contingencies to understanding how organizations and their employees are likely to attend to multiple competing goals. Strikingly, our results imply that these contextual factors drive responses to multiple goals even more strongly than the profit orientation of the organization. This finding is consistent with emerging literature in hybrid organizations and social enterprises (Battilana & Lee, 2014; Wry & Zhao, 2018), but again highlights the importance of understanding the contingencies that increase or decrease perceived goal pressures on employees.

Finally, our study has important practical implications for managers and policy makers. For an organization to truly focus on a social goal, our results suggest employees must perceive little pressure on financial dimensions. Similarly, our findings imply that even absent clear directives by management, autonomous professionals may act in unanticipated ways to achieve the perceived goals of the organization. We discuss these and additional implications at the conclusion of the paper.

2. | THEORETICAL DEVELOPMENT

2.1 | The Organizational Challenge of Pursuing Multiple Goals

While defining organizational goals and fostering coordination among employees to achieve these goals is a hallmark of organizations (Barnard, 1938; Coase, 1937; Gartenberg & Zenger, 2021; Gibbons, 2005; Jensen & Meckling, 1976), recent work has found that introducing multiple competing objectives can lead to performance-eroding challenges (Ethiraj & Levinthal 2009; Gaba & Greve, 2019; Jensen, 2002; Obloj & Sengul, 2020). For instance, when organizations face both financial and social goals, emphasis on the social goal may result in organizations losing sight of financial outcomes and risking bankruptcy (Pache, Battilana, & Spencer, 2019). Alternatively, emphasizing the financial goal may result in "mission drift" and hurt the organization's legitimacy among stakeholders (Grimes, Williams, & Zhao, 2019). Pursing both goals concurrently may lead to confusion and "performance freezes", as decision-makers seek to maximize on multiple dimensions and allocate limited resources to achieve goals but lack a concrete definition of "high" performance or a robust method for quantifying tradeoffs between conflicting goals (Ethiraj & Levinthal, 2009; Hu & Bettis, 2018; Jensen, 2002; Obloj & Sengul, 2020; Pache & Santos, 2010).

Despite these performance challenges, pursuing multiple competing objectives are more the norm than the exception for modern organizations (Battilana et al., 2020, Deloitte, 2019). While such challenges are well documented for hybrid organizations (e.g., Battilana & Lee, 2014; Doherty et al., 2014), these challenges also increasingly apply to for-profit (e.g., Gaba & Greve, 2019; Obloj & Sengul, 2020) and non-profit organizations (e.g., Kim, 2022). Competing goals are often imposed on organizations by external and internal stakeholders (Margolis & Walsh, 2003; Mudaliar & Dithrich, 2019; Pache & Santos, 2010).

The literature to date provides three primary solutions for attending to organizational challenges from multiple competing goals. The first solution is for organizations to temporally separate objectives over an extended time period (usually many years), and then to pivot the organization between

multiple competing goals through a process of organizational change (e.g., Cyert & March, 1963; Ethiraj & Levinthal, 2009; Greve, 2008; Joseph & Wilson, 2018; Nickerson and Zenger, 2002; Pfeffer & Salancik, 1978). This allows the organization to focus on a single core goal for a fixed period, while also providing a path to pursue multiple goals over an extended time horizon. However, organizations may find it difficult to prioritize a single stakeholder goal for a fixed period (Battilana et al., 2020; Gaba & Greve, 2019; Jensen, 2002), and the challenge of repeated organizational change can be non-trivial.

The second solution is for organizations to spatially separate goals between groups of people in the organization using organizational design choices (Ethiraj & Levinthal, 2009; Obloj & Sengul, 2020). This allows goals to be pursued as a single goal by one division or group. Coordination mechanisms at the organization level are then utilized to support specialization of goals (Battilana & Lee, 2014; Obloj & Sengul, 2020). While promising in many cases, often tasks are non-separable and cannot be delegated to different groups. Coordination challenges can also be significant, leading to tensions in the organization in achieving both objectives simultaneously (Ethiraj & Levinthal, 2009).

The final solution is for organizations to pursue competing goals concurrently by formally specifying aspirations and tradeoffs for each goal (Gaba & Greve, 2019; Kaplan & Norton, 2005; Jensen, 2002; Simon, 1955; 1972). Employees then integrate across goals as they pursue a single "super goal" with clear tradeoffs and aggregation rules provided at the organizational level (Ethiraj & Levinthal, 2009; Jensen, 2002). This logic is captured in the balanced scorecard approach to strategic implementation. In many cases, however, interdependencies between goals create significant challenges interpreting performance feedback for a single goal (Hu & Bettis, 2018). Moreover, management may struggle with complexity and ethical challenges when establishing policies for decision-makers that clearly quantify tradeoffs in the relevant tasks (Simon, 1972; Jensen 2002).

These above solutions are promising for cases where organizations pursue competing but potentially separable objectives (spatially or temporally), or for cases where management can clearly

specify tradeoffs between competing objectives. However, in many cases organizations face competing goals that are core to the organization and that must be handled concurrently in a single task, making spatial or temporal separation untenable. Similarly, establishing policies that dictate tradeoffs for the relevant tasks can be complex and ethically challenging, as pursuing one goal may simultaneously affect the other in an opposing way. Prior work has shown that in professional services autonomy is commonly delegated downward to experts to deal with the complexity in establishing blanket organization-level policies on even a single goal dimension (Lipsky, 2010; Teece, 2003).

Healthcare is one case where the solutions discussed above may not apply. Medical professionals seek positive patient health outcomes for patients, but care decisions are weighed with costs and revenues to ensure hospital financial viability (Berwick, Nolan, & Whittington, 2008; Cooper and Chown, 2022; Roth et al., 2019). Doctors' treatment decisions for a patient who cannot pay simultaneously affects both patient health outcomes and hospital profits. Similarly, a microfinance lender may simultaneously pursue poverty alleviation in loans while also seeking financial viability, profitability, or growth of the lending agency (Armendariz & Morduch, 2010; Morduch, 1999; Wry & Zhao, 2018). The single decision of (dis)approving a loan has implications for both goals, and both goals are inseparable in the key task. Lenders face higher financial risks when granting loans to poorer clients who are in the high-need groups. Current solutions fail to provide insight in such cases.

In the following sections we outline these tensions in one important setting: Emergency Medical Services (EMS). We argue that EMS crews will dynamically adjust their behavior *across* calls to allow them to concurrently pursue the agency's financial goal as well as the broader social health goal. The crew's focus on any particular call will depend on the relative importance of the two goals on a call. Dynamic vacillation among these competing goals allows EMS crews to resolve the above articulated performance dilemmas from multiple non-separable competing objectives in ways previously

unanticipated in the literature. Ultimately this highlights a new avenue through which organizations may deal with challenges from concurrently pursuing multiple competing goals.

2.2 | EMS Agencies Under Competing Organizational Goals

The core task of EMS agencies is to respond to health emergencies following 9-1-1 calls. EMS crews are responsible for stabilizing and delivering patients to healthcare facilities. Of the 22 million nationwide 9-1-1 calls in 2016, 14.6 million US patients were transported to hospitals by EMS units (Munjal et al., 2019). A 2013 survey of 1300 US emergency departments found that 17% of patients arrived at US emergency departments by ambulance (Augustine, 2014). EMS agencies are state-regulated and typically operate multiple EMS units (e.g., ambulances and crews). They usually serve a stable and predefined geographic area. Units are dispatched to patients by a central call dispatch center following 9-1-1 calls, mainly based on the agency's service area and availability.

Once on scene, and patient condition is assessed, EMS crews make transport decisions independently (i.e., when a patient is incapacitated) or in conjunction with patients and supporting parties. Before the transport decision is made, federal law prohibits EMS crews from collecting patient insurance information. However, once decided EMS crews may consider patient insurance information when deciding the hospital destination. Our field interviews and ride-along observations with EMS crews revealed that patients often would offer up insurance information even before the transport decision was made, and that EMS personnel sometimes could infer patient insurance type based on contextual factors, such as the patient's age and neighborhood. While en route to a hospital EMS personnel usually perform medical procedures such as administering oxygen or starting IVs. A call is considered finished when the crew delivers the patient to an emergency room or hospital.

EMS agencies are required by law to provide a standard of service to all patients regardless of their ability to pay (CMS, 2020). This standard of service necessitates providing essential procedures and treatment in-line with the latest protocols. This social goal of EMS is at the core of its organizational

purpose. However, government underfunding is a chronic problem for the EMS industry (NEMSAC, 2016). Interviews with EMS directors revealed that financial pressures have been increasing in the industry over time. Underfunding typically requires EMS agencies to also pursue a financial goal, regardless of agency type,[4] by relying on self-generated revenues to carry out the agency's health objective and improve agency operations (NEMSAC, 2016).[5] Because revenues primarily stem from patient insurance payments, this creases a tension between the social and financial goals.

U.S. nationwide reimbursement rates normally decrease in the following order: private insurance, Medicare, and Medicaid. While private insurance typically covers more than the full cost of care, Medicare and Medicaid usually reimburse below the cost-of-service provision and often do not reimburse for procedures (GAO 2007, 2012; NEMSAC, 2016). For instance, an estimate from the California Ambulance Association in 2011 found that the average ambulance trip cost was $630 in California. However, the average insurance reimbursements were $150 for Medicaid patients, $426 for Medicare patients, and $1529 for private insurance patients including a patient copayment of 20% (California Healthline, 2011). Consequently, it is common for EMS agencies to generate revenues primarily from private insurance patients and cross-subsidize public insurance patents. For parsimony, we focus in this paper on the comparison between private insurance and Medicaid patients. However, our theory can be directly extended to Medicare patients, and we include the Medicare results in the online Appendix. Our interviews with EMS personnel revealed that they typically understand agency financial challenges, the differing reimbursement rates between insurance types, and even the rough reimbursement levels for specific types of procedures depending on insurance type.[6]

[4] EMS agency types include community/charity (non-profit), governmental (non-fire), hospital-affiliated (private), private (non-hospital), and integrated fire departments. Some of these agencies are public and non-profits while others are private and for-profits.
[5] EMS agencies are only reimbursed for patient transports and for procedures given during transports. A challenge to EMS financial viability stems from cases where crews respond and treat patients at the scene, referring them to providers for follow-up (which incurs cost to the unit), but the unit does not transport the patient. In such cases EMS agencies receive no reimbursement (NEMSAC, 2016).
[6] Some EMS personnel were able to list exact reimbursement rates for different insurances in their service area, as well as specific costs for some of the more common procedures, medications, or supplies.

The challenge for EMS crews is that these two primary goals are negatively correlated. A pure pursuit of the social goal results in service provision equity across patient insurance types, as crews provide treatment to patients solely based on medical needs. However, this fails to maximize agency financial returns and may not be sustainable for the agency over time as agencies eventually struggle to afford needed equipment, personnel, or supplies to stay solvent and serve future patients. Alternatively, a pure pursuit of the financial goal implies service provision differences based on patient ability to pay, which may compromise the social health objective of EMS agencies as it (inefficiently) funnels resources to patients based on ability to pay rather than medical needs.

Importantly, while these two organizational goals are negatively correlated in the short term (i.e., on a 9-1-1 call), it is important to note that these two goals may be positively correlated over a longer period (i.e., multiple months or years). That is, because private insurance reimburses above operating cost on a given call, over time EMS agencies may use additional revenues from these calls to cross subsidize care for low ability to pay patients, allowing for financial sustainability and higher levels of service provision for all patients. This insight is not unique to our study. Gaba and Greve (2019), for instance, show airlines face a short-term tradeoff in buying expensive, newer, and safer aircraft with earning short-term profits using existing aircraft. In the long run these two objectives are positively correlated, as safer aircraft improve the airline's standing and long-term profitability.

