**Gestational Surrogacy Contracts and Social Ignominy with Discrete Effort**

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**Abstract:**

This paper attempts to characterize the optimal incentive schemes in surrogacy contracts in terms of a hidden action model with limited liability in discrete effort levels. The basic premise on which the model is viewed is the surrogate primarily perceives the task as a pure economic activity. Against this, inefficiency is a likely to occur when surrogate faces lower outside option whereas multiple efficient contracts can be achieved in case of surrogates facing higher outside option. Next we assume that the surrogate suffers from a feeling of social ignominy since she views this renting a womb activity as a money making exercise. With this feature all the optimal contracts become inefficient and unique.

***Keywords:*** *Gestational Surrogacy Contracts, Social Ignominy, Optimal Contract, inefficiency.*

***JEL Classifications****:* I11, J13, L14, L24.

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## 1. Introduction:

India is witnessing an outsourcing of a different kind - growing numbers of infertile couples from the U.S, Singapore, Britain, Taiwan, Nordic and other countries are flocking to India in search of wombs for rent. It is estimated to be more than a US $450 million business today (Chopra, 2006). India has decent formal guidelines in Assisted Reproductive Technology (ART) in which the custody right of the child is given to the intended parents (Indian Council of Medical Research (ICMR, 2005)). Most importantly, in India, commercial surrogacy is not illegal (since 2002 but subject to ICMR guidelines). On top of this, decent medical facilities and cost effectiveness are seen to be the main driving force for this recent increase in demand. Because of this, couples from abroad feel comfortable from a legal perspective and are looking to have a prospective Indian surrogate for their would-be child. In India commercial surrogacy is a reality. The economic rationale is not difficult to comprehend: a wide labor pool working for relatively low rates.

### 1.1.Understanding surrogate motherhood:

According to the Merriam-Webster online dictionary, a surrogate mother is defined as "a woman who becomes pregnant usually by artificial insemination or surgical implantation of a fertilized egg for the purpose of carrying the fetus to term for another woman, who is medically incapable of doing so." The couple, who hires a surrogate, is known as the intended parents or the commissioning couple (ACOG, 2004). From a medical point of view surrogacy can be of two types: (i) straight (natural/ traditional) and (ii) gestational (or host). In a straight surrogacy, the

sperm of the intended father is used to inseminate the surrogate. Therefore, the surrogate becomes both the genetic and gestational mother whereas the intended mother becomes the rearing mother. In gestational surrogacy, the egg and sperm of intended parents are fertilized externally and the embryo transferred to the uterus of the surrogate. This process is known as In-vitro Fertilization and Embryo Transfer (henceforth IVF-ET). Here, the surrogate is only a gestational carrier and the intended parents are the biological (or genetic) parents[1] [2]. From a legal perspective surrogacy contracting can be of broad two types – 'altruistic' where no money is paid to the surrogate for her 'services' (mainly in excess of necessary medical expenses) and 'commercial' where money is paid to the surrogates for her services (in excess of medical expenses). In this paper we specifically work with 'gestational commercial surrogacy contracts' where money (or incentives) is paid to the surrogates for her 'services' (in excess of necessary medical expenses).

One can address large number of issues on this topic – legal, ethical and economic and one cannot possibly do justice to all dimensions of the problem at the same time (for more on the literature see (Gostin, 1988) (Hewitson, 1997) (Krawiec, 2009) (Posner, 1989) (Radin, 1987)). There are issues like, why in practice we see very restrictive policies on surrogacy agreements in many countries (see (Smerdon, 2008) (Sandel, 2012)), what the 'sacredness' of human life means in an ethical and/or economic context, whether this market can be classified as an 'obnoxious market" (see (Kanbur, 2004)) or whether such markets should be prohibited outright or regulated (Hale, 2013). In this paper we abstract from such issues.

[1] For more details, see ICMR 2004, www. ivf-infertility.com

[2] We ignore the case where donor sperm is combined with donor or surrogate eggs because the child is not genetically related to intended parents.

