1 Note on language

For ease of reference, we refer to any patient –otherwise called client or worker– as "he", and to any doctor –or physician– as "she".

At this point it shall be noted that the first person plural (we) employed over the course of this article is to be read as a royal *we*, being that we claim sole authorship over this paper.

2 Model

We consider $i = 1, ..., I$ patients and $j = 1, ..., J$ doctors.

Patients are characterized by the tuple $(\kappa_i, \gamma_i) \in (\mathbb{R}_0^+)^2$, their "medical need" and "taste for sick leave" respectively, following the ex-ante cumulative distributions $F(k)$ and $G(\gamma)$.

Doctors are described by their "service quality" $V_j \in \mathbb{R}_0^+$, following the *ex-post*, empirical distribution $H(V)$.

A patient i visits a doctor for treatment and may be granted a sick leave certificate. As such, their utility function –implicitly dependent on his (κ_i, γ_i) tuple– is defined piece-wise as follows:

$$U_i(V_j) = \begin{cases} \gamma_i + V_j\kappa_i - \tau \qquad \text{if he's granted a certificate,} \\ V_j\kappa_i - \tau \qquad \text{if he only visits a doctor,} \\ 0 \qquad \text{if he doesn't see a doctor,} \end{cases}$$

As we see, there's three components to patient utility: an interaction between the patient's medical need κ_i and the physician's service quality V_j which implies their complimentarity, his "taste" for sick leave γ_i in the case he's granted one, and τ, the cost of visit, normalized across doctors.

Whereas patients may visit at most one doctor, a doctor may see several physicians. We define Q_j as the expected number of patients of doctor j, the demand for her services. We say "expected" because, as we'll see later on, patients may opt for a mixed strategy, assigning a certain *probability* to visiting j, and Q_j will be defined over the ex-ante probabilities of all patients and not their ex-post realization.

As doctor j has the option to grant a sick leave certificate to a given patient i which visits her, so we likewise define X_j as the *expected* number of such certificates doctor j will dole out, given her ex-ante client demand and how many of them would be granted one.

We now define the physician's utility function as follows:

$$U_j(Q_j, X_j) = R_j(Q_j) - P_j(X_j)$$

where $R_j(\cdot)$ is an individual, concave *revenue* function defined over expected total clients, and $P_j(\cdot)$ is a convex *punishment* function on X_j, grouping her personal preference as well as institutional incentives. The implication is that after a given number of patients the disutility of an additional certificate issued would outweigh doctor j financial incentives for further clientele.

Following (?, ?), we focus on *threshold equilibriums*, wherein each physician's strategy is the choice of a value $\bar{\kappa_j}$, such that of the patients who visit j, those with a κ_i value above or at that threshold will recieve a certificate, and those under it won't.

Now we define for each patient i a vector $S_i \in \Delta(\mathcal{J})$, where $\mathcal{J}$ is the the $1 \times J$ vector composed of all $1, ..., J$ doctors. S_i will be patient i's *strategy* for this game, representing his probabilistic choice of visit for each doctor j, such that each component $s_{i1}, ..., s_{iJ}$ of S_i stands for the probability that he'll visit doctors $1, ..., J$ respectively.

In order to describe a proper probability distribution, the following criteria must be met:

i. $\forall j,\ s_{ij} \geq 0$

ii. $\sum_{i=1}^{J} s_{ij} \leq 1$

We will allow the sum of all components to be less than one, implying the presence of an *outside option* for patients, that is, to not visit any doctors. Such an option is important, as patient rationality in our models will include "*free disposal*", meaning that a patient will never visit a doctor if his expected utility from such a visit is less than 0.

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The vector $\bar{\kappa}$ composed of all physicians' choice of $\bar{\kappa_j}$ is public knowledge, meaning

2.1 Non-search Equilibrium

We first devote attention to the non-search baseline, where all patients are randomly, symmetrically assigned to a physician, and their only say in the matter is whether they'll then visit doctor j.