2.3 | Service Provision Differences Imply Goal Prioritization

Differences in patient service provision based on patient ability pay give insight into which objective is being prioritized by a crew on a call. Because procedures and miles driven are primary determinants of final bill amounts (NEMSAC, 2016), providing additional procedures or driving farther than necessary with Medicaid (low ability to pay) patients is a net loss for an agency. The agency is unlikely to be reimbursed by Medicaid. However, for private insurance (high ability to pay) patients providing more non-essential procedures and driving farther may lead to greater financial returns for the EMS

agency from a call. Thus, if the agency's financial goal is being prioritized across calls, EMS crews should provide the minimal required service (ethically and by law) to low ability to pay patients while those with high ability to pay receive an overprovision of service, leading to service provision differences based on patient ability to pay.

Alternatively, if the social health goal is paramount for EMS crews across calls, crews should attempt to provide the "best" health care to all patients given their conditions regardless of patient ability to pay. This includes achieving the required standard of service but may also result in crews providing additional services to patients when needed, which is costly for agencies (particularly when the patient's insurance is unlikely to reimburse for the services given). This results in no discernable service provision differences across calls based on patient ability to pay (or other factors) after patient condition is held constant. Consequently, differences in service provision based on patient ability pay gives insight into which objective is being prioritized by crews across calls.

2.4 | EMS Crews Prioritize the Agency's Financial Goal on Average

The social health and financial goals are both core to the purpose of EMS agencies, and crews consequently must pursue both goals concurrently over time. Yet, it is unclear how crews attend to these competing goals on a given 9-1-1 call, and whether one goal might be routinely prioritized on average. As described above, prioritizing the social health goal will result in no observable differences in service provision based on patient ability to pay or other factors, while prioritizing the financial goal results in observable service provision differences.

Given the importance of the social health goal to the core purpose of EMS, this goal could be routinely prioritized by EMS crews, resulting in no observable service provision differences based on patient ability to pay. Like other healthcare organizations, EMS professionals pride themselves on being "first responders" to critical health emergencies and on helping patients in need. Our interviews revealed that "helping patients" was a primary motivator in choosing EMS as a profession. Additional

legal requirements for a baseline standard of service, the possibility of legal action, and medical and ethical norms all support a primary focus on the social health goal.

However, EMS agencies also face significant funding challenges that threaten agency viability, and consequently the agency's ability to fulfill their social health goal over time (NEMSAC, 2016). The requirement by law to serve all patients in need, including patients that reimburse below costs or that do not reimburse because they are not transported, creates significant financial strain on agencies. Furthermore, because most EMS calls are for relatively non-urgent (non-life threatening) health needs, taking actions to achieve the agency's financial goal may not negatively affect its social goal in a substantive way. Jones (2020) found that only 3 percent of EMS calls were reported as urgent in the NEMSIS v3 data from 2017-2020. Thus, we expect EMS crews to prioritize the agency's financial goal on average during 9-1-1 calls, such that they will provide additional procedures and spend more time with higher-paying patients (i.e., private insurance) compared to lower-paying patients (i.e., Medicaid). This allows them to cross subsidize public insurance patients to achieve both the financial and social health goal over the long term. Our first hypothesis follows:

Hypothesis (H1): *Patient ability to pay via insurance results in differential EMS service provision on average, such that higher-paying private insurance patients will receive more services than lower-paying Medicaid patients.*

2.5 | Patient Health Needs Result in Crew Vacillation Towards the Social Health Goal

The preceding logic suggests EMS crews will adjust their on-the-call decision making, on average, in response to a patient's ability to pay via insurance. Because service given to Medicaid patients must at least meet the legal and ethically required minimums given a patient's condition, these additional services received by private insurance patients represent an overprovision of service.

However, the competing nature of the financial and social health goals portends potential boundary conditions in this average relationship that are driven by the relative importance of one goal compared to the other at a point in time. Gaba and Greve's (2019) work on airlines, for instance,

suggests that outside factors influence the salience of a single goal, which then affects the organization's focus. In our context, two contextual factors are likely to influence the crew's focus on a single competing goal. The first factor is patient health needs. We expect the financial goal to have lower relative strength (compared to the social health goal) on a call when the patient's health condition is critical or urgent. As noted above, most EMS transports are for non-life-threatening patient needs. However, in some cases such as for cardiac arrests or strokes, patient health needs are critical and any delay in hospital treatment can jeopardize patient wellbeing or survival (Brown et al., 2016; Gonzalez, Cummings, Phelan, Mulekar, & Rodning, 2009; Holmén et al., 2020; O'Keeffe, Nicholl, Turner, & Goodacre, 2011; Pell, 2001). In these and other cases where patient health needs are more critical we expect EMS crews to push off agency financial considerations and instead treat patients focused on the social health goal. This leads to treatment decisions based primarily on patient medical need, instead of ability to pay, and consequently reduces service provision differences.

Conversely, when the patient's health condition is less critical or urgent, the financial goal may be perceived as relatively more important compared to the health goal. In these cases, crews have additional leeway to take actions on the margin that improve the long-term financial situation of the agency, including spending additional time with higher-paying patients or performing additional procedures. Our second hypothesis follows:

Hypothesis (H2): *EMS service overprovision between private and Medicaid insurance patients will be moderated by call urgency, such that service provision differences will decrease when emergency calls are more urgent.*

2.6 | Agency Financial Need Results in Crew Vacillation Towards the Financial Goal

The second contextual factor that may influence the crew's relative focus on a single goal is agency financial need. Just as urgent patient health needs should increase the relative strength of the health goal compared to the financial goal for EMS crews on a given call, pressing agency financial needs should increase the relative strength of the financial goal compared to the health goal for EMS crews

across calls. While the entire industry faces financial pressures as noted earlier, some agencies face stronger pressures than others because they serve relatively more low ability to pay patients in their geographic area. When agency financial needs are low, we expect EMS crews to make service decisions based primarily on patient health needs. However, when agency financial needs are high, we expect this to increase the crew's relative focus on the financial goal (Greve 2003, Gaba & Greve 2019).

We argue that the EMS agency's financial condition, both in the long and short term, will influence the relative strength of the financial goal relative to the social goal for EMS crews on calls. Each EMS agency typically serves a stable geographical area. In the long term, some agencies consequently benefit financially from servicing areas with relatively more private insurance patients compared to public insurance patients. When agencies serve mostly private insurance patients, we expect to see smaller service provision differences based on patient ability to pay, as there are relatively low financial pressures. EMS crews in such cases focus primarily on the social health goal. However, when agencies service relatively more low ability to pay patients, leading to higher agency financial pressures, we expect to see more pronounced differences in service provision based on patient ability to pay.

In the short term, agencies may similarly experience "dry spells", where EMS crews serve relatively more low ability to pay patients in the recent past. Dry spells have the potential to shift the perceived importance of the financial goal relative to the health goal for EMS crews, and consequently alter behavior on calls. If an agency has served relatively more Medicaid patients in the recent past, we expect larger service overprovision for private insurance patients as EMS crews vacillate towards the agency's financial goal. Conversely, if an agency has had relatively more private insurance calls in the recent past, we expect the financial pressure on the agency to be relatively lower, resulting in less focus on the agency's financial objective and smaller service differences. Our third hypothesis follows:

Hypothesis (H3): *EMS service overprovision between private and Medicaid insurance patients will be moderated by EMS agency financial need, such that service provision differences will be larger when EMS agencies have pressing financial need and will be smaller when financial need is smaller.*

2.7 | Relative Prioritization of Objectives Differs by Organization Type

Finally, organization type — such as for-profit versus not-for-profit—may affect whether organizations routinely prioritize one competing goal over another (Wry & Zhao, 2018). Some EMS agencies are non-profits, while others are for-profits. Nonprofit agencies usually receive relatively more government and public funding, whereas for-profit agencies rely more on their own revenues (NEMSAC, 2016). This may result in a difference in focus on the financial goal by organization types. For the social goal, public agencies may perceive patients as beneficiaries of a public service, while private agencies may view patients as customers (Denhardt & Denhardt, 2015; Santos et al., 2015). Professionals in public agencies may also select into these agencies because of their motivation to provide a public service and may see themselves as community public servants (Moynihan & Pandey, 2007; Perry, 1997; Ritz, Brewer, & Neumann, 2016). Alternatively, professionals in private agencies typically have limited integration with the community as public servants and may care more about the financial viability and success of their employing EMS agency.

On average, we expect service provision differences to manifest across all agency types because of the common competing goals of these organizations (Battilana & Lee, 2014; Battilana et al., 2020), the general industry challenges with underfunding, and the relatively lower reimbursements from public insurance patients (NEMSAC, 2016). However, for agencies that are private for-profits we expect a relatively stronger focus on the financial goal relative to the social health goal, and for agencies that are public non-profits we expect a relatively stronger focus on the social health goal relative to the financial goal. Thus, we expect smaller service provision differences for public and nonprofit

agency types, as they focus more on the social goal relative to the financial goal, than for private for-profit agencies. Our final hypothesis follows:

Hypothesis (H4): *EMS service overprovision between private and Medicaid insurance patients will be smaller for nonprofit EMS agencies than for for-profit EMS agencies.*

3. | DATA AND METHODOLOGY

3.1 | Quasi-Random Assignment of EMS Calls to Units

The ideal experiment to address our research question would randomly assign patient ability to pay via insurance type to EMS patients, and then randomly assign patients in each service area to EMS units (and their corresponding assigned crews) throughout each day. We could then observe how EMS crews change their on-the-call behavior based on patient ability to pay while avoiding potentially confounding factors stemming from differences in incident location, patient health condition, patient preferences, time of day, or other patient or call-level characteristics.

While this experimental ideal is not feasible, our empirical setting approaches this ideal. EMS units correspond to a physical EMS vehicle (i.e., an ambulance) that is nested within EMS agencies, and which services emergency calls in a stable geographic area. Units are typically staffed by two crew members per shift and staffing needs result in variation in team composition across days. EMS calls are assigned to EMS agencies by 9-1-1 dispatchers. While unit availability and service agreements may influence this assignment,[7] 9-1-1 dispatch follows a well-defined protocol and dispatchers do not have information about patient ability to pay when making dispatch decisions. Once alerted, agencies dispatch an available EMS unit to respond to a call. When on scene EMS crews decide on a treatment and transport plan, depending on patient condition and needs. Because such encounters are typically rare for patients, and patients lack the necessary knowledge to diagnose and treat their health condition, patients regularly accept the advice and recommendations of EMS personnel. The dispatch

[7] Some local governments, for instance, may contract with private EMS companies to cover overload calls.

and response process thus functions independently from patient ability to pay and quasi-randomly assigns patients to EMS units and crews throughout a given day.

Our identification strategy exploits this quasi-random assignment of patients and patients' ability to pay to EMS units to investigate how crews alter their on-the-call service provision behavior depending on patient ability to pay. We then examine how call urgency and agency financial need moderate this main effect, and how the main effect varies by organization type.

While this identification strategy approaches the experimental ideal, we acknowledge there remain important empirical challenges to address. Insurance type is not randomly assigned to patients and patients may consequently utilize EMS services differently. Patients with certain insurance types could also live or work in different places, have different health conditions, request different care, or utilize emergency services at different points in the day or on different days of the week. Two aspects of our setting and data help alleviate these concerns. First, detailed standardized call-level variables allow us to control for these factors in our main models. Second, the size and richness of the data allow us to run a large battery of robustness checks and subsample analyses. Additionally, we supplement our archival approach with first-hand experience "riding along" with multiple EMS crews and from interviewing sixteen EMS professionals. This approach allows us to approach causality and the experimental ideal with our empirical results, although some limitations remain.

