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Workers' Motivation and Quality of Services in Mission-Driven Sectors*

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Abstract

This paper studies how firms' ownership choices and workers' intrinsic motivation jointly shape service quality and market outcomes in labor-intensive, mission-driven sectors. Two organizations first choose whether to operate as standard for-profit or as mission-oriented firms, and then compete in both the labor and the user markets. Mission-oriented firms have higher unit costs but attract better-motivated workers. Service quality is endogenously determined through the sorting of intrinsically motivated workers and depends on the firm's ownership type. We show that all market structures—standard, mission-oriented, or mixed—can arise in equilibrium, and that mixed structures can be Pareto superior by efficiently allocating the most motivated workers to the mission-oriented firm while preserving the cost advantage of the other firm. While equilibrium outcomes generally diverge from the social optimum due to externalities and lack of coordination, they are both driven by the trade-off between cost-efficiency and motivation. The model helps explain the coexistence of heterogeneous ownership structures observed in some sectors—such as the nursing homes sector—and identifies conditions under which such diversity is welfare-enhancing.

***JEL*-Classification:** J21, L13, L31.

Keywords: mission-driven sectors, mission-oriented firms, workers' motivation, endogenous market structure, welfare.

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1 Introduction

Mission-oriented companies are organizations that pursue a social objective—such as reducing inequalities, preserving the environment, or promoting other community-wide goals—alongside economic performance. These types of organizations are becoming increasingly common, and this evolution was facilitated by the introduction of legal designations enabling companies to commit to objectives beyond profit maximization. In addition to the well-established non-profit status, new legal forms have been introduced in the past two decades, such as the *benefit corporation* in the US, first implemented in Maryland in 2010, or the *community interest company* in the UK, introduced in 2005. Similar legislation followed in France (that created the legal status of *société à mission* in 2019) and Italy (*società benefit*, 2016). These legal designations allow companies, on a voluntary basis, to register a purpose distinct from profit seeking. Benefit corporations commit to a mission and are subject to specific reporting and accountability requirements (e.g., regular reports and audits). Many of these companies remain for-profit.[1]

Following these regulatory innovations, the number of mission-oriented firms has grown steadily. In the US, Berrey (2018) reports that at least 7,704 benefit corporations were established between 2010 and 2017, primarily in the professional services, retail, education, healthcare, and social services sectors. In France, 1,450 firms (representing more than 900,000 employees) had adopted the *société à mission* status by 2023 (Observatoire des sociétés à mission, 2024). In Italy, over 3,600 firms had registered as *società benefit* by 2023, with a 27% increase from 2022 to 2023 (Ricerca nazionale sulle società benefit, 2024). In both countries, the professional services and technology/telecommunications sectors were the most represented.

In our interpretation, a mission-oriented firm (i.e., a benefit corporation) is an organization whose CEO balances profits with a social mission. A similar perspective was adopted by Besley and Ghatak (2017), who define social enterprises as flexible organizations run by managers balancing profit with purpose (see also Katz and Page, 2010). In their view, a social enterprise adopts elements of Corporate Social Responsibility (CSR) without converting into a nonprofit organization, offering greater flexibility than a traditional nonprofit.

In the terminology of Bénabou and Tirole (2010), engaging in corporate social responsibility (CSR) can result in a "win–win" scenario, where a firm that adopts socially responsible practices simultaneously enhances its profitability. In such cases, the mission-oriented firm is "doing well by doing good." In our setting, we consider a mission-oriented firm that embraces CSR not necessarily out of purely philanthropic intent, but as part of a deliberate strategy to strengthen its market position and long-term performance. In this sense, and following Baron (2001), we interpret CSR as *strategic*: the firm's social engagement aligns with its economic objectives,

[1] In the US, the benefit corporation designation is limited to for-profit firms, while in countries such as France, all types of firms may become a *société à mission*.

reflecting an opportunistic approach to mission orientation rather than a purely altruistic one.

An organization may adopt a mission-oriented stance with the strategic objective of attracting intrinsically motivated workers. This can translate into higher service quality and ultimately greater profitability, as intrinsically motivated employees often contribute to better organizational outcomes. The link between workers' motivation and service quality is particularly salient in mission-driven, labor-intensive sectors—i.e., sectors where production depends heavily on human input and which naturally attract individuals with prosocial preferences. Prominent examples include long-term care, health care, and education (see Besley and Ghatak, 2005).[2] In these settings, employees may care deeply about the services they provide or about the well-being of their beneficiaries—such as patients or students—and may derive non-monetary utility from their work (see Cassar and Meier, 2018). Given that labor constitutes the primary input in these sectors, the intrinsic motivation of the workforce is a key determinant of service quality.

Consider the example of nursing homes: they are labor-intensive organizations that rely heavily on human resources to deliver care services. The U.S. Bureau of Labor Statistics reports that, in the United States in 2020, nursing homes employed a substantial share of the healthcare workforce—approximately 40% of the 1.6 million workers in the industry—primarily in support roles such as nursing assistants, who provide direct, hands-on care to patients. Nurses play a central role in patient care, performing tasks such as recording vital signs, monitoring health conditions, administering medical treatments, assisting with daily living activities, and developing relationships with patients. These responsibilities have a direct impact on patient health and longevity. By providing compassionate and personalized care, nurses can substantially improve the overall quality of health services and promote patients' well-being. Recent empirical evidence from nursing homes provides indirect yet compelling support for a positive relationship between the quality of healthcare services and the nursing workforce: modest increases in compensation for frontline staff—particularly nursing assistants—have been shown to improve resident health and safety outcomes, highlighting the critical role of nursing labor in shaping care quality (Ruffini, 2024).

As a result, attracting and retaining motivated employees is of paramount importance in nursing homes (as in other mission-driven, labor-intensive organizations), where the quality of services is closely tied to the relationship between workers and service recipients. This is particularly relevant as policymakers and health authorities in the U.S. and Europe have expressed growing concerns about the quality of care in nursing homes, concerns heightened by recurring scandals involving malpractice and the mistreatment of vulnerable patients. For example,

[2] Besley and Ghatak (2005) highlight the importance of aligning the mission preferences of employers and workers in public, non-profit, and mission-oriented sectors. They show that such alignment reduces moral hazard among workers.

Italian nursing homes faced widespread criticism and, in some cases, criminal investigations for their mismanagement of the Covid-19 pandemic. In 2022, France's largest private nursing home group, Orpea, was at the center of a major scandal and subsequent criminal charges following revelations of systemic neglect, mistreatment, and malpractice.[3]

This paper examines how workers' motivation and their employer's ownership type (mission-oriented or standard for-profit) influence service quality, and how these factors interact with the market structure in which employers operate. It also investigates how firms choose their ownership type, how different market structures (mixed versus symmetric) emerge in equilibrium, and whether these equilibria are socially efficient. To do so, the paper endogenizes both the quality of services and the market structure.

Our first objective is to investigate how the sorting of workers into organizations with different ownership types affects the quality of services. Previous literature focusing on the workforce in mission-driven sectors has examined how workers' intrinsic motivation drives them to exceed the basic requirements of their roles.[4] For example, motivated nurses and doctors may exert additional effort (labor donation) or accept lower reservation wages.[5] Our contribution to this body of research is to endogenize the quality of services received by users. In our framework, quality is directly influenced by the intrinsic motivation of the workforce. As mentioned before, in our model, workers' intrinsic motivation contributes to quality. A firm's workforce average motivation, in turn, depends on workers' endogenous sorting into firms and the market structure that arises in equilibrium, as motivated workers (motivated nurses in our example above) prefer to work in mission-oriented firms (mission-oriented nursing homes). The average motivation of workers translates into higher service quality, and this is particularly true in mission-oriented firms, where workers' motivation can more easily translate into quality.

Our second objective is to analyze the firms' ownership choice, and to identify the conditions under which a mixed market structure emerges in equilibrium. In doing so, we contribute to the limited literature on the endogenous choice of mission (see, for example, Besley and Ghatak, 2017; Cassar and Armouti-Hansen, 2020), with a particular focus on the role and intensity of competition. Finally, we compare the social welfare associated with different market structures to determine when the coexistence of a standard and a mission-oriented firm is Pareto improving relative to a symmetric market structure.

To address these two objectives, we develop a Hotelling-style model in which two firms com-

[3]For Italy, see, for instance, https://www.politico.eu/article/the-silent-coronavirus-covid19-massacre-in-italy-milan-lombardy-nursing-care-homes-elderly/. For France, see https://www.reuters.com/business/frances-orpea-reduce-its-international-activities-2022-11-15/.

[4]See, among others, Francois (2000) and Delfgaauw and Dur (2008, 2010).

[5]See, for example, Choné and Ma (2004), Heyes (2005), Jack (2005), Makris and Siciliani (2013), Brekke et al. (2011, 2012), and Barigozzi and Burani (2016).

pete simultaneously in the labor market and the consumer market. Service quality is determined by the endogenous sorting of workers across the two firms and by their mission. Firms simultaneously set prices for consumers and wages for workers; thus, a market equilibrium is defined by two prices and two wages. First, we characterize the equilibrium in a mixed market structure consisting of one standard and one mission-oriented firm. Second, we analyze equilibria in symmetric duopolies, with either two standard or two mission-oriented firms. We then examine the firms' choice between adopting a mission or not and identify the conditions under which each market structure arises in equilibrium. Finally, we study whether the equilibrium market structure is socially efficient.

We assume that workers are heterogeneous in their intrinsic motivation to work in the mission-driven sector, and that motivation is uniformly distributed. Upon entering the mission-driven sector, workers receive a premium for intrinsic motivation that depends on both their own level of motivation and the employer's ownership type—standard or mission-oriented. This premium is comparatively greater when working for a mission-oriented firm, as such firms incur additional costs to pursue social goals, thereby generating a positive externality for service recipients or the broader community. Motivated workers value this externality, which enhances the perceived return on their intrinsic motivation. The higher premium associated with mission-oriented firms translates into a correspondingly higher level of service quality relative to standard firms. Intuitively, intrinsically motivated workers are more likely to prefer employment in mission-oriented firms, where they expect to be enabled to deliver higher-quality work. For instance, nurses employed by mission-oriented nursing homes may be afforded more time and resources to care for patients. As a result, service quality in mission-oriented firms is higher for two reasons. First, these firms tend to attract workers with higher levels of intrinsic motivation. Second, this selection effect is reinforced by the fact that worker motivation more effectively translates into higher service quality in mission-oriented firms, creating an additional advantage over standard firms.