In this paper, we try to characterize the optimal gestational surrogacy contract in terms of a simple moral hazard framework with limited liability in discrete efforts[3]. We assume that surrogate primarily views this as an economic activity although she might have some altruism towards the intended parents (Vora, 2013)[4]. The primary contribution of the paper can be stated through the following results:

A first best contract is unlikely to be achieved if the outside option of the surrogate is low. Whereas for surrogates with sufficiently high outside option, the set of incentive feasible contracts is also the optimal contracts achievable under first best. The core result can be explained as follows: the outside option of the surrogate $\overline{U}$ affects only the participation constraint. In the presence of limited liability of the surrogate, providing incentives may be costly. Hence with surrogates having low outside option $\overline{U}$ , the incentive feasible set of contracts may be too costly to be the first best choice of contracts for the intended parents. On the other hand, when $\overline{U}$ is sufficiently high, the incentive feasible set of contracts may also be first best contracts. In this case, limited liability does not affect incentive provision. In terms of optimal choices of contracts by the intended parents, it may hence be concluded that moral hazard generates a drift from the first best if and only if the surrogate's outside option is sufficiently low. Thus our result focuses on the impact of the surrogate's outside option on optimal choices of contracts under costly incentives. This is essentially our main contribution to the existing literature.

Next we extend our analysis by assuming that the surrogate suffers from a feeling of social ignominy since she views this as a money making opportunity[5] and society looks down upon her

[3] For more details see (Itoh, 2004).
[4] That is, the surrogate's altruism does partly but not completely eliminate the need for pecuniary incentives.
[5] For more details see CSR Report on 'Surrogate Motherhood – Ethical or Commercial' (2012), and (Aravamudan, 2014).

for renting her womb commercially. This perspective is further confirmed by the existing literature on agnostic attitudes towards commercialization of surrogacy (Kovacs, Gavor, Morgan, Wood, Forbes, & Howlett, 2003), (Krishnan, 1994), (Lasker & Murray, 2001) etc. With this assumption in mind, our model shows that the unique optimal contract achievable is not the first best. That is, in presence of social ignominy of the surrogate, a first best contract cannot be essentially achieved. This result conforms to the common opinion that in conservative societies, the fact that the surrogate faces social stigma will erode her incentives to invest optimal effort for the care of the fetus. This will make incentives more costly and hence the sub-optimality.

This result also confirms a previous result that "social ignominy is sufficient to generate inefficiency" (Banerjee, 2013) but with a slight twist. Mainly, (Banerjee, 2013) has shown under social ignominy, limited liability is sufficient in inducing sub-optimal care for the fetus even with a risk-neutral agent. Our framework offers a slightly different view: that there exists a difference between the first best contract and the optimal achievable contract when incentives are costly to provide. Precisely, our result shows that the presence of social ignominy is sufficient to generate sub-optimality if the surrogate has sufficiently high outside option, since a first best contract can never be achieved irrespective of whether the limited liability binds or not.

The plan of the paper is as follows. Section 2 presents a standard baseline bilateral contracting model between a set of intended parents and a surrogate having little or no wealth (i.e. limited liability binds). In section 3 we introduce social ignominy of the surrogates and examine how the nature of the optimal contract changes. Section 4 presents a discussion and possible extensions. Section 5 concludes the paper.

## 2. Surrogate's Moral Hazard with Discrete Effort : The Baseline Structure

We explore a relationship between a set of risk neutral 'intended parents' and a risk neutral 'surrogate mother' who will be willing to carry the intended parents' fetus through IVF-ET. We assume that the couple is otherwise medically capable, only the wife is incapable of carrying a pregnancy because of certain medical problems[6]. This implies that the couple may have a biological child if only a 'surrogate womb' is available. The intended parent (IP henceforth) is assumed to prefer a biological child to an adopted one. After the surrogate (S henceforth) is selected the IP and the S settles on an agreement. The IP agree to offer a base fee and a bonus fee (to be paid contingent to the success of the project).

The timeline or contract design is as follows: We assume that the intended parents offer to pay $\underline{t}$ (irrespective of the outcome of the project) and $\overline{t}$ if it is successful[7] (i.e., a normal and healthy baby is delivered). Therefore de facto $\Delta t = \overline{t} - \underline{t}$ is the incentive bonus. A successful project captures a 'high' outcome $Y_h = 1$, which is nothing but the birth of a normal healthy child[8]. On the other hand, a failed project is associated with a low outcome $Y_l = 0$. Hence, without any loss of generality we focus on a 0-1 outcome. Failure can be interpreted as having an unhealthy baby or a still baby or otherwise. The outcome (health of the baby) is assumed to be perfectly verifiable[9]. After the contract is offered the surrogate may either choose to accept it or reject it. The game ends if she rejects the offer. In case she accepts, IVF-ET takes place and she chooses

[6] Like (i) absence or malformation of uterus, since birth, (ii) hysterectomy (iii) diabetes, heart and kidney diseases, multiple sclerosis, (iv) repeated miscarriages (www. ivf-infertility. com, (Stuhmeke, 1996)). We also refer to section 1 of (Banerjee, S. Basu, S., 2009) for more details.