3.2 | Data

Our dataset originates from the National Emergency Medical Services Information System (NEMSIS). NEMSIS is a national US database of EMS call-level data. NEMSIS provides a universal standard for classifying and collecting EMS data and has been adopted by most agencies throughout the United States. The NEMSIS database includes call-level data for EMS agencies in most US states and territories, although some states and territories only report partial data during our observation window. Our sample includes EMS agencies in 31 states or territories from 2012 to 2016 that report all or

nearly all EMS calls.[8] We omit from consideration 18 states or territories from the database because of partial reporting, and 6 state-years from the 31-state subset for the same reason. To arrive at our final sample, we first retained observations only for 9-1-1 calls for which an EMS transport unit was dispatched and for which a patient transport occurred. This allows us to observe time with patient and procedures performed. It also removes calls and transports that do not fit our research question, including inter-hospital transfers or calls transferring deceased patients from the hospital to the morgue. Restricting to transport-only units drops non-transporting units such as fire trucks or battalion chiefs. These units may respond to 9-1-1 calls to help treat patients on scene, but do not transport patients. Second, we drop observations without unit or agency identifiers, where the call time reported was zero, or calls without a recorded primary method of payment. Primary method of payment was provided in 34.5% of cases.[9] Third, we drop observations for very small agencies, defined as having fewer than five calls per year, and for units with less than one call per year on average across all years in our sample. Finally, we drop one outlier agency with significantly higher daily call volumes than the next largest agency, as it appears infeasible for the units to respond to the numbers of calls reported by this agency. Our final sample consists of 7,064,893 observations from 4,638 agencies and 38,126 units (if including Medicare, our final sample is 12,710,203 observations from 4,831 agencies and 41,237 units).[10]

While we believe the above restrictions create a conservative sample for our study, to ensure that our results are not simply an artifact of these restrictions we reran our main models on various alternative samples. This includes the full non-restricted dataset (see Tables A21 and A22), our final

[8] Many of these states claim 100% reporting of EMS calls, and others report near full reporting. We investigated claims of full reporting using the observed counts of total calls across years for each state. These counts showed only limited variation in the total number of calls reported across years for the states and years in our final sample, validating the states' claims of near full reporting.
[9] Method of payment includes multiple categories, including self-pay (~16% of observations), workers compensation (~0.5%), uncommon types of government-provided insurance (~1%), and non-billed calls (~1.7%). In this paper we focus on Medicaid (18.03%) and private insurance (27.73%) calls. Medicare (34.93%) results are included in the Appendix Tables A2 to A6. In the case of multiple insurance types, private insurance is listed before public, and Medicare is listed before Medicaid.
[10] We report sample t-test results comparing our final sample to the sample lacking insurance information in Table A1b.

dataset with additional data collected from the partial reporting states and years (Table A23), and a single state that reports patient insurance for 76% of calls (Table A24). In all cases our results replicate, and the estimates are qualitatively similar, suggesting that sampling choices are not driving our results. We discuss these additional robustness checks later in the paper.

3.3 | Variables

3.3.1 | Dependent Variables. Our two main dependent variables are total *number of procedures performed (procedures)* and EMS *time spent with patient (time)*. We measure the number of procedures by counting the unit reported medical procedures performed by EMS personnel during the call. Time with patient is measured as the total minutes EMS personnel spent with a patient, from initial contact at the scene until final drop-off at a medical facility. These variables measure key dimensions of EMS service provision that are associated with patient billable charges and are directly linked to agencies' financial performance. We winsorize both variables at the 99th percentile to mitigate effects from outliers and use a natural log transformation (log(x)+1). Our results are similar when using only winsorization or only the log transformation (see Tables A7 to A16 in the Appendix). It is important to note that these variables do not necessarily correspond directly to final patient health outcomes (and we are indeed agnostic to patient outcomes in this study). Instead, these variables give insight into service provision differences across calls.

3.3.2 | Independent and Moderating Variables. Our primary independent variable is a dummy for patient payment method: *Private insurance.* The NEMSIS data include the primary payment method billed for many calls. Medicaid is the omitted baseline category in our analyses. Additional analyses in Tables A2 through A6 in the Appendix show results including Medicare patients. As mentioned in Section 2.3, EMS crews usually only collect patient insurance information after the transport decision has been made. For the moderating variables, we define call urgency using *lights and sirens,* which is a dummy variable equal to 1 if lights and sirens are used leaving the scene en route to a hospital and 0

otherwise. To measure agency financial need we calculate the ratio of calls paid for by private insurance versus public insurance over a window of time. A higher percentage implies the agency has serviced relatively more high ability to pay patients, and thus has lower financial need. To capture short-term financial need for each agency we define a variable called *three-month moving average private insurance call ratio (3MMA),* which uses the percentage of private insurance calls from moving lagged three-month window. This captures agency financial need related to reimbursements from the recent past. To measure long-term agency financial need we construct a dummy variable called *poor agency*, which takes the value of 1 if an agency has a private call ratio below the median of all agencies in our sample. Because each agency services a fairly stable geographic area, this variable captures long-term financial pressures based on the observed patient payment mix in each service area.

3.3.3 | Control Variables. We use three categories of control variables in our main models: time controls, patient controls, and call-specific controls. For time controls, we include dummies for *hour of day*, *day of week*, *month of year*, and *year*. This helps account for seasonal effects, weather differences, traffic patterns, weekday vs. weekend differences, and general patient tendencies for utilizing 9-1-1 at different times. At the patient level, we control for patient *age*, *race*, *gender,* and *primary health impression* (e.g., cardiac arrest, stroke, trauma). This helps account for subconscious biases as well as for patient health conditions, including for conditions related to gender or age. At the call level we control for (1) the logged time taken by EMS personnel to reach the scene (*response time*), which helps control for distance and traffic at time of call, (2) the logged time taken by EMS personnel at the scene to reach the patient (*time to patient*), which helps control for issues encountered at the scene, (3) the (log (x)+1) number of *total care barriers* encountered (e.g., language, scene safety, obesity, uncooperative patient, emotional distress) to control for call complications, and (4) the *reason for choosing a drop-off destination* (e.g., patient choice, closest destination, diversion) to control for hospital decisions and patient preferences in care requests. These controls reduce concerns from omitted variable bias, as patient

payment method may not be random to patient conditions, locations, demographics, or treatment preferences.[11]

3.3.4 | Specification

Our model estimates the within-EMS unit (i.e., ambulance) change in service given to a patient based on the patient's ability to pay through insurance. We use the following fixed-effects model as our primary specification:

$$Log(Y_{ijt}) = a_0 + \beta_1 Private_{it} + \beta_2 X_{ijt} + \eta_j + \gamma_t + \varepsilon_{ijt} \qquad (1)$$

where Y_{ijt} is our dependent variable, either patient *procedures* or patient *time,* for EMS call *i* performed by unit *j* at time *t*. $Private_{it}$ is a dummy variable indicating patient insurance type (Medicaid is the omitted baseline) for call *i*. X_{ijt} are patient and call-level control variables, η_j are EMS unit fixed effects, γ_t are time controls as described above, and ε_{ijt} the error term. In the interacted models we include interactions between insurance type and the moderator variables *lights and sirens, poor agency*, and the *three-month moving average private insurance call ratio (3MMA)*. The specification is estimated using OLS with errors clustered at the agency level.[12] Because unit fixed effects are included, the effects are interpreted as the within-EMS unit change in service for a private insurance patient relative to a Medicaid patient, controlling for observables. The unit fixed effects address unobserved time-invariant characteristics that might influence our analyses.

While patient payment method should be quasi-randomly assigned within units across calls, it may not be entirely exogenous to patient or call characteristics. Figures A1-A3 (Appendix) suggest that calls may not be randomly assigned throughout the day or throughout the week within our sample based on patient ability to pay and that patient conditions may not be randomly distributed among different insurance types. Unit fixed effects, in conjunction with our many control variables described

[11] Detailed descriptions for each variable can be found at http://www.NEMSIS.org.
[12] Table A17 (Appendix) presents results for our main model using Poisson regression.

earlier, should reduce these concerns. To rule out this and other alternative explanations, and to provide evidence for of our proposed mechanism, we perform and present many robustness checks.

4. | RESULTS

4.1 | Patient Ability to Pay Results in Service Provision Differences

Table 1 provides sample descriptive statistics for our main variables broken out by primary insurance type (see Appendix Table A1a for descriptive statistics including Medicare). Table 2 presents a correlation matrix. Figures 1 and 2 show the dependent variable sample distributions using the raw data. In both figures these distributions are shifted to the left for Medicaid calls, suggesting service provision differences based on patient ability to pay. However, more sophisticated analyses are needed that control for patient and call characteristics.

INSERT TABLES 1, 2, AND FIGURES 1, 2 HERE

Our main model results are found in Table 3, with progressively added controls. These model results show that after controlling for patient and call characteristics, patients with private insurance receive between 5.9% - 10% more procedures (baseline of 1.65 procedures performed per call) and have between 5.1% - 8.9% longer call times (baseline of 28.77 minutes spent with patients per call) than patients with Medicaid, the omitted baseline. For time with patients, this translates into 1.47 – 2.56 additional minutes spent with private insurance patients. Because Medicaid represents the legally required standard of care, these results imply an overprovision of service for high ability to pay private insurance patients. This generates larger agency revenues and supports the agency financial goal.

Our interviews with EMS professionals provided additional insight into these effects. EMS professionals revealed that agency financial pressure is generally common knowledge, and that longer transport distances and more procedures performed are known to increase reimbursements depending on insurance. Providers also noted that, "Different insurances have different reimbursement rates," and some professionals were able to provide examples of reimbursement differences based on mileage

or procedures performed. One paramedic said "Medicaid and Medicare reimbursements are typically below what it actually costs us to run the procedure. That is why it is important that we get it (i.e., patient insurance) right the first time." Another EMS professional said, "In all honesty, I do [administer procedures based on ability to pay] a lot. If I know the patient can pay for it – I will provide a bunch of stuff." Another said, "over-billing of private insurance [patients] is endemic."

INSERT TABLE 3 HERE

Figure 3 provides graphical results for the use of each medical procedure on calls based on reported patient health conditions. The results for Medicaid patients are shown in Panel A, private insurance in Panel B, and the difference between the two in Panel C. The horizontal axis lists each discreet patient condition, and the vertical axis lists each procedure. Large dark bubbles represent a common use of a procedure on a call for a given health condition in Panels A and B. For Panel C, bubbles represent positive differences in the use of a procedure for a health condition, while lighter diamonds represent negative differences. These graphical results indicate that private insurance patients are receiving more of the same procedures for a given health condition, but also different procedures. These results collectively provide support for Hypothesis 1.

INSERT FIGURE 3 HERE

4.2 | Call Urgency Reduces Service Overprovision Based on Patient Ability to Pay

Table 4 provides results for interaction models that investigate how service provision based on patient ability to pay changes when the call is urgent, and patient health needs are consequently more critical. In these models a dummy variable for lights and sirens transport from the scene proxies for call urgency. The base results, shown in columns 1 and 2, suggest that the average number of procedures increases by 14.2% and time with patient decreases by 1.3% for urgent calls. These results are expected because more critical patient conditions require additional procedures and quicker transports. Columns 3 and 4 include the interactions with patient ability to pay. The results in column 3 show that private insurance patients generally receive more procedures than Medicaid patients, and that all

patients receive more procedures when patient health conditions are more critical. But the interaction result suggests no difference in procedures provided for private insurance patients when lights and sirens are used. This could imply that the non-critical call procedures given to private insurance patients approach a ceiling, or that this level is similar to the level typically provided patients on critical calls. The column 4 results show that private insurance patients typically receive about 5.7% more time from EMS providers. However, for critical calls this is reduced by about 2.9%. This suggests that EMS crews deliver private insurance patients faster when patient conditions are more urgent.

INSERT TABLE 4 HERE

Subsample models on the 15 most common patient conditions (covering 96% of all cases in our sample) provide further insights. These results are presented in Figures 4a and 4b. The horizontal axis lists patient conditions. These results suggest that time with patient and number of procedures typically converge across private insurance and Medicaid for urgent calls (i.e., cardiac events, strokes, etc.), but diverge as urgency decreases. When divergence occurs patients with private insurance receive more procedures and longer call times. These results imply that EMS personnel respond to the organization's financial objective less when calls are urgent, reducing service provision differences.