To sum up, a mission-oriented organization enjoys a competitive advantage through higher worker motivation, which in turn contributes to a relatively higher level of service quality. However, the higher quality achieved by the mission-oriented firm does not come as a "free lunch," as fulfilling its mission requires the firm to sacrifice some profit in order to improve outcomes for its service recipients. The mission-oriented firm incurs additional costs in pursuing its social goals, which in turn generate a positive externality through the pursuit of its mission. This contribution to social welfare is precisely what underpins the additional premium for intrinsic motivation observed among workers employed in the mission-driven organization. As previously noted, this externality is not reflected in the firm's profits, as the decision to adopt a mission is purely strategic.

We show that a mixed market structure results in quality differentiation between the two providers. By contrast, in a symmetric duopoly with either two standard or two mission-oriented firms, consumers pay the same price and receive the same level of service quality—low in the case of two standard firms, and high in the case of two mission-oriented firms. This setting minimizes total consumer transportation costs.

We identify conditions on the two key parameters—the additional motivational premium in the mission-oriented firm and the extra cost it incurs— under which the coexistence of a standard and a mission-oriented firms outperforms symmetric duopolies. For intermediate values of the additional motivational premium and the extra cost, a mixed market structure is optimal from a social standpoint because it enables the efficient sorting of intrinsically motivated workers across firms and sustains a relatively high average service quality, while avoiding the additional mission-related cost for one of the two firms. Specifically, the low-motivated workers are efficiently matched with the standard firm. In such a firm, workers and users receive low motivational premia and quality, respectively, but the unit cost is lower, and users end up benefiting from a relatively low price. Similarly, highly motivated workers are efficiently matched with the mission-oriented firm and produce high-quality products sold at a high price. By contrast, when the parameters capturing the motivational premium and the extra cost of the mission-oriented firm take on extreme values, symmetric market structures become socially optimal.

But which market structure emerges in equilibrium when firms choose whether to adopt a mission-oriented or standard status? When both firms earn higher profits in a mixed market structure, two asymmetric Nash equilibria emerge. When the symmetric structure yields higher profits, the equilibrium is symmetric, with both firms choosing the same status. Specifically, if the symmetric profit lies between the two mixed payoffs, the equilibrium ownership structure corresponds to the one with the relatively higher profit. When, instead, symmetric profits exceed both mixed payoffs, both symmetric outcomes become equilibria.

The equilibrium and socially optimal market structures generally do not coincide, as firms fail to internalize key components of social welfare. Specifically, they disregard the positive externality generated by the mission, the efficiency gains from optimal sorting of workers, the benefits of reducing consumer transportation costs, and they do not coordinate in the first stage of the decision-making process. As a result, firms make privately optimal decisions that may lead to socially inefficient outcomes. Nonetheless, the qualitative pattern in the social optimum and the equilibrium solutions is similar. In both cases, we observe symmetric mission-oriented market structures when the motivational premium is high and the mission cost is low; symmetric standard market structures when the cost is high and motivation is low; and a mixed structure when the parameters fall within an intermediate range. The intuition behind this alignment is that, even though firms do not fully internalize social welfare, their private incentives still reflect the fundamental economic trade-offs—making an asymmetric market structure privately optimal when matching motivated workers with a single mission-oriented firm is efficient.

2 Model set up

Two firms, indexed by $i \in \{1, 2\}$, produce a labor-intensive personal service, and play a two-stage game. In the first stage, firms simultaneously decide whether to commit to a mission (becoming a mission-oriented firm), or to operate as a standard firm without a mission. The mission-oriented firm is denoted by M, while the standard, for-profit firm is denoted by F. The chosen ownership type is indicated by the subscript $j \in \{F, M\}$.

In the second stage, the firms compete both in the labor market—where they hire workers—and in the product market—where they sell services to users. Specifically, each firm simultaneously sets a wage for its employees and a price for its service. The structure and functioning of the labor and user markets are described in detail in the following sections.

For a standard firm F, profits are expressed in the usual way as the product of the firm's price-cost margin and demand:

$$\Pi_{iF} = (\text{price}_F - \text{ unit cost}_F) * D_{iF}, \tag{1}$$

where D_{iF} is the demand for the standard firm's services.

A mission-oriented firm M instead maximizes

$$\Pi_{iM} = (\text{price}_M - \text{ unit cost}_M - \beta) * D_{iM}, \tag{2}$$

where D_{iM} is the demand and β denotes the extra cost that the firm pays per unit to adhere to its mission. The parameter $\beta > 0$ is treated as exogenous by the firm. The objective function Π_{iM} indicates that, when a firm adopts a mission-oriented structure, it does not internalize the positive externality generated by the mission in its profit calculation. In other words, firms are profit maximizers and will choose a mission-oriented structure only if it enhances their competitive position in the labor and/or product markets. This behavior is commonly referred to as "strategic CSR" in the literature (see Baron, 2001). The positive externality associated with a mission-oriented firm will be incorporated later into the social welfare function (see Section 6).

As mentioned before, we consider a labor intensive sector. To simplify, we assume that labor is the unique input. The linear production function is such that, to produce D_{ij} units, firm ij needs αD_{ij} workers. Then, the number of workers employed by firm i of type j, L_{ij}, is given by

$$L_{ij} = \alpha D_{ij}, \ i = 1, 2 \text{and} \ \ j = F, M, \tag{3}$$

where α, with $\alpha \in [0,1]$, is exogenous. We assume that the total number of workers, $L > \alpha N$, where N is the total number of users. In words, we assume that there are enough workers to cover the whole demand.

2.1 First stage: choice of the ownership structure

In the first stage, firms simultaneously choose whether to operate as a standard firm or as a mission-oriented firm.

Let θ_i denote the ownership structure of firm i. The set of possible market structures is given by

$$\Theta = (\theta_1, \theta_2) \in \{(F,F), (F,M), (M,F), (M,M)\}.$$

The structures (F,F) and (M,M) represent symmetric cases, consisting of two standard firms and two mission-oriented firms, respectively. The structures (F,M) and (M,F) are asymmetric, with one standard and one mission-oriented firm.

2.2 Second stage: choice of prices and salaries

In the second stage, firms compete simultaneously in the labor market and in the market for users by setting a price for users, denoted by p_{ij}, and a wage for workers, denoted by w_{ij}, for each firm $i = 1,2$ and ownership structure $j = M, F$.

The analysis of the second stage is conducted separately for symmetric and mixed market structures. We begin with the mixed market structure, as it is more complex and contains all the key elements required to characterize the equilibrium in the symmetric case.

3 Mixed market structures

We consider the mixed market structures (F,M) and (M,F), which consist of one standard firm and one mission-oriented firm. Without loss of generality, we focus on the market structure (F,M). For ease of exposition, we temporarily omit the firm index $i = 1,2$.

3.1 Labor market

We assume that workers are intrinsically motivated and that their motivation influences the quality of the service provided. This assumption is particularly relevant in sectors such as health care, long-term care, and education, where the social value of the service attracts individuals who are driven by a desire to help and care for others. Workers' sense of purpose—or vocation—results in a higher quality of service provided to users. In what follows, we refer to the sector under study as *mission-driven*, in contrast to the outside-option sector, which does not offer workers any sense of purpose.

A mass L of workers chooses whether to be employed in one of the two firms operating in the mission-driven sector, or in an alternative sector representing the outside option, where the wage is fixed at $\overline{w}$. When employed in the mission-driven sector, a worker receives a utility premium that depends on both their intrinsic motivation, γ, and the organizational form of the employing firm (standard or mission-oriented).

Workers' motivation level, γ, is uniformly distributed on the interval $[0, k]$, with $k > 0$. A worker with motivation γ receives a utility premium—expressed in monetary terms—equal to γ when employed by a standard firm (F), and equal to $(1 + \delta)\gamma$ when employed by a mission-oriented firm (M), with $\delta > 0$. In other words, the utility premium associated with employment in the mission-driven sector is higher for workers employed by a mission-oriented firm, due to the additional satisfaction derived from contributing to the firm's social mission.[6]

By contrast, workers employed in the outside-option sector receive no motivation-related utility premium. For example, in the context of health care provision or nursing homes, the mission-driven sector can be identified with the market for nurses, where workers receive a motivational premium. No such premium is available in the non-mission-driven outside option.

The utility of a worker of type γ employed by the standard firm F is thus given by

$$v_F(\gamma) = w_F + \gamma, \tag{4}$$

while the utility of the same worker being employed by the mission-oriented firm, M, is

$$v_M(\gamma) = w_M + (1 + \delta)\gamma. \tag{5}$$

In words, a worker's motivational premium from working in the mission-driven sector is larger when employed by a mission-oriented firm. As mentioned before, a mission-oriented firm uses the extra cost β to create a positive externality to society that is valued by motivated employees. For example, in a mission-oriented nursing home, access is typically universal, and the facility commits to accommodating patients regardless of their health care conditions.

The marginal worker, $\widehat{\gamma}$, who is indifferent between F and M, is defined by

$$w_F + \widehat{\gamma} = w_M + (1 + \delta)\widehat{\gamma} \iff \widehat{\gamma} = \frac{w_F - w_M}{\delta}.$$

All workers with $\gamma \geq \widehat{\gamma}$ will prefer to work in M, as long as $w_M + (1 + \delta)\gamma \geq \overline{w}$. Workers with $\gamma < \widehat{\gamma}$ prefer to work in F as long as $w_F + \gamma \geq \overline{w}$, which is true if and only if $\gamma \geq \widetilde{\gamma} = \overline{w} - w_F$.

Summing up, we can characterize the following thresholds:

$$\widetilde{\gamma}^{FM} = \overline{w} - w_F, \tag{6}$$

$$\widehat{\gamma}^{FM} = \frac{w_F - w_M}{\delta}, \tag{7}$$

[6] A similar interpretation of intrinsic motivation is found in Besley and Ghatak (2005) and Barigozzi and Burani (2016, 2019).

where the superscript FM denotes the mixed market structure. All workers with $\gamma < \widetilde{\gamma}^{FM}$ work in the outside-option sector, all workers with $\gamma \in [\widetilde{\gamma}^{FM}, \widehat{\gamma}^{FM})$ work for F, and all workers with $\gamma \geq \widehat{\gamma}^{FM}$ work for M.