[7] That is, the child born thereof is health-wise normal and do not suffer from any detectable illness. For example, an Australian couple was reported to abandon the twin brother of the baby they had from a Thai surrogate due to the detection of Down's syndrome in the baby boy and had refused to accept parental rights of the baby. For full report see http://www.theguardian.com.

[8] Assuming that 'health' of the baby can be perfectly monitored and tested thoroughly

[9] Assuming that 'health' of the baby can be perfectly monitored thorough a battery of tests.

the level of effort 'e' (in caring for the fetus) that maximizes her expected pay-off. Effort is costly and the cost is given by $\frac{e^2}{2}$. Effort of the surrogate is neither observable nor contractible. Hence, in absence of verifiability of the surrogate's effort an outcome-based incentive scheme can be justified. A limited liability constraint is assumed to operate such that the surrogate can be assured to earn at the least a non-negative pay-off $\underline{t} \geq 0$[10]. After the contract is signed IVF-ET takes place and the surrogate starts taking care of the unborn child.

The S's effort represents the child-specific care taken during the period of gestation. Effort is discrete, and can either be 'high', denoted by $e = 1$ or 'low' denoted by $e = 0$. High effort generates a successful outcome with probability $p_1$ while low effort generates a successful outcome with probability $p_0$ such that $1 > p_1 > p_0 > 0$ [11]. Therefore the outcome (health of the baby) which is assumed to be verifiable[12] is only a noisy signal of the S's efforts. Effort is neither observable nor verifiable. Cost of effort is given as $d(e)$. High effort costs $d(1) > 0$, while low effort is costless, i.e., $d(0) = 0$. The sequence of events is as follows. The I.P offers a contract $\{\bar{t}, \underline{t}\}$ contingent on the outcome of the project. The surrogate decides whether to accept or reject the contract. If she rejects, the game ends and she receives her reservation utility $\overline{U} \geq 0$[13]. If she accepts she chooses a level of effort. The outcome of the project is then realized. If the project succeeds the IP receives utility $V > 0$ and offers the surrogate a transfer $\bar{t}$. While if the project fails the IP receives zero and must pay the surrogate $\underline{t}$. We assume that the surrogate

[10] Also one interpretation can be that she must be covered for all expenses (medical or otherwise) made for her pregnancy and therefore she should at least be paid $\underline{t} \geq 0$. For simplicity we assume, the surrogate's reservation utility to be zero. Hence, ex-post the mimimum pay-off received from the project can be normalized to 0. This is without any loss of generality.

[11] This is in the sense of first order stochastic dominance.

[12] Here, it is assumed that given the modern range of technologies, the health of the baby may be clearly verified through a battery of tests.

[13] For simplicity we normalize the surrogate's reservation utility to zero.

derives an altruistic pleasure $\lambda V$ from helping out an infertile couple if only the process succeeds. Further consider that $\lambda \epsilon (0, 1)$.

We are only interested in finding commercially viable contracts. That is, feasibility of altruistically motivated or 'unpaid' contracts is ruled out. Hence, our first assumption.

**Assumption 1:**

$$\lambda < \frac{d}{\Delta p V}$$

Assumption 1 imposes an upper limit to the level of altruism that will be compatible with 'paid' contracts[14]. Further it prevents contracts like $\{\bar{t} = 0, \underline{t} = 0\}$ to be optimally chosen, where the surrogate's incentive feasible contract does not contain a positive incentive bonus.

Further, we assume the IP offers a contract that will induce the self-selection of high effort over low effort by the surrogate[15]. With this in mind, we proceed to analyze the optimal set of contract under non-verifiable and hence non-contractible effort.

### 2.1. Optimal Contracts

For a given level of $e$ the expected pay-off of the intended parents is ${\pi_{IP}}^e = p_e.[V - \Delta t] - \underline{t}$. The expected pay-off of the surrogate is ${\pi_S}^e = \underline{t} + p_e[\lambda.V + \Delta t] - d(e)$. The surrogate is assumed to have little or no wealth and we assume that she is protected by limited liability represented as:

$$\bar{t} \geq \underline{t} \geq 0 \qquad \text{(LLS)}$$

[14] One can easily relax this assumption without qualitatively altering the results of our paper.