Interviews with EMS personnel supported these findings. EMS personnel commonly expressed that the social health goal, and improving patient outcomes, was central to their decision to enter and persist in this career. They likewise noted the importance of patient health needs in making on-the-call treatment decisions. One EMS paramedics said, "I really like taking care of people and helping people feel better. I think that's the underlying thing—the underlying desire to care for others and care for the community. It's making a difference in people's lives." EMS personnel often shared stories about the actions they had taken previously on critical calls to save a patient in need—actions that notably did not show evidence of them considering the financial goal. For example, one paramedic said, "Most stressful (calls) for paramedics are cardiac arrests. We try to make sure that we're doing

the right thing for patients and that the parents know that we're doing as much as we possibly can." Together this suggests that when patient health needs are urgent, EMS crews focus more on social health in lieu of the financial goal. This supports Hypothesis 2.

INSERT FIGURES 4A AND 4B HERE

4.3 | Higher Agency Financial Pressures Result in More Service Overprovision

Tables 5 and 6 provide results for interaction models that investigate how EMS responsiveness to patient ability to pay changes when agency financial pressures are high. First, we explore long-term agency financial pressures. These results are shown in Table 5. As described above, the variable *poor agency* is a time-invariant dummy variable that identifies agencies that serve proportionately more low ability to pay patients. The results in Table 5 suggest that service overprovision is even larger for these "poor" agencies. Poor agencies provide 1.8% more procedures than non-poor agencies to private insurance patients and spend 2.5% more time on calls. This suggests crews in agencies that experience long-term financial pressures are even more responsive to the financial goal of their agency.

INSERT TABLE 5 HERE

The second set of analyses, shown in Table 6, focus on shorter-term financial pressures for agencies. Because private insurance helps agencies cross-subsidize low ability to pay patients, and recoup losses from providing service to Medicaid patients, we expect to see differences in service provision depending on the agency's recent private to total call ratio. These results, presented in Table 6, suggest that as the *three-month moving average private insurance call ratio (3MMA)* increases, service provision differences based on patient ability to pay are reduced. Conversely, when an agency has served relatively more Medicaid patients in the recent past, EMS crews provide a larger overprovision of service to private insurance patients. Together, these results support Hypothesis 3.

INSERT TABLE 6 HERE

4.4 | Main Results by Organization Type

Finally, we examine whether our main results vary by organization type. First, we examine the prevalence of our main effects across all EMS agencies in our sample using service provision differences based on patient ability to pay from the raw data. This is shown in Figures A4a and A4b (Appendix). These figures suggest that our main effects manifest in about 75% of all agencies in our sample. While these are uncontrolled raw data, they do suggest the main effects of this paper are likely widely prevalent across all EMS agencies in the United States.

Hypothesis 4 argued for smaller service overprovision for public EMS agencies (community, government, and fire) compared to private agencies, because public agencies are more focused on the social goal and private agencies are more focused on the financial goal.[13] To test this hypothesis we ran models that included our main independent variable *Private Insurance* fully interacted with each organization type. For this analysis agency fixed effects are no longer appropriate as we aim to explore between-agency variation. Instead, we now include agency-level control variables. The first is *Agency Private Insurance Ratio,* which is the ratio of private insurance patients to all patients. This variable controls for agency financial pressures. The second is *Agency Total Number of Units (log),* which is the count of agency units. This accounts for size. Lastly, we include the *Agency Total Number of Calls (log)*, which is the sum of all calls answered by an agency. This proxies for agency experience.

The results are presented in Table 7, with the omitted baseline group being community agencies. Given the large positive main effect on *Private Insurance*, for Hypothesis 4 to be supported we expect large and negative interaction coefficients for public agencies (i.e., *Fire x Private Insurance* and *Government x Private Insurance*) and no significant change in private agencies (i.e., *Private EMS x Private Insurance*). Instead, we find that the interaction terms in Columns 3 and 4 are mostly not significant at

[13] Hospital-affiliated EMS agencies sometimes are for-profits and sometimes non-profits. The American Hospital Association 2022 statistics found that 48.6% of US hospitals were non-profits, 15.6% were owned by state or local governments, and 20% are for-profit investor owned (2022). Thus, it is not clear in our sample which category these fit. Consequently, we perform our main analysis with each organization type broken out using dummies. Many popular press and blog posts note that non-profit hospitals tend to function much more similarly to for-profit entities (see for instance https://www.medicaleconomics.com/view/how-nonprofit-hospitals-get-away-biggest-rip-america).

conventional levels (only *Private EMS x Private Insurance* is marginally significant at 10%). This suggests that agencies of various organization types behave similarly when dealing with competing objectives, and fails to support Hypothesis 4. Although unexpected, this insight is consistent with Wry and Zhao's (2018) finding that for-profit and non-profit microfinance organizations behave similarly in light of social-financial trade-offs.

INSERT TABLE 7 HERE

Table 8 presents the total effects for private insurance patients by organization type. Contrary to Hypothesis 4, we find significantly *larger* service overprovision in public organizations (community, fire, and government) than in private agencies and hospital. The total effects on hospitals suggest that they treat Medicaid and private insurance patients similarly, and the results on private EMS show procedures are similar between patients, but time with patient is significantly higher for private insurance patients. The total effects for community, fire, and government are all positive, large, and significant showing service overprovision for private insurance patients. Thus, while the evidence suggests similarity between private and public organization types (except for hospitals which do not classify cleanly, and which also benefit from vertical integration of its ER and ambulance services), the total effects suggest some evidence running directly counter to Hypothesis 4.

INSERT TABLE 8 HERE

These results imply that organizational profit orientation and type are not clear predictors of behavior under competing goals. Instead, contextual factors such as call urgency (Hypothesis 2) and agency financial pressure (Hypothesis 3) seem much more important. This insight is consistent with emerging theoretical and empirical work on hybrid organizations and social enterprises (Battilana & Lee, 2014; Wry & Zhao, 2018) and emphasizes the importance of the contingency approach to understanding organizational responses to competing goals (e.g., Gaba & Greve, 2019; Kim, 2022; Wry & Zhao, 2018).

5. | ROBUSTNESS AND ADDITIONAL ANALYSES

5.1 | Ruling out Alternative Explanations

While our main results hold across multiple specifications, we perform additional robustness checks to rule out alternative explanations. First, it is possible that Medicaid patients use EMS differently than private insurance patients, including delaying calling 9-1-1 for a health condition, which influences call urgency. To address this concern, we conducted four subsample analyses, found in Table A18 (Appendix): (1) only patients who are eventually admitted to the hospital; (2) only lights and sirens calls; (3) only calls during the night from 10:00 PM to 6:00 AM; and (4) only calls between midnight and 1:00 AM. The first two subsamples should include patients with more similar health conditions across insurance types than those in our main sample. The last two subsamples should reflect calls that are "unplanned" and thus reduce unobserved differences in patient characteristics. The results for these subsample analyses are similar to our main models. We additionally reran our main models with more granular patient condition dummies, which are used for final billing.[14] While missing codes reduced our sample size significantly, the results (Table A19) are again similar.

Second, we test if patient preferences and requests for care are driving our results. Private insurance patients could request additional procedures or transport to further hospitals. This would lead to service provision differences not from provider decisions, but because of patient requests. To address this concern, we reran our main models on 1) only calls where the "reason for choosing destination" clearly indicated a reason other than patient preferences, and 2) only calls where the patient was noted as incapacitated, and consequently less likely to make requests. These models, presented in Table A20 again show similar results.

Third, we test for selection issues in the determination of our final sample. To do this we reran our main models on alternative samples. This included adding back in the agency and unit outliers

[14] The main model primary impression dummies capture EMS unit impression of patient health condition. Patient condition codes provide an ex post evaluation of the patient's condition.

that were dropped (Table A21), adding back non-transport units and non-transport calls (Table A22), and adding in additional data from NEMSIS for states, territories, and years that had only partial reporting (Table A23).[15] Additionally, we ran our models on a single state that had the highest level of non-missing patient insurance information (Table A24). All these results are similar to our main results, suggesting sample choices are not responsible for our results.

Fourth, it could be that dual insurance (e.g., having Medicare and private insurance) is influencing our results. To test this, we omit from our analysis patients over 65—those who are likely covered by Medicare, and—who specified private insurance as their primary insurance. The results, shown in Table A25, are again similar.

Fifth, racial discrimination could be influencing our results (Hanchate et al., 2019; Nelson, 2002), particularly if it is correlated with patient ability to pay. While our models control for patient race, we reran models using a dummy for M*inority* status (White=0, Minorities=1). The results, shown in Table A26, suggest minorities receive fewer procedures and less EMS time. These results hold even after controlling for patient payment method. To rule out race effects completely we reran our main models for White patients only in our sample. The results, found in Table A27 Column 1 and 2, are again similar to our main results, suggesting findings beyond racial discrimination.

Finally, patient ability to pay may be systematically correlated with patient location, and consequently with distance from a hospital. Thus, Medicaid patients may be delivered quicker because they live closer. While our main models control for time to patient, to reduce this concern, we also reran models for calls where patients were not home at the time of a call. Columns 3 and 4 of Table A27 present results for white patients that were not home at the time of emergency. The location of

[15] This includes 2010 and 2011, which were early years of NEMSIS reporting where many agencies and states were working to adopt the reporting standard.

these calls should be more random, and consequently reduce concerns about the distance from hospital driving our results. These results are again similar to our main results.

5.2 | Limitations and Future Research

While the above analyses allow us to rule out many alternative explanations, limitations remain. First, we are unable to account for heterogeneity in exact reimbursement rates or funding structures across EMS agencies, or across time. While our fixed effects specifications should account for unobservable time-invariant differences within units and agencies (e.g., units service areas, funding structure, level of training, etc.), there could be additional unobservable time-variant factors that are influencing our results. Similarly, we are not able to quantify exact reimbursement amounts for different types of insurances or to include all insurance types in our analysis. We likewise have missing data on patient insurance. Future studies could explore in more detail how specific funding differences and insurance reimbursement rates influence crew decisions given multiple competing goals.

Second, while our interviews and observations revealed that patients often disclose insurance information to EMS crews around the time of patient transport, in some cases insurance information was not revealed until arrival at the hospital. Similarly, while our interviews and observations suggested that EMS crews can sometimes make inferences about patient ability to pay based on available contextual information (i.e., location, house, car, or age), these judgements may be erroneous. Thus, in some cases patient insurance information may be absent or unclear to EMS crews during a call. Our models, however, assume that EMS personnel become aware of patient insurance information after contact with a patient, and that this influences decision-making in relation to competing goals. We do not have detailed data on when patient insurance information is revealed to EMS crews. However, we believe that if crews do not have ready access to insurance information this biases against us finding systematic effects. Given the robustness of our results across specifications and subsamples, this

reduces this concern. However, future studies should continue to explore how the timing of insurance information revelation influences crew decision-making on calls.

Third, while we find evidence contrary to Hypothesis 4, it could be that EMS agency types differ significantly across states and counties, and consequently we are unable to classify organization types cleanly based on their for-profit vs non-profit orientation. Similarly, without observing funding amounts, we are unable to ascertain the extent to which each type of agency is dependent on patient revenues. Our data do not include these or other agency-level variables that might allow us to understand these agency-level effects in more detail. This is an additional avenue for future work.

Finally, we are not able to measure final patient health outcomes. While our controls, subsample analyses, and unit fixed effects help alleviate concerns that patient conditions are driving our results, the extent to which multiple goals and the identified service differences ultimately influence patient health outcomes remains unclear. While patient outcomes are important, this is beyond the scope of our study. Instead, our paper uses the EMS context to understand a new solution for how organizations attend to multiple competing goals.