Interior solutions require that $0 < \widetilde{\gamma}^{FM} < \widehat{\gamma}^{FM} < k$, which is guaranteed by the following conditions:

$$\overline{w} > w_F > w_M, \tag{a}$$

$$\frac{(1+\delta)w_F - w_M}{\delta} > \overline{w}, \tag{b}$$

$$\frac{w_F - w_M}{\delta} < k. \tag{c}$$

Condition (a) ensures that the necessary wage ordering holds for interior solutions for both $\widehat{\gamma}^{FM}$ and $\widetilde{\gamma}^{FM}$. Condition (b) ensures that the threshold $\widehat{\gamma}^{FM}$ is higher than $\widetilde{\gamma}^{FM}$. In other words, this condition guarantees that the workers in the mission-oriented firm have a greater motivation than those in the standard firm. The inequality reflects the additional motivation premium associated with working in the mission-oriented firm. Condition (c) ensures that the motivation threshold above which workers choose the mission-oriented firm remains within the feasible range, i.e., below the upper bound k.

The threshold values $\widetilde{\gamma}^{FM}$ and $\widehat{\gamma}^{FM}$ determine the workforce of each firm, given by

$$L_F = \frac{\widehat{\gamma}^{FM} - \widetilde{\gamma}^{FM}}{k} L = \frac{w_F(1+\delta) - w_M - \delta\overline{w}}{k\delta} L, \tag{8}$$

$$L_M = \left(1 - \frac{\widehat{\gamma}^{FM}}{k}\right) L = \frac{k\delta - w_F + w_M}{k\delta} L. \tag{9}$$

Total employment in the mission-driven sector is thus:

$$L_F + L_M = \left(1 - \frac{\overline{w} - w_F}{k}\right) L = \frac{k + w_F - \overline{w}}{k} L. \tag{10}$$

Equation (10) indicates that total employment depends on $\widetilde{\gamma}^{FM}$, which in turn depends on $w_F - \overline{w}$, but not on w_M. Since the marginal worker in the sector joins the F firm, only the salary offered by this firm affects total employment.

3.2 Market for users

We consider a Hotelling model where the N consumers are uniformly distributed over the interval $[0, 1]$. Their location is denoted by x. We focus on market structure (F, M), and assume that firm F is located at 0, while M is located at 1. The case where F is located in 1 and M is located in 0 is the mirror image of the case we consider.

The utility derived by a user located at $x \in [0, 1]$, who patronizes firm $j \in \{F, M\}$, is

$$u_F(x) = \bar{u} + bq_F - p_F - tx^2, \tag{11}$$

$$u_M(x) = \bar{u} + bq_M - p_M - t(1-x)^2, \tag{12}$$

where the constant $\bar{u}$ is large enough to ensure that all users have positive utility in equilibrium, and p_j is the price set by firm j. The final term in (11) and (12) captures the disutility from mismatch (e.g., transportation costs), with the parameter t indicating the size of this utility cost.

The second term in users' utility represents the benefit they derive from the quality of service provided by the firm. We build on previous literature examining markets with intrinsically motivated workers by making the quality of services provided to users endogenous. Specifically, the quality of the service, q_j, depends on the average motivation level of the workforce employed by each firm.[7] For example, in health care or long-term care, the motivation of doctors and nurses can translate into more time spent with patients, greater empathy, and enhanced trust and security felt by the patient. The parameter b reflects the importance of service quality for users.

We assume that the larger motivational premium received by a worker with intrinsic motivation γ in the mission-oriented firm translates into a relatively higher quality of service provided by that worker in firm M. For instance, in mission-oriented nursing homes, motivated nurses may benefit from better working conditions, and have more time and resources to care for those in need. Thus, the quality of firm F is determined by the average intrinsic motivation of its workers, while, in firm M, the average intrinsic motivation is scaled up by a factor of $(1 + \delta)$.

Using the thresholds (6) and (7) derived above for the sorting of workers into firms, we have

$$q_F^{FM} = \frac{\widehat{\gamma}^{FM} + \widetilde{\gamma}^{FM}}{2}, \tag{13}$$

and

$$q_M^{FM} = (1 + \delta)\frac{k + \widehat{\gamma}^{FM}}{2}. \tag{14}$$

The marginal consumer $\widehat{x}$ who is indifferent between the two firms satisfies

$$bq_F^{FM} - p_F^{FM} + \bar{u} - t\widehat{x} = bq_M^{FM} - p_M^{FM} + \bar{u} - t(1 - \widehat{x}),$$

and is thus located at

$$\widehat{x}^{FM} = \frac{1}{2} - b\frac{q_M^{FM} - q_F^{FM}}{2t} - \frac{p_F^{FM} - p_M^{FM}}{2t}, \tag{15}$$

[7] Among the studies that examine the benefits of employing motivated workers, many either do not consider the quality of services provided by organizations or assume it as exogenous. Notable examples include Besley and Ghatak (2017), Heyes (2005), Jack (2005), Makris and Siciliani (2013), and Cassar and Armouti-Hansen (2020). An exception to this is Bardey and Siciliani (2021), who analyze a two-sided market and treat the quality of service as endogenous. Specifically, and similarly to our approach, Bardey and Siciliani (2021) explore competition between two organizations (nursing homes) setting prices and wages simultaneously. However, in their model, the quality of care is determined by the residents-to-staff ratio rather than workers' motivation. Additionally, they do not consider a first stage where firms choose their ownership structures.

where, using (13) and (14), together with (6) and (7)

$$q_M^{FM} - q_F^{FM} = \frac{1}{2}\left((1+\delta)k + 2w_F - w_M - \overline{w}\right). \tag{16}$$

The demands for the two firms are, respectively, given by

$$D_F^{FM} = N\widehat{x}^{FM} = \left(\frac{1}{2} - b\frac{q_M^{FM} - q_F^{FM}}{2t} - \frac{p_F^{FM} - p_M^{FM}}{2t}\right)N, \tag{17}$$

$$D_M^{FM} = (1 - \widehat{x}^{FM})N = \left(\frac{1}{2} + b\frac{q_M^{FM} - q_F^{FM}}{2t} + \frac{p_F^{FM} - p_M^{FM}}{2t}\right)N. \tag{18}$$

3.3 Market equilibrium

From (1) and (2), profit functions depend on the firm's ownership structure. In market structure (F, M), firm F's profit is given by

$$\Pi_F^{FM} = (p_F^{FM} - \alpha w_F^{FM})D_F^{FM} = (p_F^{FM} - \alpha w_F^{FM})\left(\frac{1}{2} - b\frac{q_M^{FM} - q_F^{FM}}{2t} - \frac{p_F^{FM} - p_M^{FM}}{2t}\right)N, \tag{19}$$

where the price-cost margin incorporates the linear technology constraint (3).

The mission-oriented firm, M, instead maximizes

$$\Pi_M^{FM} = (p_M^{FM} - \alpha w_M^{FM} - \beta)D_M^{FM} = (p_M^{FM} - \alpha w_M^{FM} - \beta)\left(\frac{1}{2} + b\frac{q_M^{FM} - q_F^{FM}}{2t} + \frac{p_F^{FM} - p_M^{FM}}{2t}\right)N, \tag{20}$$

where β is the extra per-unit cost paid to commit to a mission. The mission-oriented firm sacrifices a share βD_M of its profit in the social interest. The forgone profit has some positive return in social welfare, as it will be shown later on, when presenting the social welfare function. The positive impact generated by βD_M on the social welfare justifies the larger premium for motivation that workers obtain when employed by the mission-oriented firm compared to the premium they obtain when employed by the standard firm. However, as we mentioned in Section 2, the mission is chosen strategically to attract motivated workers and, thus, the firm does not incorporate the positive externality in its profit function.

Recall that, according to constraint (3), firms must hire enough workers to serve their users. Using (17) and (18), conditions (8) and (9), can be rewritten as (for simplicity, we omit the superscripts)

$$\frac{w_F(1+\delta) - w_M - \delta\overline{w}}{k\delta}L = \alpha N\left(\frac{1}{2} - b\frac{q_M - q_F}{2t} - \frac{p_F - p_M}{2t}\right); \tag{21}$$

$$\frac{k\delta - w_F + w_M}{k\delta}L = \alpha N\left(\frac{1}{2} + b\frac{q_M - q_F}{2t} + \frac{p_F - p_M}{2t}\right). \tag{22}$$

Solving for p_F and p_M, one can rewrite each firm's price as a function of its salaries, i.e., $p_F(w_F)$ and $p_M(w_M)$. Rearranging the expressions, one obtains

$$p_F(w_F) = p_M + t - \frac{1}{2}b\left((1+\delta)k + 2w_F - w_M - \overline{w}\right) - \frac{2tL}{\alpha N}\frac{(1+\delta)w_F - w_M - \delta\overline{w}}{k\delta}, \tag{23}$$

$$p_M(w_M) = p_F + t + \frac{1}{2}b\left((1+\delta)k + 2w_F - w_M - \overline{w}\right) - \frac{2tL}{\alpha N}\frac{k\delta + w_M - w_F}{k\delta}. \tag{24}$$

Not surprisingly, the price of each firm reacts positively to an increase in the price of the other firm. We can also obtain, for further use, the derivative of the prices of each firm with respect to the salaries it offers to workers:

$$\frac{\partial p_F}{\partial w_F} = -\left(b + \frac{2tL(1+\delta)}{\alpha k\delta N}\right) < 0, \tag{25}$$

$$\frac{\partial p_M}{\partial w_M} = -\left(\frac{b}{2} + \frac{2tL}{\alpha k\delta N}\right) < 0. \tag{26}$$

If, everything else being equal, firm j increases its salary rate, it attracts more workers. Then, it can serve a larger fraction of the demand, leading to a drop in its user price.

From (10), total employment must be αN so that

$$L_F + L_M = \left(1 - \frac{\overline{w} - w_F}{k}\right)L = \alpha N.$$

Solving for w_F, we obtain

$$w_F^{FM} = \overline{w} - k\frac{L - \alpha N}{L}. \tag{27}$$

This implies that the equilibrium salary w_F^{FM} is entirely determined by the constraints.