[15] Implicitly we assume that $V \geq V^* = \frac{d+U}{[\Delta p + \lambda p_1]}$ holds. This will ensure that the intended parents will optimally elicit high effort from the surrogate.

Therefore $C = \left[\{\bar{t}, \underline{t}\} \middle| \{\bar{t}, \underline{t}\}\ satisfies\ (LLS)\right]$ denotes the set of feasible contracts. Now suppose the IP wants to elicit high effort from the surrogate. The participation constraint (PCS) and the incentive compatibility constraint (ICS) of the surrogate are, respectively, given as follows:

$$\underline{t} + p_1[\lambda V + \Delta t] \geq d + \overline{U} \quad \text{(PCS)}$$

$$\Delta p[\lambda V + \Delta t] \geq d \quad \text{(ICS)}$$

where $\Delta t = \bar{t} - \underline{t}$ and $\Delta p = p_1 - p_0$.

Thus, the IP's optimization problem becomes

$$\max_{\{\bar{t}, \underline{t}\}} \ {\pi_{IP}}^1 = p_1[V - \Delta t] - \underline{t}$$

subject to

$$\underline{t} + p_1[\lambda V + \Delta t] \geq d + \overline{U} \quad \text{(PCS)}$$

$$\Delta p[\lambda V + \Delta t] \geq d \quad \text{(ICS)}$$

$$\underline{t} \geq 0 \quad \text{(LLS)}$$

Put differently the IP solves for the optimal contract $\{\bar{t}^*, \underline{t}^*\} \epsilon\ C$ that minimizes their expected payment $\underline{t} + p_1 \Delta t$ subject to (PCS), (ICS). Let us first assume that the surrogate's effort is verifiable. Any contract in $C$ that satisfies the (PCS) with equality $\underline{t} + p_1[\lambda V + \Delta t] = d + \overline{U}$ will be a first best contract. Following Figure 1, the cost minimizing set of contracts is found along the (PCS). The first best range of contracts corresponding to each level of the surrogate's outside option $\overline{U}$ can be tracked along AB (if $\overline{U} = 0$), A'B' (if $\overline{U} = \frac{p_0}{\Delta p} d$), and A"B" (if $\overline{U} > \frac{p_0}{\Delta p} d$) which is above the $45^0$ line implying the range where $\bar{t} \geq \underline{t}$. To analyze the optimal contracts under unobservable effort we take the following two sub cases:

**Case 1:** $\overline{U} < \frac{p_0}{\Delta p} d$

If S has sufficiently low outside option then one can easily show that the first best set of contracts cannot be implemented under non-verifiable effort. This will be clear from Figure 1, where incentive compatible range of contract do not include the first best range of solutions. To show this, fix $\overline{U} = 0$. Assuming that the limited liability binds we get one first best contract as $\left\{\bar{t} = \frac{d}{p_1} - \lambda V, \underline{t} = 0\right\}$. Putting it in (ICS) we get that $\frac{\Delta p}{p_1} d < d$ implying that the first best contract doesn't satisfy (ICS). So no first best contract can be implemented if the surrogate's outside option is sufficiently low. In this case, the optimal contract is found where the (ICS) intersects the $\underline{t} = 0$ line and therefore the unique optimal contract is obtained at point A, i.e. $\{(\frac{d}{\Delta p} - \lambda V),\ 0\}$. Note that at this optimum (PCS) will not bind. Therefore we can state the following result:

***Proposition 1:***

*When surrogate's outside option is sufficiently low ($\overline{U} < \frac{p_0}{\Delta p} d$), the unique optimal contract will be as follows:* $\left\{\bar{t} = \frac{d}{\Delta p} - \lambda V, \underline{t} = 0\right\}$ *. No first best is implementable in this case. The surrogate's altruism reduces the need for money incentive.*