DISCUSSION AND CONCLUSION

Recent work has documented challenges faced by organizations when concurrently pursuing multiple competing objectives (Battilana & Lee, 2014; Battilana et al., 2015; Battilana et al. 2020; Doherty et al., 2014; Ethiraj & Levinthal, 2009; Gaba & Greve, 2019; Hu & Bettis, 2018; Kim, 2022; McCann & Vroom, 2014; Obloj & Sengul, 2020; Pache & Santos, 2013). Yet, the current solutions outlined in the literature apply to cases where goals are separable in tasks, or where management can dictate tradeoffs policies between goals in key tasks. However, goals often are non-separable in key tasks, and management may struggle with complexity and legal and ethical considerations in establishing tradeoff policies. In such cases it remains unclear how organizations should attend to multiple competing goals.

In this paper we proposed and found support for a new solution to this dilemma: dynamic vacillation between goals by frontline employees. Drawing on rich EMS data, and quasi-random assignment of patients to crews over time, we found that frontline EMS crews vacillate between negatively correlated financial and social goals across calls. This vacillation allows them to concurrently pursue both goals over time, and to attend to competing goals in a way not currently specified in the literature. Our results showed crews routinely prioritized the financial goal by providing 6.1% more procedures and 5.3% longer transport times to private insurance patients compared to Medicaid patients, and this increased with agency financial need. However, crews vacillated towards the social health goal when patient health needs were urgent. Strikingly, we found that these effects manifested across the majority of agencies in our sample and across all organization types.

While our results have shown vacillation from the financial goal to the social goal in EMS agencies, it is important to note that our theory and results imply that these results are contingent on contextual factors. Such factors may differ across industries, time, geographies, etc. For EMS agencies, financial pressures are significant because of chronic underfunding, and the social health goal is relatively less important on many calls because most calls are non-urgent. However, in other countries or industries different contextual factors might result in different outcomes—perhaps leading to a baseline prioritization of the social goal. In other contexts, our theory of dynamic vacillation between competing goals should apply as well. We see this as a fruitful avenue for future work.

A long literature has documented positive individual performance effects from setting single goals (see Locke and Latham, 2006; 2019 for reviews). Specific, non-ambiguous, and difficult but attainable goals direct individual attention and efforts towards goal-achieving actions, which improves performance on the goal dimension (Locke and Latham, 2006). When conflicting goals are present, however, this can erode these performance benefits. A parallel literature in economics and management has exposed challenges that arise when individuals in organizations pursue and are

rewarded on multiple conflicting goals including effort distortion, employee confusion, gaming, and multitasking problems (e.g., Gubler, Larkin, & Pierce, 2016; Holmstrom, 1979; Holmstrom & Milgrom, 1991; Kerr, 1975). Our study provides a new perspective by showing that frontline employees can sometimes rely on contextual cues to pursue conflicting goals. Our results indicate that frontline employees, in addition to managers, may learn to recognize and manage tradeoffs from multiple goals over time. As organizations increasingly pursue social goals in addition to financial goals, and grapple with the challenges and opportunities these multiple goals imply (e.g., Battilana et al., 2015; Burbano, 2016; Flammer, 2015; Hawn, Chatterji, & Mitchell, 2017; Margolis & Walsh, 2003), our paper suggests understanding how employees respond to competing goals is a fruitful endeavor.

The theory and results of this paper make important contributions to the literatures on multiple goals and on hybrid organizations (e.g., Battilana & Lee, 2014; Battilana, Sengul, Pache, & Model, 2015; Battilana et al., 2020; Doherty, Haugh, & Lyon, 2014; Ethiraj & Levinthal, 2009; Gaba & Greve, 2019; Hu & Bettis, 2018; Obloj & Sengul, 2020; Pache & Santos, 2013; Kim, 2022). Recently scholars have started focusing on cases where multiple goals are interdependent in key tasks (e.g., Gaba & Greve, 2019; Hu & Bettis, 2018; Kim, 2022; Wry & Zhao, 2018). Our study contributes to this push by providing additional theoretical development around the factors driving vacillation for interdependent non-separable goals. We additionally contribute by highlighting the key role frontline employees can play in addressing tensions from multiple goals. Finally, the findings from this paper imply that the nature of the goals, and the pressures experienced by decision-making employees from those goals, may be more important in affecting outcomes that the organizational type itself. Thus, for-profits, not-for-profits, and hybrid organizations may all experience similar tensions.

This paper also makes an empirical contribution by providing evidence for how organizations attend to multiple interdependent, non-separable, but competing goals in a practically important

industry. While theoretically rich, the multiple goals and hybrid organization literatures still have a relative paucity of empirical work. We hope these empirical findings aid future theoretical advances.

Healthcare inequity is a critical challenge for the US healthcare system generally (e.g., Chetty et al., 2016; Gaffney & McCormick, 2017; Nelson, 2002; Schroeder, 2007), and while scholars have uncovered provision disparities driven by differential patient remuneration to financially motivated providers (Clemens & Gottlieb, 2014; Delgado et al., 2014; Gruber & Owings, 1996; Gruber et al., 1999; Larkin et al., 2017; Venkatesh et al., 2019), it remains unclear whether and when linking healthcare workers' pay to performance resolves such inequities (Lindenauer et al., 2007; Petersen et al., 2006; Eijkenaar et al., 2013). The results of this paper suggest that less direct incentives, through patient ability to pay, can likewise affect care provision. This is striking because EMS professionals usually receive fixed salaries. These less direct incentives stem from the organization's financial goals and manifest broadly across different organization types.

There is emerging attention among management scholars to address grand challenges, which include societal issues such as inequality and social impact (Ferraro, Etzion, & Gehman, 2015; George et al. 2016; Olsen et al. 2016). Our paper contributes to this discussion by highlighting key tensions frontline employees experience when organizations seek to pursue both financial and social goals. The documented EMS service provision differences shown in this paper appear to be driven by system-wide underfunding, which cannot be resolved by EMS agencies alone. Thus, to address these grand challenges, it is important to have coordinated and collaborative efforts among many actors, including policymakers. Our results suggest managers and policymakers should carefully consider how financial goals and policies might influence decision-making by employees in organizations tasked with pursuing social goals.

For managers, our results imply that effective managers can sometimes resolve tensions from competing objectives by simply providing an overview of organizational goals without communicating

tradeoffs policies or a separation of activities. This empowers decision-making autonomy to lower levels of the organization (as suggested by Cyert and March, 1963 and Ethiraj and Levinthal, 2009). At the same time, this allows managers to avoid challenges in adopting the "balanced scorecard" discussed by Jensen and others (Jensen, 2002), including the limitations in specifying incentives on conflicting dimensions (Baker, 1992; Holmstrom & Milgrom, 1991; Kerr, 1975). Future work should continue to unpack this further to understand how management can effectively communicate and manage employee responses to multiple competing goals.

7. | REFERENCES

American Hospital Association (2022). Fast Facts on U.S. Hospitals, 2022. Retrieved January 17, 2023 from https://www.aha.org/statistics/fast-facts-us-hospitals

Armendáriz, B., & Morduch, J. (2010). *The economics of microfinance*. Cambridge, MA: MIT press.

Augustine, J. J. (2014). Emergency medical services arrivals, admission rates to the emergency department analyzed. *ACEP Now*, *33*(12), 1-4.

Baker, G. P. (1992). Incentive contracts and performance measurement. *Journal of political Economy*, *100*(3), 598-614.

Barnard, C. I. (1938). *The functions of the executive*. Cambridge, MA: Harvard University Press.

Battilana, J., & Lee, M. (2014). Advancing research on hybrid organizing–Insights from the study of social enterprises. *Academy of Management Annals*, *8*(1), 397-441.

Battilana, J., Obloj, T., Pache, A. C., & Sengul, M. (2020). Beyond shareholder value maximization: Accounting for financial/social tradeoffs in dual-purpose companies. *Academy of Management Review*

Battilana, J., Sengul, M., Pache, A. C., & Model, J. (2015). Harnessing productive tensions in hybrid organizations: The case of work integration social enterprises. *Academy of Management Journal*, *58*(6), 1658-1685.

Battilana, J., Lee, M., Walker, J., & Dorsey, C. (2012). In search of the hybrid ideal. Stanford Social Innovation Review, 10(3), 51–55.

Berwick, D. M., Nolan, T. W., & Whittington, J. (2008). The triple aim: care, health, and cost. *Health Affairs, 27*(3), 759-769.

Brown, J. B., Rosengart, M. R., Forsythe, R. M., Reynolds, B. R., Gestring, M. L., Hallinan, W. M., ... & Sperry, J. L. (2016). Not all prehospital time is equal: influence of scene time on mortality. *The Journal of Trauma and Acute Care Surgery*, *81*(1), 93-100.

Burbano VC. 2016. Social responsibility messages and worker wage requirements: Field experimental evidence from online labor marketplaces. *Organization Science*. Informs 27(4): 1010–1028.

Burbano, V., Delmas, M., & Cobo, M.J. (2022). The past and future of corporate sustainability research. Working paper, Columbia University.

California Healthline. (2011). California's ambulance providers struggle with low Medi-Cal payments. *California Healthline Daily Edition*. https://californiahealthline.org/morning-breakout/californias-ambulance-providers-struggle-with-low-medical-payments/

Chetty, R., Stepner, M., Abraham, S., Lin, S., Scuderi, B., Turner, N., ... & Cutler, D. (2016). The association between income and life expectancy in the United States, 2001-2014. *JAMA*, *315*(16), 1750-1766.

Clemens, J., & Gottlieb, J. D. (2014). Do physicians' financial incentives affect medical treatment and patient health? *American Economic Review*, *104*(4), 1320-49.