The market equilibrium is given by the solution to the following simultaneous programs, where each firm takes the price and salary set by the rival firm as given:[8]

$$\max_{w_F}\Pi_F^{FM}\left(p_F\left(w_F\right), p_M, w_F, w_M\right) = \left(p_F(w_F) - \alpha w_F\right)\frac{L}{\alpha}\frac{w_F(1+\delta) - w_M - \delta\overline{w}}{k\delta}$$
$$s.t.: p_F(w_F) = p_M + t - \frac{1}{2}b\left(k + 2w_F - w_M - \overline{w}\right) - \frac{2tL}{\alpha N}\frac{w_F(1+\delta) - w_M - \delta\overline{w}}{k\delta};$$

and

$$\max_{w_M}\Pi_M^{FM}\left(p_F, p_M\left(w_F\right), w_F, w_M\right) = \left(p_M(w_M) - \alpha w_M - \beta\right)\frac{L}{\alpha}\frac{k\delta - w_F + w_M}{k\delta}$$
$$s.t.: p_M(w_M) = p_F + t + \frac{1}{2}b\left(k + 2w_F - w_M - \overline{w}\right) - \frac{2tL}{\alpha N}\frac{k\delta - w_F + w_M}{k\delta}.$$

After simplification, the FOC of $\Pi_F^{FM}(\cdot)$ w.r.t. w_F writes

$$\left(\frac{\partial p_F}{\partial w_F} - \alpha\right)\left[w_F(1+\delta) - w_M - \delta\overline{w}\right] + (p_F - \alpha w_F)(1+\delta) = 0, \tag{28}$$

[8] We have previously derived w_F (see expression (27)); however, to solve for the equilibrium, we must treat it as part of the system. This yields a system of four equations in four unknowns—p_F, p_M, w_F, w_M—as shown below.

where $\partial p_F/\partial w_F$ is given by (25).

Similarly, the FOC of $\Pi_M^{FM}(\cdot)$ w.r.t. w_M can be simplified to

$$\left(\frac{\partial p_M}{\partial w_M} - \alpha\right)[k\delta - w_F + w_M] + (p_M - \alpha w_M - \beta) = 0, \tag{29}$$

where $\partial p_M/\partial w_M$ is given by (26).

To sum up, an equilibrium in the mixed market structure is the solution to a system of four equations in four unknowns (p_F, p_M, w_F, and w_M) where the equations are the two FOCs w.r.t. the salaries (i.e., equations (28) and (29)), and the price equations (23) and (24).[9]

The expressions of the equilibrium prices and salaries are reported in the Appendix.

We summarize the results in the following Proposition.

Proposition 1 ***Mixed market structure.*** *(i) The interior equilibrium in a mixed market structure solves a system of four equations in four unknowns given by the price equations (23) and (24) and the firms' FOCs w.r.t. salaries, (28) and (29). (ii) The salary paid to the workers employed by the standard firm, w_F^{FM}, is given by expression (27) and is fully determined by the model's constraints. (iii) The interior equilibrium implies quality differentiation, with the standard firm specializing in low quality and the mission-oriented firm specializing in high quality. The quality difference in equilibrium is given by the expression (16). In general, the marginal consumer location, $\widehat{x}^{FM}$, is different from* $1/2$.

The market for users is fully covered and, because of the linear technology, the number of of workers necessary to serve all users is fixed (and equal to α). This implies that the salary paid to workers employed by the standard firm, w_F^{FM}, is fixed and given by expression (27) (see part (*ii*) in the above proposition). In other words, the equations (23), (24), (28) and, (29) imply expression (27), because (23) and (24) already incorporate the technology constraint linking the number of consumers and workers. Thus, the share of workers employed outside the collective goods sector, $\widetilde{\gamma}^{FM}$, only depends on the relative number of workers and users, and on the parameter α. It is the same irrespective of the market structure, as it will be stated in Proposition 2 referring to symmetric equilibria. Part (*iii*) of the above proposition states the difference in average quality offered by the two firms is given by expression (16), which decreases asw_M^{FM} increases. Intuitively, as the mission-oriented firm's wage increases, the marginal worker it attracts has a lower motivation. This reduces the average motivation of the firm's workers and thus the firm's quality.

[9] We focus on interior equilibria, where $0 < \widetilde{\gamma} < \widehat{\gamma} < k$. If the solution to the system of equations (23), (24), (28) and, (29) does not satisfy the chain of inequalities above, then the equilibrium will imply a corner where either only firm M is active (if $\widetilde{\gamma} > \widehat{\gamma}$) or only firm F is active (if $\widehat{\gamma} \geq k$).

4 Symmetric market structures

The labor market and the market for users are described below in the case of symmetric market structures (F, F) and (M, M), i.e., with either two standard or two mission-oriented firms. We concentrate on symmetric equilibria where firms offer the same wage, and workers sort randomly between them. Consequently, the quality of services provided by each firm is identical in equilibrium. To distinguish between firms, it is convenient to use the subscript i in this section.

4.1 Two standard firms

In a labor market with two standard firms, a worker accepts to be employed in the mission-driven sector if $v^{FF}(\gamma) = w^{FF} + \gamma > \overline{w}$. Hence, workers with $\gamma \geq \widetilde{\gamma}^{FF}$ enter the sector, with

$$\widetilde{\gamma}^{FF} = \overline{w} - w^{FF} > 0. \tag{30}$$

Recalling that total employment in the mission-driven sector must be equal to αN, the following condition holds:

$$1 - \frac{\widetilde{\gamma}^{FF}}{k} = \alpha N. \tag{31}$$

Solving (31) for $\widetilde{\gamma}^{FF}$ and substituting it into (30) allows to derive w^{FF}:

$$w_1^{FF} = w_2^{FF} = w^{FF} = \overline{w} - k\frac{L - \alpha N}{L}. \tag{32}$$

Hence, due to the firms' linear technology, the wage paid to workers in standard firms is identical under both the mixed market structure and the symmetric structure with two standard firms. As a result, the threshold separating the mission-driven sector from the outside-option sector is also identical across the two market structures: $\widetilde{\gamma}^{FF} = \widetilde{\gamma}^{FM}$.

In the symmetric case, workers sort randomly between the two identical firms, resulting in equal service quality across both companies: $q_1^{FF} = q_2^{FF}$. Consequently, we just have to determine prices. Profits are given by

$$\Pi_i^{FF} = (p_i - \alpha w^{FF})N\left(\frac{1}{2} - \frac{p_i - p_{-i}}{2t}\right),$$

where $-i$ indicate i's competitor. The FOC with respect to p_i is

$$N\left(\frac{1}{2} - \frac{p_i^{FF} - p_{-i}^{FF}}{2t}\right) - \frac{(p_i^{FF} - \alpha w^{FF})}{2t}N = 0.$$

In a symmetric equilibrium, $p_1^{FF} = p_2^{FF} = p^{FF}$, and the FOC above can be rewritten as

$$\frac{1}{2} - \frac{(p^{FF} - \alpha w^{FF})}{2t} = 0 \iff p^{FF} = t + \alpha w^{FF}.$$

Using the expression for w^{FF} in (32), the equilibrium price is then

$$p^{FF} = t + \alpha\overline{w} - \alpha k \frac{L - \alpha N}{L}. \tag{33}$$

The price is smaller when competition is intense (low t). When $t = 0$, the price is equal to the marginal cost, represented by the labor cost per worker αw^{FF}.

The profit of each firm is

$$\Pi^{FF} = \frac{1}{2}N(p^{FF} - \alpha w^{FF}) = \frac{1}{2}Nt. \tag{34}$$

4.2 Two mission-oriented firms

A worker enters the mission-driven sector with two competing mission-oriented firms if

$$v^{MM}(\gamma) = w^{MM} + (1+\delta)\,\gamma > \overline{w}.$$

Hence, workers with $\gamma \geq \widetilde{\gamma}^{MM}$ enter the sector, where

$$\widetilde{\gamma}^{MM} = \frac{\overline{w} - w^{MM}}{1+\delta} > 0. \tag{35}$$

Recalling that total employment in the mission-driven sector must be equal to αN, we obtain

$$1 - \frac{\widetilde{\gamma}^{MM}}{k} = \alpha N.$$

Comparison with (31) shows that $\widetilde{\gamma}^{FF} = \widetilde{\gamma}^{MM}$. Substituting for $\widetilde{\gamma}^{MM}$ in (35) and solving for w^{MM} yelds

$$w^{MM} = \overline{w} - (1+\delta)k\frac{L - \alpha N}{L} < w^{FF}. \tag{36}$$

Workers employed in a mission-driven sector with two mission-oriented firms receive lower wages than in a market structure with two standard firms, as they are (partially) compensated by the motivational premium δ.

Again, service quality is the same for the two firms $q_1^{MM} = q_2^{MM}$. The analysis is essentially the same as before, except that firms pay here the extra β in the price-cost margin. The equilibrium prices are

$$p_1^{MM} = p_2^{MM} = p^{MM} = t + \beta + \alpha w^{MM} = t + \beta + \alpha\overline{w} - \alpha(1+\delta)k\frac{L - \alpha N}{L}, \tag{37}$$

which shows that the extra cost β is fully transferred to users.

The profit of each firm is

$$\Pi^{MM} = \frac{1}{2}N(p^{MM} - \alpha w^{MM} - \beta) = \frac{1}{2}Nt, \tag{38}$$

which is exactly the same profit as firms obtain under market structure (F, F).

4.3 Comparison of the two symmetric equilibria

In the two symmetric market structures, equilibrium quality levels are given by

$$q^{FF} = \frac{\widetilde{\gamma}^{FF} + k}{2},$$
$$q^{MM} = (1+\delta)\frac{\widetilde{\gamma}^{MM} + k}{2},$$

where, $\widetilde{\gamma}^{FF} = \widetilde{\gamma}^{MM} = \widetilde{\gamma}^{FM}$, Hence,

$$q^{FF} < q^{MM}.$$

Substituting equilibrium values for the threshold values $\widetilde{\gamma}^{FF} = \widetilde{\gamma}^{MM} = \widetilde{\gamma}^{FM}$, we obtain the expressions for qualities in the symmetric equilibria:

$$q^{FF} = k\frac{2L - \alpha N}{2L}, \tag{39}$$
$$q^{MM} = (1+\delta)k\frac{2L - \alpha N}{2L}. \tag{40}$$

Thus, the quality difference is $\Delta q = q^{MM} - q^{FF} = \delta k\,(2L - \alpha N)\,/2L$, which is increasing in δ.

Comparing prices (33) and (37) we observe that

$$p^{MM} - p^{FF} = \beta - \alpha\delta k\frac{L - \alpha N}{L} \lesseqgtr 0.$$

Whether users derive higher or lower utility in a market with two mission-oriented firms depends on the relative magnitude of the additional cost β and the utility premium δ. To derive a specific condition, we can compare utilities u^{MM} and u^{FF} in the two symmetric equilibria. In Appendix 7 we show that for every user in the interval $x \in [0, 0.5]$, the following holds:

$$u^{MM} \geq u^{FF} \Longleftrightarrow \beta \leq \beta^* \equiv \frac{\delta k}{2L}\left(2L\,(\alpha + b) - \alpha N\,(2 + b)\right). \tag{41}$$

In words, if the extra cost related to the mission is below the threshold β^*, then users' surplus is larger with two mission-oriented firms. Intuitively, the threshold β^* increases with the motivational premium δ received by intrinsically motivated workers in mission-oriented firms.

Now, let us derive workers' utility in the two symmetric equilibria using expressions (4) and (5). For all workers employed in the mission-driven sector, i.e., workers whose motivation is $\gamma \geq \widetilde{\gamma}^{MM} = \widetilde{\gamma}^{FF}$, where $\widetilde{\gamma}^{MM}$ and $\widetilde{\gamma}^{FF}$ have been derived in (30) and (35), the following holds:

$$v^{MM}(\gamma) = \overline{w} + (1+\delta)\left(\gamma - k\frac{L - \alpha N}{L}\right),$$
$$v^{FF}(\gamma) = \overline{w} + \gamma - k\frac{L - \alpha N}{L},$$

which shows that, for all $\gamma \geq \widetilde{\gamma}^{MM} = \widetilde{\gamma}^{FF}$, the inequality $v^{MM}(\gamma) > v^{FF}(\gamma)$ holds. Hence, workers' lower salary in the symmetric duopoly with two mission-oriented firms is more than compensated for by the additional premium for intrinsic motivation accruing workers in mission-oriented firms.

To sum up, the trade-off between the two symmetric market structures is the following: mission-oriented firms pay the additional per unit cost β, but their workers obtain a higher utility, and their users are provided with higher quality. The following proposition summarizes the above comparison of equilibria in the symmetric market structures:

Proposition 2 ***Symmetric market structures.*** *(i) The worker indifferent between the mission-driven sector and the outside option is the same across the symmetric and mixed market structures: $\tilde{\gamma}^{FF} = \tilde{\gamma}^{MM} = \tilde{\gamma}^{FM}$. (ii) Workers' surplus is larger in the mission-oriented symmetric market structures than in one with two standard firms. (iii) The marginal user in both symmetric market structures is $\hat{x}^{MM} = \hat{x}^{FF} = 1/2$. (iv) Mission-oriented firms pass through all the extra cost β to users. Quality is higher with two mission-oriented firms than with two standard firms. For $\beta \leq \beta^*$, where β^* is defined in (41), consumer surplus is larger in the symmetric mission-oriented market structure. (v) In the symmetric market structures, mission-oriented and standard firms earn the same profits: $\Pi^{MM} = \Pi^{FF}$.*

5 Mission choice

In the first stage, when choosing whether to become or not mission-oriented, firms play the game illustrated by the symmetric matrix depicted in Table 1. Recall that, when a firm chooses to be mission-oriented, it commits to paying the additional unit cost β required to adhere to the mission, thereby benefiting from the increased quality associated with the motivational premium δ accruing to its employees. In Table 1, $\Pi^{sym} = \Pi^{MM} = \Pi^{FF}$ represents the profit earned by each firm in symmetric market structures (see Proposition 2). In contrast, the profits Π_M^{FM} and Π_F^{FM} are derived by substituting the equilibrium prices and salaries, characterized in the mixed market structure of Proposition 1 and detailed in the appendix, into expressions (19) and (20), respectively.[10]

Firm 1 \ Firm 2	F	M
F	Π^{sym}, Π^{sym}	Π_F^{FM}, Π_M^{FM}
M	Π_M^{FM}, Π_F^{FM}	Π^{sym}, Π^{sym}

Table 1: **First stage of the game**. *The firms' payoff matrix when they choose their ownership structure.*

[10]For each ownership type, profits in the (F, M) market structure are the same as in the (M, F) structure, i.e. $\Pi_M^{MF} = \Pi_M^{FM}$ and $\Pi_F^{MF}\Pi_F^{FM}$.

We assume the following tie-breaking rule: if a firm is indifferent between a mixed and a symmetric market structure, it chooses the mixed structure. Then, from the matrix of Table 1, we can derive the following result.

Proposition 3 ***First stage.*** *(i) When $\Pi^{sym} \leq \min\{\Pi_F^{FM}, \Pi_M^{FM}\}$, there are two Nash equilibria in pure strategies corresponding to the mixed market structures (F, M) and (M, F). (ii) When $\Pi_M^{FM} < \Pi^{sym} \leq \Pi_F^{FM}$, the Nash equilibrium is unique and symmetric, with each firm choosing to be standard, leading to the market structure (F, F). (iii) When $\Pi_F^{FM} < \Pi^{sym} \leq \Pi_M^{FM}$, the Nash equilibrium is unique and symmetric, with each firm choosing to be mission-oriented, resulting in the market structure (M, M). (iv) When $\Pi^{sym} > \max\{\Pi_F^{FM}, \Pi_M^{FM}\}$, there are two Nash equilibria generating the symmetric market structures (F, F) and (M, M).*

As mentioned before, in the two symmetric equilibria, the profits of all firms are identical, each equal to $(Nt)/2$. These profits do not depend on β or δ, and they increase with the transportation cost t, which represents the inverse of the intensity of competition among firms in the consumer market. In the mixed equilibrium, instead, firms' profits also depend on the magnitudes of the key parameters: the extra cost β and the additional utility premium δ.

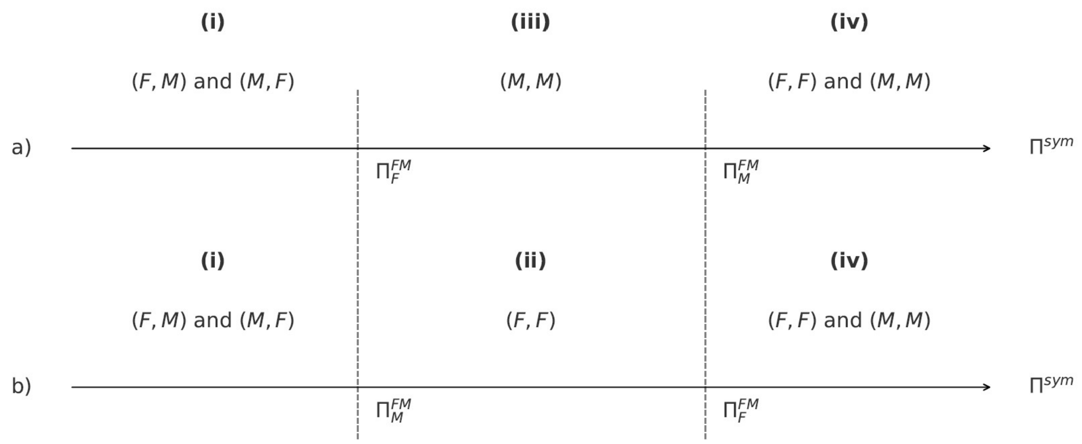

Figure 1: **Equilibrium Market Structures as a Function of Π^{sym}.** *The figure illustrates Proposition 3 and the Nash equilibria of the game as Π^{sym} increases. In a), $\Pi_F^{FM} > \Pi_M^{FM}$ while in b) the opposite inequality holds. In (i), two equilibria with mixed market structures (F, M) and (M, F) emerge when Π^{sym} is low. In (ii), the unique symmetric equilibrium with two standard firms (F, F) arises when $\Pi_M^{FM} < \Pi^{sym} < \Pi_F^{FM}$. In (iii), the unique symmetric equilibrium with two mission-oriented firms (M, M) arises when $\Pi_F^{FM} < \Pi^{sym} < \Pi_M^{FM}$. In (iv), two equilibria with symmetric market structures (F, F) and (M, M) arise for large Π^{sym}.*

Figure 1 illustrates Proposition 3. In cases (i) and (iv) in Proposition 3 we have multiple equilibria, whereas points (ii) and (iii) correspond to situations where a unique equilibrium arises. In points (ii) and (iii), whether $\Pi_F^{FM} > \Pi_M^{FM}$ or the opposite holds depends on the comparative advantage of firm F: when β is sufficiently low and δ sufficiently high, the mission-oriented firm earns relatively higher profits than the standard firm under the mixed market structure. When β is sufficiently high and δ sufficiently low, the opposite holds.

To gain further insights into the market structure that emerges in equilibrium, and specifically to analyze how the equilibrium depends on the parameters δ and β, we consider an example. The example illustrates the transition from points (i), (ii), and (iii) in Proposition 3, showing how the market moves from a mixed equilibrium to a symmetric equilibrium. Figure 2 shows the equilibria that emerge in the space (δ, β) for given levels of the other variables.[11] In the blue area, the equilibrium is (M, M) (point (iii) of the proposition). In the red area, we obtain a mixed market structure, either (M, F) or (F, M) (point (i) of the proposition). Finally, in the yellow area, the equilibrium is (F, F) (point (ii) of the proposition).[12] To interpret Figure 2, we can, for instance, consider a given level of δ. If δ is relatively large—around 0.15 or larger—the equilibrium involves two mission-oriented firms, no matter the cost β. For lower levels of δ, the equilibrium outcome depends on β. When the extra cost is small, we obtain an equilibrium with two mission-oriented firms. Conversely, when the extra cost is large, the equilibrium involves two standard firms. These two properties are in line with intuition. Finally, for intermediate levels of β, a mixed equilibrium emerges. Interestingly, this configuration is not specific to the considered example but is general as long as both firms are active in equilibrium.

To see that Figure 2 depicts a general pattern, note that the upper frontier of the red area is characterized by $\Pi^{sym} = \Pi_F^{FM}$ while the lower line is defined by $\Pi^{sym} = \Pi_M^{FM}$. Those frontiers are the ones appearing in points (i)-(iii) of Proposition 3 in the inequalities defining mixed and symmetric market structures. Intuitively, the two frontiers are increasing functions, implying that, to maintain indifference between alternative market structures, an increase in δ must be compensated by an increase in β. In other words, to preserve indifference, a higher additional cost associated with adhering to the mission necessitates a corresponding increase in the benefits derived from workers' motivation.

The following proposition is established in the appendix.

Proposition 4 *Define $\beta^F(\delta)$ as the solution to $\Pi^{sym} = \Pi^F$ with respect to β, and $\beta^M(\delta)$ as the solution to $\Pi^{sym} = \Pi^M$. For any level of δ for which the two solutions exist, we have $\beta^M(\delta) > \beta^F(\delta)$.*

[11] For illustrative purposes, we present the results for a limited range of δ and β over which the equilibrium is interior. The figures are qualitatively similar across different parameter ranges, provided that the equilibrium remains interior.

[12] The case corresponding to point (iv) in the proposition never occurs in this example for this range of parameters.