CMS. (2019). *Medicare's ground ambulance data collection system: Sampling and instrument considerations and recommendations*. Baltimore, MD: CMS.
CMS. (2020). *Emergency Medical Treatment & Labor Act (EMTALA)*. Retrieved March 11, 2020 from https://www.cms.gov/Regulations-and-Guidance/Legislation/EMTALA.
Coase, R. H. (1937). The nature of the firm. *Economica*, *4*(16), 386–405.
Cooper, R., & Chown, J. (2022). Financial incentives, organizational roles and professional work: The Case of physician decision-making in primary medical care. *Working paper,* University of Arkansas.
Cyert, R. M., & March, J. G. (1963). *A behavioral theory of the firm*. Englewood Cliffs, NJ: Prentice-Hall.
Delgado, M. K., Yokell, M. A., Staudenmayer, K. L., Spain, D. A., Hernandez-Boussard, T., & Wang, N. E. (2014). Factors associated with the disposition of severely injured patients initially seen at non–trauma center emergency departments: disparities by insurance status. *JAMA Surgery*, *149*(5), 422-430.
Deloitte (2019). The Deloitte global millennial survey 2019: Societal discord and technological transformation create a "generation disrupted." Retrieved June 21, 2022 from https://www2.deloitte.com/global/en/pages/about-deloitte/articles/millennialsurvey.html
Denhardt, J. V., & Denhardt, R. B. (2015). *The new public service: Serving, not steering*. New York, NY: Routledge.
Doherty, B., Haugh, H., & Lyon, F. (2014). Social enterprises as hybrid organizations: A review and research agenda. *International Journal of Management Reviews*, *16*(4), 417-436.
Eccles, R. G., Ioannou, I., & Serafeim, G. (2014). The impact of corporate sustainability on organizational processes and performance. *Management Science*, *60*(11), 2835-2857.
Eijkenaar, F., Emmert, M., Scheppach, M., & Schöffski, O. (2013). Effects of pay for performance in health care: a systematic review of systematic reviews. *Health Policy*, *110*(2-3), 115-130.
Elfenbein, D. W., & McManus, B. (2010). A greater price for a greater good? Evidence that consumers pay more for charity-linked products. *American Economic Journal: Economic Policy*, *2*(2), 28-60.
Ethiraj, S. K., & Levinthal, D. (2009). Hoping for A to Z while rewarding only A: Complex organizations and multiple goals. *Organization Science*, 20(1), 4-21.
Ferraro, F., Etzion, D., & Gehman, J. (2015). Tackling grand challenges pragmatically: Robust action revisited. *Organization Studies*, *36*(3), 363-390.
Flammer C. 2015. Does corporate social responsibility lead to superior financial performance? A regression discontinuity approach. *Management Science*. INFORMS 61(11): 2549–2568.
Gaba, V., & Greve, H. R. (2019). Safe or profitable? The pursuit of conflicting goals. *Organization Science*, *30*(4), 647-667.
GAO. (2007). *Ambulance providers: Costs and expected Medicare margins vary greatly*. Washington, DC: GAO.
GAO. (2012). *Costs and Medicare margins varied widely: Transports of beneficiaries have increased*. Washington, DC: GAO.
Gaffney, A., & McCormick, D. (2017). The Affordable Care Act: Implications for health-care equity. *The Lancet*, *389*(10077), 1442-1452.
Gartenberg, C.M., & Zenger, T. (2022). The Firm as a Subsociety: Purpose, Justice, and the Theory of the Firm. *Organization Science*, forthcoming.
George, G., Howard-Grenville, J., Joshi, A., & Tihanyi, L. (2016). Understanding and tackling societal grand challenges through management research. *Academy of Management Journal*, 59(6), 1880-1895.
Gibbons, R. (2005). Four formal (izable) theories of the firm? *Journal of Economic Behavior & Organization*, *58*(2), 200-245.
Gonzalez, R. P., Cummings, G. R., Phelan, H. A., Mulekar, M. S., & Rodning, C. B. (2009). Does increased emergency medical services prehospital time affect patient mortality in rural motor vehicle crashes? A statewide analysis. *The American Journal of Surgery*, *197*(1), 30-34.
Greve, H. R. (2003). A behavioral theory of R&D expenditures and innovations: Evidence from shipbuilding. Academy of management journal, 46(6), 685-702.
Grimes, M. G., Williams, T. A., & Zhao, E. Y. (2019). Anchors aweigh: The sources, variety, and challenges of mission drift. *Academy of Management Review*, *44*(4), 819-845.
Gruber, J., Kim, J., & Mayzlin, D. (1999). Physician fees and procedure intensity: the case of cesarean delivery. *Journal of Health Economics*, *18*(4), 473-490.

Gruber, J., & Owings, M. (1994). Physician financial incentives and cesarean section delivery. *The RAND Journal of Economics, 27*(1), 99-123.
Gubler, T., Larkin, I., & Pierce, L. (2016). Motivational spillovers from awards: Crowding out in a multitasking environment. *Organization Science*, *27*(2), 286-303.
Hanchate, A. D., Paasche-Orlow, M. K., Baker, W. E., Lin, M. Y., Banerjee, S., & Feldman, J. (2019). Association of race/ethnicity with emergency department destination of Emergency Medical Services transport. *JAMA Network Open*, 2(9), 1-13.
Hart, O., & Zingales, L. (2017). Serving shareholders doesn't mean putting profit above all else. *Harvard Business Review*, 12, 2-6.
Hawn O, Chatterji AK, Mitchell W. 2018. Do investors actually value sustainability? New evidence from investor reactions to the Dow Jones Sustainability Index (DJSI). *Strategic Management Journal* 39(4): 949–976.
Holmén, J., Herlitz, J., Ricksten, S. E., Strömsöe, A., Hagberg, E., Axelsson, C., & Rawshani, A. (2020). Shortening Ambulance Response Time Increases Survival in Out-of-Hospital Cardiac Arrest. *Journal of the American Heart Association, 9*(21), 1-24.
Hölmstrom, B. (1979). Moral hazard and observability. *The Bell Journal of Economics*, *10*(1), 74-91.
Hölmstrom, B., & Milgrom, P. (1991). Multitask principal-agent analyses: Incentive contracts, asset ownership, and job design. *Journal of Law, Economics & Organization* 7, 24-52.
Hu, S., & Bettis, R. A. (2018). Multiple organization goals with feedback from shared technological task environments. *Organization Science*, *29*(5), 873-889.
Jensen MC. (2002). Value maximization, stakeholder theory, and the corporate objective function. *Business Ethics Quarterly*. Cambridge University Press 12(2): 235–256.
Jensen, M.C. and Meckling, W.H. (1976) Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, *3*, 305-360.
Jones, J. (2020). Non-emergency utilization of EMS: Contributing factors and strategies to promote effective care with appropriate resources. *University of Nebraska Medical Center*. Retrieved from https://digitalcommons.unmc.edu/cgi/viewcontent.cgi?article=1127&context=coph_slce
Joseph J, Wilson AJ. (2018). The growth of the firm: An attention-based view. *Strategic Management Journal* 39(6): 1779–1800.
Kaplan, R.S. and Norton, D.P. (2005). The balanced scorecard: measures that drive performance. *Harvard business review*, *83*(7), p.172.
Kerr, S. (1975). On the folly of rewarding A, while hoping for B. *Academy of Management Journal*, *18*(4), 769-783.
Kim, H. (2022). The impact of communicating multiple goals: The role of learning. Working paper, INSEAD
Larkin, I., Ang, D., Steinhart, J., Chao, M., Patterson, M., Sah, S., ... & Loewenstein, G. (2017). Association between academic medical center pharmaceutical detailing policies and physician prescribing. *JAMA*, *317*(17), 1785-1795.
Lindenauer, P. K., Remus, D., Roman, S., Rothberg, M. B., Benjamin, E. M., Ma, A., & Bratzler, D. W. (2007). Public reporting and pay for performance in hospital quality improvement. *New England Journal of Medicine*, *356*(5), 486-496.
Lipsky, M. (2010). *Street-level bureaucracy: Dilemmas of the individual in public service*. New York, NY: Russell Sage Foundation.
Locke, E. A., & Latham, G. P. (2006). New directions in goal-setting theory. *Current Directions in Psychological Science*, *15*(5), 265-268.
Locke, E. A., & Latham, G. P. (2019). The development of goal setting theory: A half century retrospective. *Motivation Science*, *5*(2), 93–105.
Margolis, J. D., & Walsh, J. P. (2003). Misery loves companies: Rethinking social initiatives by business. *Administrative Science Quarterly*, 48(2), 268–305.
McCann, B. T., & Vroom, G. (2014). Competitive behavior and nonfinancial objectives: Entry, exit, and pricing decisions in closely held firms. *Organization Science*, *25*(4), 969-990.
Morduch, J. (1999). The microfinance promise. *Journal of Economic Literature*, *37*(4), 1569-1614.

Moynihan, D. P., & Pandey, S. K. (2007). The role of organizations in fostering public service motivation. *Public Administration Review*, *67*(1), 40-53.
Mudaliar A, Dithrich H. (2019). Sizing the impact investing market. GIIN, New York.
Munjal, K. G., Margolis, G. S., & Kellermann, A. L. (2019). Realignment of EMS reimbursement policy: New hope for patient-centered out-of-hospital care. *JAMA*, *322*(4), 303-304.
Nelson, A. (2002). Unequal treatment: confronting racial and ethnic disparities in health care. *Journal of the National Medical Association*, *94*(8), 666-668.
NEMSAC. (2016). *EMS funding and reimbursement*. Washington, DC: NEMSAC.
Nickerson JA, Zenger TR. (2002). Being Efficiently Fickle: A Dynamic Theory of Organizational Choice. *Organization Science* 13(5): 547–566.
Obloj. T., & Sengul, M. (2020) What do multiple objectives really mean for performance? Empirical evidence from the French manufacturing sector. *Strategic Management Journal.*
Olsen, A. Ø., Sofka, W., & Grimpe, C. (2016). Coordinated exploration for grand challenges: The role of advocacy groups in search consortia. *Academy of Management Journal*, *59*(6), 2232-2255.
O'Keeffe, C., Nicholl, J., Turner, J., & Goodacre, S. (2011). Role of ambulance response times in the survival of patients with out-of-hospital cardiac arrest. *Emergency Medicine Journal*, *28*(8), 703-706.
Pache, A.C., Battilana, J., & Spencer, C. (2019). Managing attentional challenges in social enterprises: The key role board structure and processes. *Academy of Management Annual Meeting Proceedings.*
Pache, A. C., & Santos, F. (2013). Inside the hybrid organization: Selective coupling as a response to competing institutional logics. *Academy of Management Journal*, *56*(4), 972-1001.
Pell, J. P., Sirel, J. M., Marsden, A. K., Ford, I., & Cobbe, S. M. (2001). Effect of reducing ambulance response times on deaths from out of hospital cardiac arrest: cohort study. *BMJ*, 322(7299), 1385-1388.
Perry, J. L. (1997). Antecedents of public service motivation. *Journal of Public Administration Research and Theory*, *7*(2), 181-197.
Petersen, L. A., Woodard, L. D., Urech, T., Daw, C., & Sookanan, S. (2006). Does pay-for-performance improve the quality of health care? *Annals of Internal Medicine*, *145*(4), 265-272.
Pfeffer J., & Salancik G. R. (1978). *The external control of organizations: A resource dependence perspective*. New York, NY: Harper & Row Publishers.
Ritz, A., Brewer, G. A., & Neumann, O. (2016). Public service motivation: A systematic literature review and outlook. *Public Administration Review*, *76*(3), 414-426.
Roth, A., Tucker, A. L., Venkataraman, S., & Chilingerian, J. (2019). Being on the productivity frontier: identifying "triple aim performance" hospitals. *Production and Operations Management*, *28*(9), 2165-2183.
Santos, F., Pache, A. C., & Birkholz, C. (2015). Making hybrids work: Aligning business models and organizational design for social enterprises. *California Management Review*, *57*(3), 36-58.
Schroeder, S. A. (2007). We can do better—improving the health of the American people. *New England Journal of Medicine, 357*(12), 1221-1228.
Simon, H. A. (1955). A behavioral model of rational choice. *The Quarterly Journal of Economics*, *69*(1), 99-118.
Simon, H. A. (1972). Theories of bounded rationality. *Decision and Organization*, *1*(1), 161-176.
Teece, D. J. (2003). Expert talent and the design of (professional services) firms. *Industrial and Corporate Change*, *12*(4), 895-916.
Venkatesh, A. K., Chou, S. C., Li, S. X., Choi, J., Ross, J. S., D'Onofrio, G., ... & Dharmarajan, K. (2019). Association between insurance status and access to hospital care in emergency department disposition. *JAMA Internal Medicine, 179*(5), 686-693.
Wry T, Zhao EY. (2018). Taking Trade-offs Seriously: Examining the Contextually Contingent Relationship Between Social Outreach Intensity and Financial Sustainability in Global Microfinance. *Organization Science*, 29(3): 507–528.