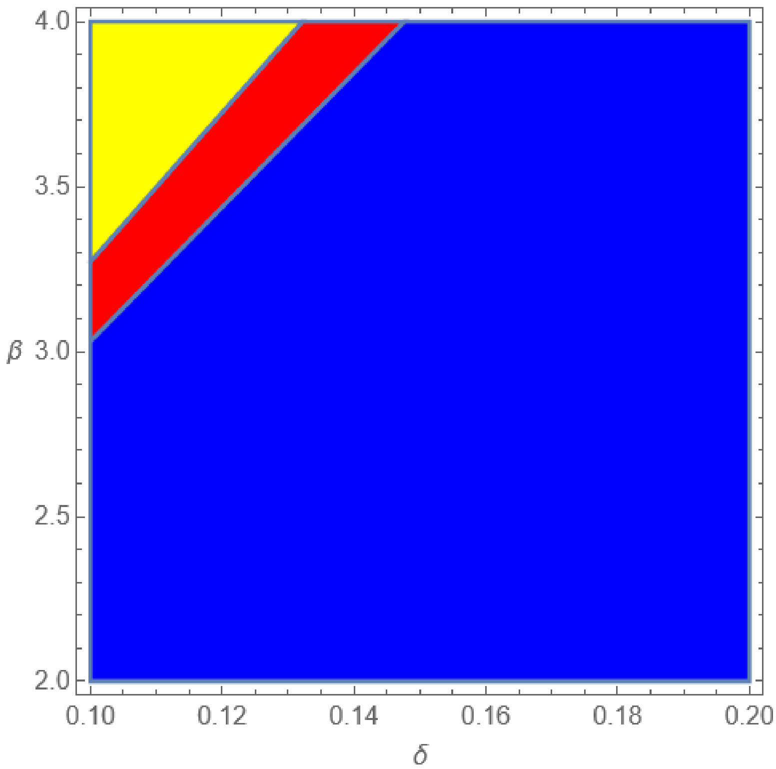

Figure 2: **Equilibrium market structures in the space (δ, β), an example.** *The blue area designs the parameter space such that the equilibrium is (M,M) (point (iii) of Proposition 3). The red area represents the parameter space inducing a mixed equilibrium (point (i) of the proposition). In the yellow area, the resulting equilibrium is (F,F) (point (ii) of the proposition). Parameters are, $N = 100$, $L = 200$, $\alpha = 0.2$, $k = 10$, $b = 2$, $\bar{u} = 10$, $\bar{w} = 100$, $t = 1$.*

Consequently, the equilibrium with two mission-oriented firms emerges when the extra cost β is relatively low compared to the extra motivation δ. Conversely, when β is large compared to δ, the equilibrium implies two standard firms. Finally, the mixed equilibrium occurs for "intermediate" levels of β and δ. In this region, the cost associated with the additional motivation is too high for two mission-oriented firms to coexist in equilibrium. However, there is room for one mission-oriented firm, which, by sharing the market with a standard firm, can attract the most motivated workers, for whom the premium (which is multiplicative) has the greatest impact. This enables the mission-oriented firm to offer higher quality, thereby compensating for the higher cost.

In the appendix, we present specific examples corresponding to three different points in the space $(\delta, \beta) = (0.12, \beta)$ of Figure 2, with β taking the values 3, 3.5, and 4.[13] For these levels of β, the profits, prices, wages, and qualities of the two firms are reported in Tables 2-4, along with the marginal worker's motivation, the marginal consumer's location, associated with different market structures. We also present the corresponding social welfare, which will be defined and discussed in the next section.

6 Welfare analysis

In this section, we study the optimal market structure from a social perspective and compare it with the market structure emerging in equilibrium. We consider a social welfare function that is the sum of firms' profits, users', and workers' utility, and the positive externality generated by mission-oriented firms.

$$W = \Pi_1 + \Pi_2 + CS + WS + \mu\beta D_M^{\Theta}, \tag{42}$$

where $0 \leq \mu \leq 1$ and D_M^{Θ} is the share of patients that mission-oriented firms serve in equilibrium, with $\Theta \in \{(F,F),(F,M),(M,F),(M,M)\}$. Then, the term βD_M^{Θ} is the share of the profits sacrificed by mission-oriented firms. This profit loss translates into the positive externality $\mu\beta D_M^{\Theta}$. In a mixed market structure, In a symmetric market structure with two mission-oriented firms, we of course have $D_M^{MM} = 1$ while $D_M^{FF} = 0$ when the two firms are standard.

Given the labor and user market equilibria in the three different market structures, which one yields the highest social welfare? Mission-oriented firms have a competitive advantage due to higher worker motivation, which translates into higher service quality. Additionally, mission-oriented firms contribute positively to social welfare by generating externalities while pursuing their mission. However, they are less cost-effective than standard firms due to the per-unit extra cost, β. The optimal market structure, therefore, strikes a balance between a mission-oriented firm's cost-effectiveness and motivation.

[13]In other words we consider three levels of β on a vertical line in the (δ, β) space.

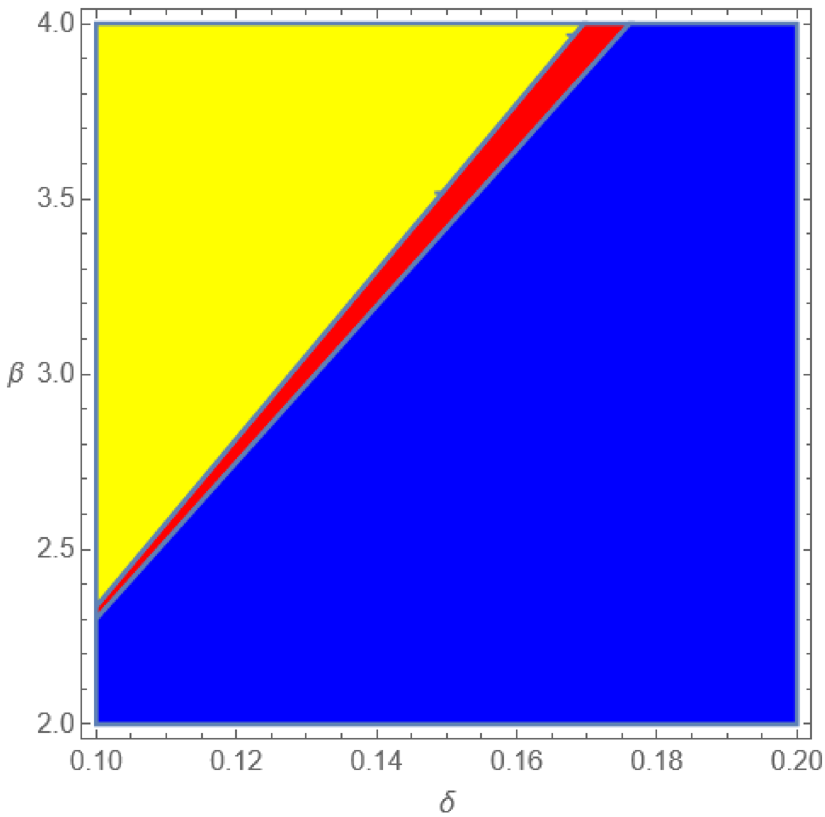

Figure 3: **Optimal market structures in the space (δ, β) with low positive externality**. *The blue area defines the parameter space such that (M,M) dominates from a social perspective. The red area designs the parameter space for which a mixed market structure is optimal. In the yellow area, the optimal market structure is (F,F). Parameters are,* $N = 100$, $L = 200$, $\alpha = 0.2$, $k = 10$, $b = 2$, $\bar{u} = 10$, $\bar{w} = 100$, $t = 1$, $\mu = 0.1$.

Recall that, from Proposition 2, we know that workers' surplus is greater in the (M, M) market structure than in the (F, F) structure. Additionally, for $\beta \leq \beta^*$, where β^* is defined in (41), consumer surplus is larger in (M, M) than in (F, F). However, we cannot make direct comparisons between workers' and consumer surpluses in symmetric versus asymmetric market structures, and we need to resort to simulated examples.

Figure 3 and Figure 4 illustrate the areas in the (δ, β) space where each market structure is socially optimal. Parameters are the same as in Figure 2, but Figures 3 and 4 differ in the level of μ (the share of M's extra cost which translates into the positive social externality). In Figure 3, $\mu = 0.1$, while in Figure 4, $\mu = 0.4$.[14] Consequently, Figure 2 depicts the reference equilibria to be compared to the social optima described in Figures 3 and 4.

[14]We have not indicated the level of μ in Figure 2 because it is irrelevant for the equilibrium market structure.

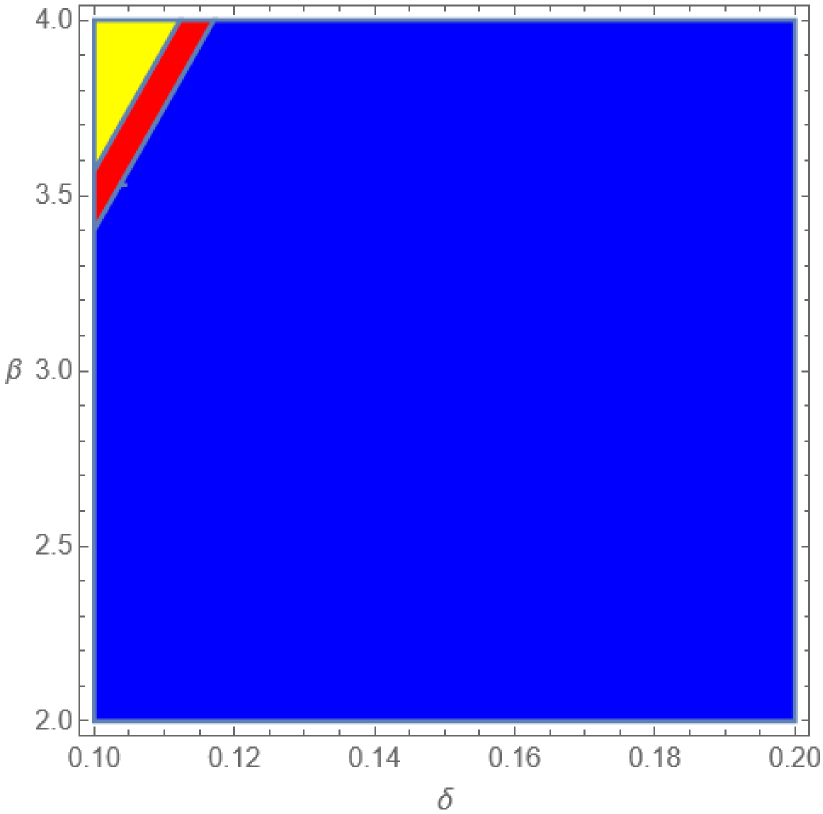

Figure 4: **Optimal market structures in the space** (δ, β) **with high positive externality.** *The blue area indicates the parameter space such that (M,M) dominates from a social perspective. The red area depicts the parameter space for which a mixed market structure is optimal. In the yellow area, the optimal market structure is (F,F). Parameters are,* $N = 100$, $L = 200$, $\alpha = 0.2$, $k = 10$, $b = 2$, $\bar{u} = 10$, $\bar{w} = 100$, $t = 1$, $\mu = 0.4$.