8. | FIGURES AND TABLES

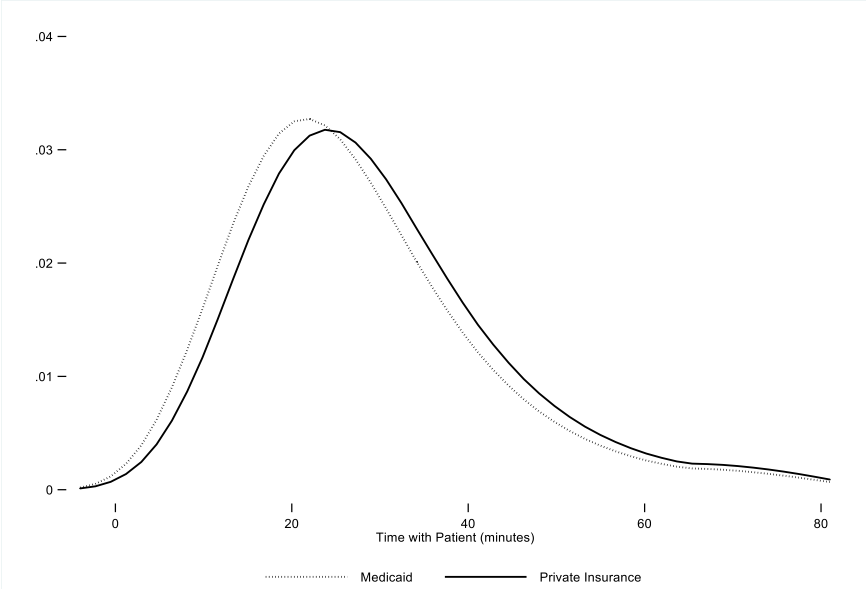


Figure 1. Kernel Density Plot Using the Raw Data for Time with Patient

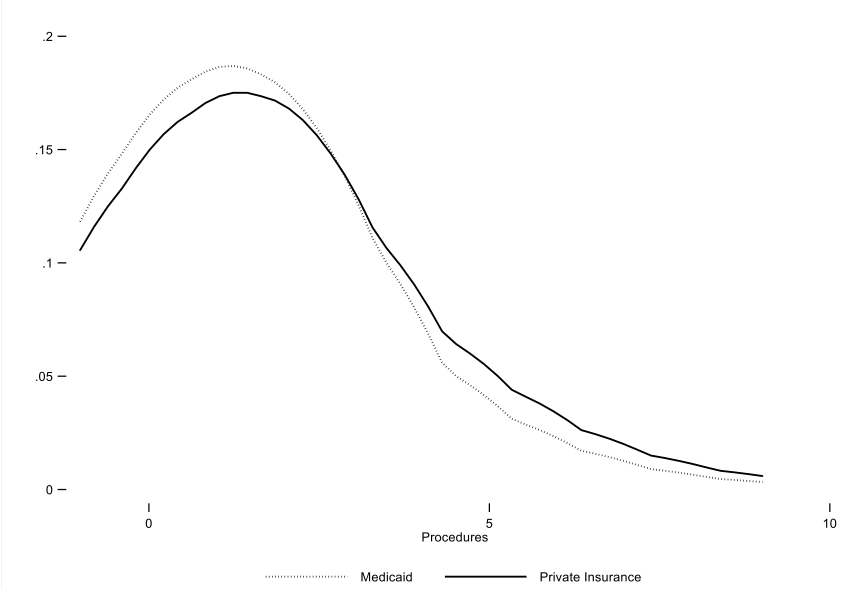
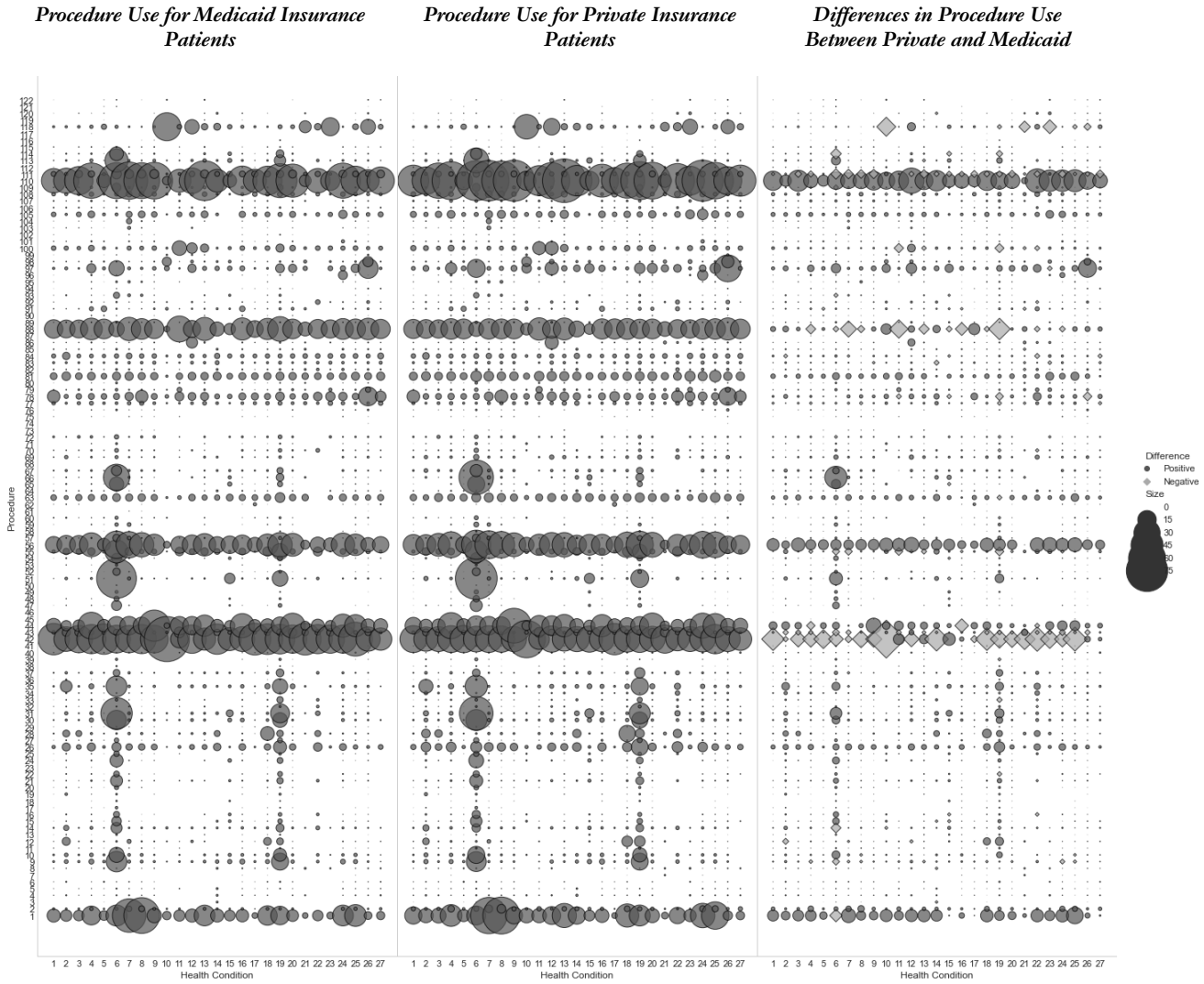


Figure 2. Kernel Density Plot Using the Raw Data for the Number of Procedures Performed



Note: Generated based on raw data averaged by health condition and procedure. The horizontal axis represents discreet patient conditions (initial health impression recorded during response by EMS crews), and the vertical axis lists different unique procedures that could be performed on a call. Larger bubble size represents more procedure uses for a health condition. For the panel on the right, positive differences are in dark bubbles while negative differences are in grey diamonds.

Figure 3. Heat Map of Procedure for Medicaid Patients, Private Insurance Patients, and the Difference Between Private and Medicaid Patients Across Patient Health Conditions

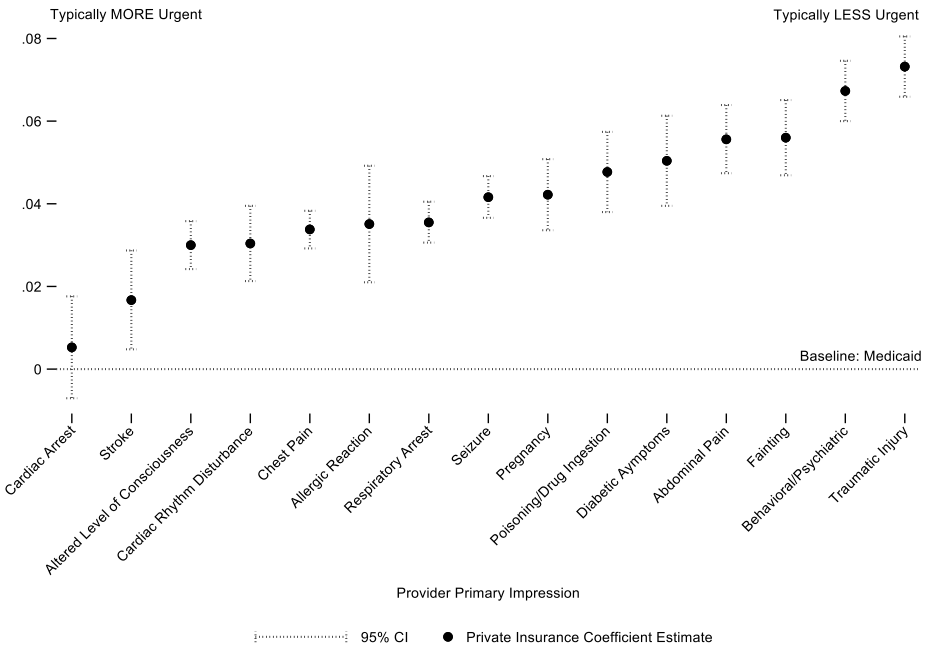


Figure 4a. Fully Controlled Coefficient Estimates Showing the Difference in Time with Patient for Private Insurance Patients Relative to Medicaid Patients, Broken out by Medical Conditions

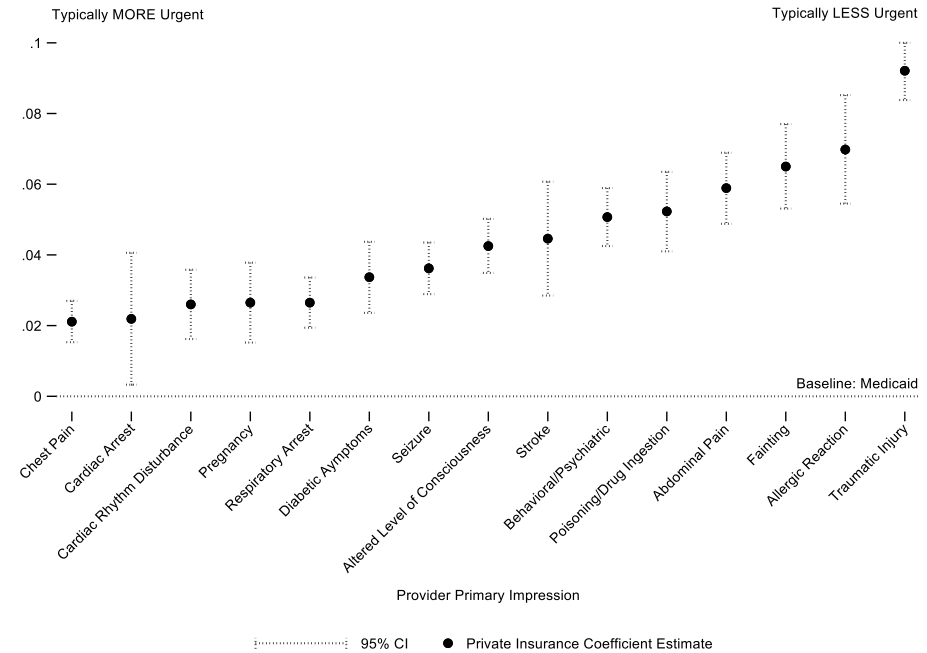


Figure 4b. Fully Controlled Coefficient Estimates Showing the Difference in Procedures Use for Private Insurance Patients Relative to Medicaid Patients, Broken out by Medical Conditions

Note. There are 27 unique impression condition codes used by EMS personnel to report patient condition. These codes capture the EMS personnel's impression of the patient's health problem and is consequently used to justify care decisions. Figures 4a and 4b reflect coefficient estimates for fully-controlled subsample models for the top 15 most commonly reported impressions. This accounts for 96% of all calls in our sample. They are ranked in ascending order.

Table 1. Sample Descriptive Statistics Broken Out by Patient Insurance Type

Variable	Count	Mean	SD	Min	Max
	Medicaid				
Time with Patient	2,657,225	27.403	13.611	1	76
Total Number of Procedures	2,884,262	1.466	1.572	0	8
Hour of Day	2,884,357	12.826	6.599	0	23
Day of Week	2,884,357	2.988	1.970	0	6
Month of Year	2,884,357	6.544	3.412	1	12
Year	2,884,357	2014.245	1.348	2012	2016
Female	2,878,912	0.571	0.495	0	1
Minority	2,256,778	0.463	0.499	0	1
Age	2,879,608	42.697	21.256	0	120
Total Number of Barriers	2,884,357	0.039	0.211	0	6
Time to Reach Scene	2,876,297	7.577	5.633	0	31
	Private				
Time with Patient	3,768,909	29.730	13.891	1	76
Total Number of Procedures	4,180,380	1.773	1.830	0	8
Hour of Day	4,180,536	12.879	6.364	0	23
Day of Week	4,180,536	3.003	1.964	0	6
Month of Year	4,180,536	6.449	3.434	1	12
Year	4,180,536	2014.138	1.386	2012	2016
Female	4,168,088	0.548	0.498	0	1
Minority	3,506,988	0.257	0.437	0	1
Age	4,171,882	53.844	23.346	0	120
Total Number of Barriers	4,180,536	0.042	0.213	0	8
Time to Reach Scene	4,167,341	7.388	5.602	0	31

Table 2. Correlation Matrix (N =7,064,893)

	Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1	Medicaid												
2	Private Insurance	-1.0000											
3	Time with Patient	-0.0829	0.0829										
4	Total Number of Procedures	-0.0868	0.0868	0.1684									
5	Hour of the Day	-0.0040	0.0040	0.0250	0.0029								
6	Day of the Week (Sunday = 0)	-0.0038	0.0038	0.0093	0.0016	0.0066							
7	Month of the Year	0.0136	-0.0136	-0.0094	0.0066	-0.0010	-0.0029						
8	Year	0.0383	-0.0383	0.0011	0.0597	-0.0029	0.0023	-0.0257					
9	Gender (Female = 1)	0.0233	-0.0233	0.0044	-0.0256	0.0029	-0.0040	-0.0027	-0.0152				
10	Minority (White = 0, Other = 1)	0.2122	-0.2122	-0.1238	-0.0842	-0.0264	-0.0020	0.0166	0.0329	0.0180			
11	Age	-0.2364	0.2364	0.1058	0.0808	-0.0045	-0.0007	-0.0107	-0.0094	0.0254	-0.1946		
12	Total Number of Barriers	-0.0064	0.0064	0.0279	0.0271	0.0018	0.0020	0.0020	0.0005	-0.0186	-0.0118	0.0285	
13	Time to Reach Scene	0.0165	-0.0165	0.2462	-0.0072	0.0062	0.0048	-0.0031	0.0071	-0.0004	-0.0321	0.0371	-0.0012

Notes: All correlations greater than 0.0007 are significant at p<0.01.

Table 3. Main Effects Regressing Time Spent with Patient and Number of Procedures Performed on Patient Ability to Pay

	(1) Log(procedures)	(2) Log(time)	(3) Log(procedures)	(4) Log(time)	(5) Log(procedures)	(6) Log(time)	(7) Log(procedures)	(8) Log(time)
Private Insurance	0.100	0.089	0.099	0.088	0.080	0.067	0.059	0.051
	(0.005)	(0.003)	(0.005)	(0.003)	(0.003)	(0.003)	(0.003)	(0.002)
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Constant	0.724	3.238	0.623	3.205	0.588	3.163	0.606	2.938
	(0.003)	(0.002)	(0.015)	(0.007)	(0.016)	(0.010)	(0.022)	(0.015)
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Unit Fixed Effects	Y	Y	Y	Y	Y	Y	Y	Y
Time Controls			Y	Y	Y	Y	Y	Y
Patient Controls					Y	Y	Y	Y
Call Controls							Y	Y
N	7,064,642	6,426,134	7,064,642	6,426,134	5,743,713	5,181,765	3,391,906	3,143,295
Adj. R-sq.	0.008	0.009	0.014	0.011	0.023	0.021	0.119	0.09

Notes. Robust standard errors in parentheses are clustered by agencies. P-values presented in square brackets. Time controls include dummies for hour of day, day of week, month, and year. Patient controls include a continuous variable for patient age and dummies for race and gender. Call controls include a continuous variable for the numbers of barriers encountered, the logged call response time, and dummies for reason for choosing destination and provider impression (for type of patient health condition).

Table 4. Call Urgency Moderates Service Provision Differences from Patient Ability to Pay

	(1) Log(procedures)	(2) Log(time)	(3) Log(procedures)	(4) Log(time)
Lights and Sirens Transport	0.142	-0.013	0.140	0.005
	(0.012)	(0.006)	(0.015)	(0.006)
	[0.000]	[0.033]	[0.000]	[0.418]
Private Insurance			0.057	0.057
			(0.003)	(0.003)
			[0.000]	[0.000]
Private Insurance x Lights and Sirens			0.001	-0.029
			(0.009)	(0.004)
			[0.949]	[0.000]
Constant	0.593	2.966	0.564	2.937
	(0.023)	(0.015)	(0.023)	(0.015)
	[0.000]	[0.000]	[0.000]	[0.000]
Unit Fixed Effects	Y	Y	Y	Y
Time Controls	Y	Y	Y	Y
Patient Controls	Y	Y	Y	Y
Call Controls	Y	Y	Y	Y
N	3,315,994	3,077,282	3,315,994	3,077,282
Adj. R-sq	0.125	0.087	0.127	0.09

Notes. Robust standard errors in parentheses are clustered by agencies. P-values presented in square brackets. Time controls include dummies for hour of day, day of week, month, and year. Patient controls include a continuous variable for patient age and dummies for race and gender. Call controls include a continuous variable for the numbers of barriers encountered, the logged call response time, and dummies for reason for choosing destination and provider impression (for type of patient health condition). Lights and sirens takes the value of 1 if lights and sirens are used transporting a patient from the scene to a healthcare facility.

Table 5. Long-term Financial Pressures Result in Increased Service Provision Differences

	(1) Log (procedures)	(2) Log (time)
Private Insurance	0.048	0.037
	(0.004)	(0.003)
	[0.000]	[0.000]
Private Insurance x Poor Agency	0.018	0.025
	(0.007)	(0.005)
	[0.013]	[0.000]
Constant	0.606	2.936
	(0.023)	(0.015)
	[0.000]	[0.000]
Unit Fixed Effects	Y	Y
Time Controls	Y	Y
Patient Controls	Y	Y
Call Controls	Y	Y
N	3,317,433	3,073,946
adj. R-sq	0.12	0.09

Notes. Robust standard errors in parentheses are clustered by agencies. P-values presented in square brackets. Time controls include dummies for hour of day, day of week, month, and year. Patient controls include a continuous variable for patient age and dummies for race and gender. Call controls include a continuous variable for the numbers of barriers encountered, the logged call response time, and dummies for reason for choosing destination and provider impression (for type of patient health condition). Poor Agency is a dummy variable that takes on the value 1 if the agency's ratio of private insurance patients to Medicaid patients falls below the median for the sample and 0 otherwise.

Table 6. Short-term Financial Pressures Result in Increased Service Provision Differences

	(1) Log (procedures)	(2) Log (time)	(3) Log (procedures)	(4) Log (time)
3MMA Private Call Ratio by Agency	-0.004	-0.012	0.052	0.059
	(0.067)	(0.011)	(0.068)	(0.014)
	[0.947]	[0.274]	[0.445]	[0.000]
Private Insurance	0.059	0.051	0.083	0.080
	(0.002)	(0.002)	(0.008)	(0.005)
	[0.000]	[0.000]	[0.000]	[0.000]
Private Insurance x 3MMA Call Ratio			-0.076	-0.093
			(0.022)	(0.012)
			[0.000]	[0.000]
Constant	0.607	2.942	0.604	2.889
	(0.034)	(0.016)	(0.034)	(0.016)
	[0.000]	[0.000]	[0.000]	[0.000]
Unit Fixed Effects	Y	Y	Y	Y
Time Controls	Y	Y	Y	Y
Patient Controls	Y	Y	Y	Y
Call Controls	Y	Y	Y	Y
N	3,391,906	3,143,295	3,396,454	3,144,118
Adj. R-sq.	0.119	0.09	0.119	0.091

Notes. Robust standard errors in parentheses are clustered by agencies. P-values presented in square brackets. Time controls include dummies for hour of day, day of week, month, and year. Patient controls include a continuous variable for patient age and dummies for race and gender. Call controls include a continuous variable for the numbers of barriers encountered, the logged call response time, and dummies for reason for choosing destination and provider impression (for type of patient health condition). Three Month Moving Average (3MMA) Agency Private Call Ratio is defined as the mean ratio of private insurance calls over the past three months for each agency.

Table 7. Main Effects by Organizational Type

	(1)	(2)	(3)	(4)
	Log(procedures)	Log(time)	Log(procedures)	Log(time)
Private Insurance			0.082	0.051
			(0.028)	(0.017)
			[0.004]	[0.002]
Fire	-0.075	-0.058	-0.074	-0.061
	(0.045)	(0.021)	(0.052)	(0.028)
	[0.094]	[0.006]	[0.154]	[0.026]
Government	-0.081	0.028	-0.078	0.013
	(0.050)	(0.023)	(0.053)	(0.028)
	[0.106]	[0.220]	[0.141]	[0.638]
Hospital	0.099	0.057	0.141	0.076
	(0.064)	(0.035)	(0.060)	(0.037)
	[0.124]	[0.102]	[0.018]	[0.039]
Private EMS	-0.021	-0.054	0.024	-0.055
	(0.047)	(0.022)	(0.053)	(0.028)
	[0.650]	[0.013]	[0.649]	[0.054]
Fire x Private Insurance			0.001	0.004
			(0.041)	(0.022)
			[0.982]	[0.855]
Government x Private Insurance			-0.001	0.023
			(0.037)	(0.019)
			[0.982]	[0.237]
Hospital x Private Insurance			-0.075	-0.037
			(0.047)	(0.024)
			[0.114]	[0.115]
Private EMS x Private Insurance			-0.072	0.002
			(0.038)	(0.021)
			[0.062]	[0.943]
Constant	0.384	3.269	0.387	3.276
	(0.182)	(0.085)	(0.179)	(0.085)
	[0.015]	[0.000]	[0.013]	[0.000]
Agency Private Insurance Ratio	Y	Y	Y	Y
Agency Total Number of Units (log)	Y	Y	Y	Y
Agency Total Number of Calls (log)	Y	Y	Y	Y
Time Controls	Y	Y	Y	Y
Patient Controls	Y	Y	Y	Y
Call Controls	Y	Y	Y	Y
State FE	Y	Y	Y	Y
N	3,391,906	3,143,295	3,391,906	3,143,295
Adj. R-sq.	0.151	0.156	0.153	0.159

Notes. Robust standard errors in parentheses are clustered by agencies. P-values presented in square brackets. Time controls include dummies for hour of day, day of week, month, and year. Patient controls include a continuous variable for patient age and dummies for race and gender. Call controls include a continuous variable for the numbers of barriers encountered, the logged call response time, and dummies for reason for choosing destination and provider impression.

Table 8. Total Effects for "Private Insurance" Plus the "Interaction" with Agency Type

	Procedures			**Time**		
	Coefficient	Std. Err.	P>t	Coefficient	Std. Err.	P>t
Community	0.082	0.028	0.004	0.051	0.017	0.002
Fire	0.083	0.025	0.001	0.055	0.011	0.000
Governmental	0.081	0.017	0.000	0.074	0.008	0.000
Hospital	0.008	0.034	0.823	0.014	0.015	0.347
Private EMS	0.010	0.021	0.623	0.053	4.980	0.000