These Figures, albeit different, display a pattern that resembles the one represented in Figure 2. When β is low relative to δ, it is optimal to have a market structure with two mission-oriented firms: (M, M). Conversely, when β is large compared to δ, a market structure with two standard firms is optimal: (F, F). Finally, the mixed market structure is optimal for intermediate levels, as it strikes a compromise between cost and motivation. In the red area, the extra cost β is too large for (M, M) to be optimal. However, the extra cost is incurred only by one firm, which in turn hires more motivated workers and provides higher quality to users. Furthermore, the mixed structure allows workers to be efficiently matched to firms, which is not the case under the symmetric market structures. The mission-oriented firm recruits the most motivated workers who benefit most from the motivational premium, since the premium is equal to their motivation multiplied by $1 + \delta > 1$. The quality offered to users is multiplicative in a similar way, so that users benefit the most from highly motivated workers in the mixed market structure. Conversely, the low-motivated workers are efficiently matched with the standard firm.

Comparing Figures 3 and 4 also reveals that an increase in the social value of the mission, μ, enlarges the blue area, corresponding to the symmetric, mission-oriented, market structure. Conversely, the red area, representing the mixed market structure, shifts upward, and the yellow area, representing two standard firms, shrinks. Although this is not explicitly shown, it is clear that two mission-oriented firms will be optimal across the entire space when the externality is sufficiently large.

There is no reason to expect the equilibrium to always be optimal. First, firms fail to internalize the welfare externality associated with the mission when choosing between mission-oriented and standard statuses. Second, they do not account for users' transportation costs or the optimal sorting of workers. Finally, firms do not coordinate in the first stage of the decision-making process.

Indeed, the blue (M, M) and yellow (F, F) areas in Figure 2, on the one hand, and in Figures 3 and 4, on the other hand, intersect but do not coincide. Similarly, the red area in the three figures (either (F, M) or (M, F)) do not intersect, which depends on the level of μ. In Figure 3, where the social value of the mission μ is relatively low, the combined blue and red areas are smaller than in Figure 2. As a result, in Figure 2, the parameter space where at least one firm chooses to become mission-oriented in equilibrium (represented by the sum of the red and blue areas) is larger than it would be from an optimal perspective. Conversely, in Figure 4, where μ is large, the sum of the two areas exceeds that in Figure 2, indicating that this parameter space is too small from a social welfare standpoint. No general conclusions can be drawn regarding the relative positioning of the equilibrium and optimal mixed equilibrium areas, as this depends on the level of μ.

The intuition behind the alignment in the shapes of the colored areas in Figures 2-4 is that the same underlying trade-off between cost efficiency and worker motivation shapes both equilibrium and socially optimal outcomes. Even if firms do not account for the full social value of the mission, consumers' transportation cost, and workers' efficient sorting, their private incentives still reflect the basic economic forces at play—making mission orientation more attractive when it brings a substantial profit/quality advantage at manageable cost. Hence, while each region's boundaries differ, the parameter space structure supports similar configurations in both private and social optima.

As mentioned in the previous section, Tables 2–4 provided in the appendix present the detailed results for three specific points (δ, β) belonging to Figure 2. The level of δ is fixed at 0.12, while three values of β, namely 3, 3.5, and 4 are considered. In addition, in all three examples, the externality is assumed to be $\mu = 0.1$. In line with Proposition 3 and Figure 2, we obtain that a symmetric duopoly with two mission-oriented firms, (M, M), is the equilibrium for the low value of β ($\beta = 3$), while the equilibrium market structure is (F, F) for the high level of β ($\beta = 4$). For the intermediate value of β ($\beta = 3.5$), the mixed market structure emerges as the equilibrium. Consistent with the intuition provided above, we observe that the equilibrium market structure emerging in the examples from Tables 2–4 is Pareto optimal only in the case with $\beta = 4$ (Table 4), where it corresponds to (F, F). In the other two cases—Tables 2 and 3—the equilibrium market structure is inefficient.

7 Concluding remarks

This paper develops a theoretical framework to study how workers' intrinsic motivation and firms' ownership choices shape service quality and market outcomes in labor-intensive, mission-driven sectors. In many such sectors—such as healthcare, education, or social services—worker motivation is a key determinant of service quality, and mission-oriented organizations play an increasingly central role. We model a setting in which two organizations first choose whether to operate as standard for-profit or mission-oriented firms, and then compete both in the labor market and in the market for users. The firm's ownership type affects the sorting of workers by intrinsic motivation and, consequently, the quality of the services provided.

A central contribution of the paper is to endogenize both the quality of services and the market structure. We show that the possibility of adopting a mission-oriented structure gives rise to new and potentially more efficient market configurations compared to a benchmark in which only standard firms are allowed. Specifically, a mixed market structure—where a mission-oriented firm coexists with a standard one—can be Pareto superior to symmetric configurations, as it allows efficient sorting of motivated workers while avoiding redundant mission-related costs. The introduction of organizational heterogeneity enhances the market's capacity to match the characteristics of workers and users with the nature of providers, thereby increasing both firm-level performance and overall welfare. This mechanism complements the argument in Besley and Ghatak (2005), who show that the matching of workers with firms that share their mission preferences improves welfare by mitigating moral hazard and reducing agency frictions.

We formally characterize the conditions under which different ownership structures emerge in equilibrium, focusing on three key parameters: the motivational premium from employing intrinsically motivated workers, the per-unit cost of adhering to a mission, and the transportation cost that determines the intensity of competition in the user market. A mixed market structure arises when the motivational premium and the mission cost are both moderate. In contrast, when the motivational premium is high and the cost low, symmetric mission-oriented firms dominate, while high costs and low motivation lead to symmetric standard firms. Although equilibrium and socially optimal structures generally differ—since firms do not internalize the positive externality associated with the mission, the gains from optimal worker sorting, or users' transportation costs—the qualitative pattern across the two solutions is remarkably similar. This alignment reflects the fact that firms' private incentives, though incomplete from a social welfare perspective, still respond to the same fundamental economic trade-offs between cost efficiency and motivation-based quality.

The model also helps interpret empirical patterns observed in mission-driven sectors. In some sectors, we observe the coexistence of standard and mission-oriented firms within the same market. For example, in the long-term care sector, nursing homes frequently operate under heterogeneous ownership structures, including standard for-profit and mission-oriented firms. In other mission-driven sectors, by contrast, firms tend to be more homogeneous. When the mission is less salient, such as in the hospitality sector—where workers' motivation is nevertheless crucial for service quality—fewer firms become mission-oriented, and equilibria with standard firms are more common. Our analysis sheds light on these differences by showing that the prevailing market structure is shaped by the trade-off between the costs and benefits of adopting a mission. Heterogeneous firm types emerge when quality differentiation is valuable and the mission is not prohibitively costly; homogeneous structures prevail when market or organizational conditions favor a single dominant model.

Our findings offer several policy insights. First, targeted subsidies for mission-oriented firms can help correct for the social externalities these organizations generate but do not internalize. Since mission-oriented firms contribute to social welfare not only through higher service quality but also by producing positive externalities linked to their mission, financial support—such as direct subsidies, tax incentives, or preferential access to public contracts—can increase the alignment between socially optimal and market outcomes. However, our model also shows that the entry of mission-oriented firms is not always optimal and should not be encouraged in all cases. Whether, in equilibrium, there are too many or too few mission-oriented firms will depend on the size of the positive externality, on the level of the extra cost, and on the level of the motivational premium.

Second, policies that enhance transparency in the labor market can improve the matching between motivated workers and mission-oriented firms. Mechanisms such as public certification of a firm's mission orientation and disclosure of organizational values can reduce informational frictions. This, in turn, facilitates efficient sorting, allowing mission-oriented firms to attract the workers whose motivation most enhances service quality.

Finally, fostering diversity in firm ownership types, especially in mission-driven and regulated sectors such as health, education, and social care, can sustain market configurations that are both efficient and welfare-enhancing. Regulatory frameworks that accommodate and encourage a variety of organizational forms—such as benefit corporations, social enterprises, or cooperatives—can promote quality differentiation and allow markets to harness the distinct strengths of both mission-oriented and standard firms. Such institutional diversity supports the emergence of mixed market structures, which, as our analysis shows, can be Pareto superior under a broad range of conditions.

Our model opens several avenues for future research. A natural extension would be to endogenize the social value of the mission, allowing for interactions between public perception, institutional frameworks, and firm behavior. Another promising direction would be to introduce asymmetries across firms or imperfect information about ownership status, which may generate richer strategic behavior and new equilibrium patterns in mission-driven markets.

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Appendix

Salaries and prices in a mixed equilibrium

$$w_F^{FM} = w_F^{sym} = k\left(\frac{\alpha N}{L} - 1\right) + \overline{w},$$

$$\begin{aligned} w_M^{FM} = \; & \frac{1}{2\mathrm{L}(\alpha\delta kN(\alpha(2\delta+3)+b(\delta+2))+6(\delta+1)Lt)}\Big(\alpha\delta(\delta+1)k^2N\left(b(5\alpha N-4N)+6\alpha^2N-2\alpha(\delta+3)L\right) - \\ & 2kL\left(6(\delta+1)^2Lt - \alpha N(\delta(-\beta(\delta+1)+b(\delta+2)\overline{w}+\alpha(2\delta+3)\overline{w})+3(\delta+1)(\delta+2)t)\right)+12(\delta+1)L^2t\overline{w}\Big), \end{aligned}$$

$$\begin{aligned} p_F^{FM} = \; & \frac{1}{2L(\alpha\delta kN(\alpha(2\delta+3)+b(\delta+2))+6(\delta+1)Lt)}\Big(\alpha^2\delta k^2N^2\left(6\alpha^2-b^2+2\delta(2\alpha+b)^2+3\alpha b\right) \\ & + 2\alpha kNL\Big(-b^2\delta^2k + b\delta(\beta-\alpha(3\delta+2)k+\alpha(\delta+2)\overline{w}) + b(2\delta(\delta+2)-1)t \\ & + \alpha\delta(\beta-3\alpha(\delta+1)k+\alpha(2\delta+3)\overline{w}) + \alpha(\delta(4\delta+13)+6)t\Big) \\ & + 4(\delta+1)L^2t(-k(3\alpha+\delta(\alpha+b))+\beta+3t+3\alpha\overline{w})\Big), \end{aligned}$$

$$\begin{aligned} p_M^{FM} = \; & \frac{1}{4L(\alpha\delta kN(\alpha(2\delta+3)+b(\delta+2))+6(\delta+1)Lt)}\Big(\alpha^2\delta k^2N^2\left(4\alpha^2(4\delta+3)+b^2(3\delta+1)+6\alpha b(3\delta+2)\right) \\ & + 2\alpha kNL\Big(b^2(\delta+1)\delta^2k + b\delta(\beta(\delta+3)+\alpha(\delta+1)(3\delta-4)k+2\alpha(\delta+2)\overline{w}) \\ & + b(3\delta(\delta+3)+2)t + 2\alpha\delta(\beta-3\alpha(\delta+1)k+\alpha(2\delta+3)\overline{w}) + 4\alpha(\delta(3\delta+7)+3)t\Big) \\ & + 8(\delta+1)L^2t(b\delta k+2\beta-\alpha(2\delta+3)k+3t+3\alpha\overline{w})\Big). \end{aligned}$$

Derivation of β^* in symmetric equilibria

Using the definition of user utility in (**??**), we can show that the following holds:

$$u^{MM}(x) > u^{FF}(x) \Leftrightarrow \bar{u} + bq^{MM} - p^{MM} - tx^2 > \bar{u} + bq^{FF} - p^{FF} - tx^2.$$

Rearranging, we obtain

$$
\begin{aligned}
u^{MM}(x) > u^{FF}(x) &\Leftrightarrow bq^{MM} - p^{MM} > bq^{FF} - p^{FF} \\
&\Leftrightarrow b\delta k \frac{2L - \alpha N}{2L} - \beta + \alpha\delta k \frac{L - \alpha N}{L} > 0,
\end{aligned}
$$

where

$$
b\delta k \frac{2L-\alpha N}{2L} + \alpha\delta k \frac{L-\alpha N}{L} = \delta k \frac{1}{L}\left(b\frac{2L-\alpha N}{2} + \alpha\left(L - \alpha N\right)\right) = \frac{\delta k}{2L}\left(2L\left(\alpha + b\right) - \alpha N\left(2+b\right)\right).
$$

Hence, we can establish the following result

$$
u^{MM}(x) > u^{FF}(x) \Longleftrightarrow \frac{\delta k}{2L}\left(2L\left(\alpha+b\right) - \alpha N\left(2+b\right)\right) - \beta > 0.
$$

Proof of Proposition 4

Setting $\Pi^{sym} = \Pi^{F}$ we obtain two solutions for $\beta^{F}(\delta)$:

$$
\beta_1^F(\delta) = \frac{L(\alpha k N(b - 2\delta(2\alpha+b)) + 2\delta k L(\alpha+b) - 6Lt) - \frac{\sqrt{2}\sqrt{A}}{(\delta+1)(\alpha\delta k N(\alpha+b)+2(\delta+1)Lt)}}{2L^2},
$$

and

$$
\beta_2^F(\delta) = \frac{L(\alpha k N(b - 2\delta(2\alpha+b)) + 2\delta k L(\alpha+b) - 6Lt) + \frac{\sqrt{2}\sqrt{A}}{(\delta+1)(\alpha\delta k N(\alpha+b)+2(\delta+1)Lt)}}{2L^2},
$$

where

$$
A = (\delta+1)L^3 t(\alpha\delta k N(\alpha+b) + 2(\delta+1)Lt)(\alpha\delta k N(\alpha(2\delta+3) + b(\delta+2)) + 6(\delta+1)Lt)^2.
$$

It is straightforward to show that $\beta_1^F(\delta) < \beta_2^F(\delta)$.

Similarly, setting $\Pi^{sym} = \Pi^{M}$ we obtain two solutions for $\beta^{M}(\delta)$:

$$
\beta_1^M(\delta) = \frac{(\delta+1)L(\alpha k N(2\alpha\delta + 3b\delta + b) + 2(\delta+1)L(\delta k(\alpha+b) + 3t)) - \frac{2\sqrt{A}}{\alpha\delta k N(2\alpha+b)+4Lt}}{2(\delta+1)^2 L^2},
$$

and

$$
\beta_2^M(\delta) = \frac{(\delta+1)L(\alpha k N(2\alpha\delta + 3b\delta + b) + 2(\delta+1)L(\delta k(\alpha+b) + 3t)) + \frac{2\sqrt{A}}{\alpha\delta k N(2\alpha+b)+4Lt}}{2(\delta+1)^2 L^2},
$$

It is straightforward to show that $\beta_1^M(\delta) < \beta_2^M(\delta)$.

It is also possible to show (Mathematica codes are available upon request) that $\beta_1^M(\delta) > \beta_2^F(\delta)$, implying that, whichever root is selected, $\beta^M(\delta) > \beta^F(\delta)$.

	(F,M)	(F,F)	(M,M)
Total Welfare	1052	1082	1017
Consumer Surplus	914	972	871
Workers Surplus	10.3	10.0	11.2
Total profits	109	100	100
Π_1	52	50	50
$\Pi 2$	57	50	50
Externality	18	0	35
p_1	19.3	19.2	22.5
p_2	22.6	19.2	22.5
$p_2 - \beta$	19.1	-	19.0
w_1	91	91	89.9
w_2	89.9	91	89.9
q_1	9.2	9.5	10.6
q_2	10.9	9.5	10.7
$E[q]$	10.1	9.5	10.7
Marginal consumer $\hat{x}$	0.48	0.50	0.50
Marginal worker for the mission-driven sector, $\tilde{\gamma}$	9	9	9
Marginal worker between F and M, $\hat{\gamma}$	9.5	-	-

Table 2: **Total and disaggregated welfare for $\beta = 3.5$ and $\delta = 0.12$. The (inefficient) equilibrium market structure is (F,M).** *We assume that, in the mixed market structure, firm 2 is mission-oriented. Market structure (F,M) emerges as an equilibrium because $\Pi^{sym} < \Pi_F^{FM} < \Pi_M^{FM}$. Other parameters are, $N = 100$, $L = 200$, $\alpha = 0.2$, $k = 10$, $b = 2$, $\bar{u} = 10$, $\bar{w} = 100$, $t = 1$, and $\mu = 0.1$.*

Detailed examples

In the following tables, the first column indicates the variables' values in the mixed market structure (F,M), the second column indicates the variables' values in the symmetric duopoly (F,F), and the third column indicates variables' values in the symmetric duopoly (M,M). In the three examples, the optimal market structure is always the symmetric duopoly (F,F).

In Table 2, the key parameters take values $\beta = 3.5$; $\delta = 0.12$. The market structure (F,M) emerges as a Nash equilibrium because $\Pi^{sym} < \Pi_F^{FM} < \Pi_M^{FM}$, see Proposition 3.

In Table 3, we slightly decreased β to $\beta = 3$. In this case, the symmetric duopoly with two mission-oriented firms (M,M) emerges as a Nash equilibrium because $\Pi_F^{FM} < \Pi^{sym} < \Pi_M^{FM}$.

Finally, in Table 4, we slightly increased β to $\beta = 4$. In this case, the symmetric duopoly

	(F,M)	(F,F)	(M,M)
Total Welfare	1073	1082	1062
Consumers Surplus	932	972	921
Workers Surplus	10.4	10.0	11.2
Total profits	113	100	100
Π_1	37	50	50
Π_2	76	50	50
Externality	18	0	30
p_1	19.1	19.2	22.0
p_2	22.3	19.2	22.0
$p_2 - \beta$	19.3		19.0
w_1	91.0	91.0	89.9
w_2	89.9	91.0	89.9
q_1	9.2	9.5	10.7
q_2	11.9	9.5	10.6
$E[q]$	10.2	9.5	10.6
Marginal consumer $\hat{x}$	0.41	0.50	0.50
Marginal worker for the mission-driven sector, $\tilde{\gamma}$	9	9	9
Marginal worker between F and M, $\hat{\gamma}$	9.4	-	-

Table 3: **Total and disaggregated welfare for $\beta = 3$ and $\delta = 0.12$. The (inefficient) equilibrium market structure is (M,M).** *We assume that, in the mixed market structure, firm 2 is mission-oriented. The symmetric duopoly (M,M) emerges as an equilibrium because $\Pi_F^{FM} < \Pi^{sym} < \Pi_M^{FM}$. Other parameters are, $N = 100$, $L = 200$, $\alpha = 0.2$, $k = 10$, $b = 2$, $\bar{u} = 10$, $\bar{w} = 100$, $t = 1$, and $\mu = 0.1$.*

with two standard firms (F,F) emerges as a Nash equilibrium because $\Pi_M^{FM} < \Pi^{sym} < \Pi_F^{FM}$. This market structure is efficient, as it results in the highest social welfare.

	(F,M)	(F,F)	(M,M)
Total Welfare	1036	1082	972
Consumers Surplus	897	972	821
Workers Surplus	10.2	10.0	11.2
Total profits	112	100	100
Π_1	70	50	50
Π_2	42	50	50
Externality	18	0	40
p_1	19.5	19.2	23.0
p_2	23.1	19.2	23.0
$p_2 - \beta$	19.0	19.2	19.0
w_1	91.0	91.0	90.0
w_2	89.9	91.0	90.0
q_1	9.2	9.5	10.6
q_2	11.0	9.5	10.6
$E[q]$	11.0	9.5	10.6
Marginal consumer $\hat{x}$	0.6	0.5	0.5
Marginal worker for the mission-driven sector, $\tilde{\gamma}$	9	9	9
Marginal worker between F and M, $\hat{\gamma}$	9.6	-	-

Table 4: **Total and disaggregated welfare for** $\beta = 4$ **and** $\delta = 0.12$. **The equilibrium market structure is** (F,F)**, and is efficient.** *We assume that, in the mixed market structure, firm 2 is mission-oriented. The symmetric duopoly* (F,F) *emerges as an equilibrium because* $\Pi_M^{FM} < \Pi^{sym} < \Pi_F^{FM}$. *Other parameters are,* $N = 100$, $L = 200$, $\alpha = 0.2$, $k = 10$, $b = 2$, $\bar{u} = 10$, $\bar{w} = 100$, $t = 1$, *and* $\mu = 0.1$.