**Case 2:** $\overline{U} \geq \frac{p_0}{\Delta p} d$

When the S has sufficiently high $\overline{U}$, the LLS may or may not bind at the optimum and the PCS will always bind. Thus, assuming LLS is binding, for $\overline{U} > \frac{p_0}{\Delta p} d$ we have one first best contract as $\left\{\bar{t} = \frac{d+\overline{U}}{p_1} - \lambda V, \underline{t} = 0\right\}$ which is also incentive compatible. This can be shown by putting in the

contract in the ICS which yields $\frac{\Delta p}{p_1}(d+\overline{U}) \geq d$ for $\overline{U} \geq \frac{p_0}{\Delta p}d$. This corresponds to point $A''$ in Figure-1. This implies that we have a first best contract that can be implemented even if effort is non-verifiable. In fact for $\overline{U} > \frac{p_0}{\Delta p}d$ we have a continuum of first best contracts which are incentive compatible when effort is non-verifiable and this is given by the stretch $A''\tilde{B}$ on PC". The set of first best contracts which are also incentive compatible can be given as $\overline{t}^* \in \left[\left(\overline{U}+\frac{1-p_0}{\Delta p}d-\lambda V\right),\left(\frac{d+\overline{U}}{p_1}-\lambda V\right)\right]$ and the corresponding $\underline{t}$ can be found from the binding participation constraint of the surrogate i.e. $\underline{t}+\ p_1[\lambda.V+\ \Delta t] = d+\ \overline{U}$. When $\overline{U} = \frac{p_0}{\Delta p}d$, the optimum is at the intersection of the PCS and the ICS on the vertical axis $\underline{t} = 0$. Here the PCS also binds and therefore we have a unique second best optimal contract at $\{\left(\frac{d}{\Delta p}-\ \lambda V\right),0\}$. This is given by point A′.

**Proposition 2:**

*For sufficiently high outside option of the surrogate such that* $\overline{U} \geq \frac{p_0}{\Delta p}d$ *, under non-observability, the set of optimal contracts can be given as follows:*

*(a). If* $\overline{U} = \frac{p_0}{\Delta p}d$ *then* $\{\left(\frac{d}{\Delta p}-\ \lambda V\right),0\}$*is the unique optimal contract.*

*(b). If* $\overline{U} > \frac{p_0}{\Delta p}d$ *there exists multiple optimal contracts given by* $\overline{t}^* \in \left[\left(\overline{U}+\frac{1-p_0}{\Delta p}d-\lambda V\right),\left(\frac{d+\overline{U}}{p_1}-\lambda V\right)\right]$ *and* $\underline{t}^*$ *found from* $\underline{t}+\ p_1[\lambda.V+\ \Delta t] = d+\ \overline{U}$.

*(c). All the above contracts are first-best. Again altruism reduces the burden on money compensation made to the surrogate.*

When the surrogate has low outside option optimal incentive payments are independent of $\overline{U}$ and this is due to the fact that the PCS is non-binding. When outside option is sufficiently high such that PCS binds higher incentive payments should be paid for compensating for the loss of higher outside option of the surrogate. Also the surrogate's optimal bonus falls with an increase in altruism. Finally, all optimal contracts for higher $\overline{U}$ are first best solutions. In this case the limited liability doesn't bind and with risk-neutral agents moral hazard doesn't lead to a welfare loss with non-binding limited liability.

## 3. Introducing Surrogate's Social Ignominy:

We now introduce the concept of social ignominy and attempt to examine its effect on the optimal organization of surrogacy contracts. Therefore this model will be a discrete effort extension of (Banerjee, 2013).

The concept is something like the following: we assume that the surrogate experiences a feeling of social ignominy from the fact that she is renting her womb in lieu of money. This might stem from the fact that the surrogate perceives that people will look down upon her commercial motive in helping out the infertile couple and this will be seen as violation of traditional social norms of procreation. One implicit assumption that we make is that everybody gets to know that she has rented her womb and is motivated by the monetary gain attached to it. Specifically, we assume that the surrogate's social ignominy is attached to her receiving $\Delta t = \left(\bar{t} - \underline{t}\right)$ in case of success which can be interpreted as an incentive bonus if a normal baby is delivered whereas $\underline{t}$ can be interpreted as necessary medical expenses. This incentive bonus captures the commercial motive in (Banerjee, 2013) and we follow the same approach here.

The model is as follows: we assume that though the actual pecuniary incentive offered by the intended parents is $\Delta t$, yet the surrogate perceives her received incentive payment as $\beta\Delta t$. Therefore $(1-\beta)$ fraction of actual incentive payment can be thought of as the surrogate's loss from the feeling of social ignominy. A lower β represents a higher level of social ignominy. The expected payoff from effort e as perceived by the surrogate in this case will be $\pi_S{}^e = \underline{t} + p_e[\lambda V + \beta\Delta t] - d(e)$. Therefore the perceived participation constraint, incentive compatibility constraint and the limited liability constraints are given as:

$$p_1[\lambda V + \beta\Delta t] + \underline{t} \geq d + \overline{U} \qquad \text{(PCS)}$$

$$\Delta p[\lambda V + \beta\Delta t] \geq d \qquad \text{(ICS)}$$

$$\underline{t} \geq 0^{16} \qquad \text{(LLS)}$$

In this modified framework when effort is verifiable the first best set of contracts can again be formalized as $\{(d + \overline{U} - p_1\lambda V),\ (d + \overline{U} - p_1\lambda V)\}$ for any given $\overline{U}$. In terms of Figure-2, if $\overline{U} = 0$ , the unique first best contract is found at point B. If $\overline{U} = \frac{p_0}{\Delta p}d$ then the optimal first best contact is given by the point $B'$ and for $\overline{U} > \frac{p_0}{\Delta p}d$ the optimal contract can be shown by the point $B''$. The optimal expressions can be easily calculated by substituting appropriate values of $\overline{U}$. Therefore in terms of Figure-2 the points B, B', B'' represents the unique first-best contracts corresponding to the specified $\overline{U}$ values given in the figure.

Under non-verifiability the second best optimal contracts must satisfy the ICS with equality and can be tracked along the IC-line in Figure 2 at A' corresponding to $\overline{U} \leq \frac{p_0}{\Delta p}d$ and $\tilde{B}$

[16] The relevant perceived limited liability is more appropriately given as $\beta\underline{t} \geq 0$, that is even when the project fails the fixed pay must count in the compensation for her loss of prestige. Since $\beta \in (0,1)$ we assume the limited liability is practically unaffected by the surrogates perception, and (LLS) is the relevant constraint.

corresponding to $\overline{U} > \frac{p_0}{\Delta p} d$. Therefore the points B, B' or B" are not achievable (can't be reached given ICS) and therefore no first best contract can be implemented. Also in the presence of social ignominy, the PCS is relatively steeper than the iso-profit lines, and therefore we get unique optimal solutions. Succinctly the optimal second-best contracts may be characterized as below:

***Proposition 3:*** *In presence of social ignominy of the surrogate*

*(a) If surrogate's outside option is sufficiently low* $\overline{U} \leq \frac{p_0}{\Delta p} d$*, the optimal contract in this case will be* $\{\frac{1}{\beta}\left(\frac{d}{\Delta p} - \lambda V\right), 0\}$*. The limited liability will bind in this situation.*

*(b) If* $\overline{U} > \frac{p_0}{\Delta p} d$ *, the optimal implementable contract is* $\{\bar{t}^* = \overline{U} + \frac{1}{\beta}\left[(1 - \beta p_0)\frac{d}{\Delta p} - \lambda V\right]$, $\underline{t}^* = \left(\overline{U} - \frac{p_0}{\Delta p} d\right)\}$*. The limited liability will not bind.*

*(c) Under non-contractible effort the first best cannot be implemented irrespective of whether limited liability binds or not. All the optimal second best contracts are unique.*

*(d) In all the above cases increased social ignominy (lower* $\beta$*) leads to an increase in the incentive payments.*

The formal proof will be similar to that of Proposition-2 and we omit it here for brevity. It is interesting to note how the nature of the optimal contracts changes with social ignominy. When $\overline{U}$ is very low, PCS doesn't bind, but the ICS and LLS binds. Given LLS binding $\underline{t} = 0$ and therefore if β falls the IPs should optimally increase $\bar{t}$ such that LLS is satisfied and binds. When $\overline{U}$ is sufficiently high such that both PCS and ICS binds the same intuition holds. A fall in β has to be compensated by an increase in $\bar{t}$ such that both the PCS and ICS is satisfied. This makes the optimal contracts for the IPs more costly and therefore first best is not achievable. Finally

because $\beta \in (0,1)$ the slope of the PCS becomes steeper vis-à-vis the iso-payoff curves of the IPs, the optimal contracts (least cost points) for the IPs are now unique. This is in contrast to the standard case without social ignominy where the slopes of the PCS and the iso-payoff curves of the IPs are the same and there we get multiple optimal contracts.

## 4. Discussion and Extensions:

Alternatively, one can introduce the concept of social ignominy of the intended parents. Specifically we can assume that the intended parents experience a feeling of humiliation among peers and relatives once it is recognized that in order to have a biological child the couple has offered money to hire a surrogate[17] (for supporting literature see (Kovacs, Gavor, Morgan, Wood, Forbes, & Howlett, 2003) (Blyth, 2007) (Akker, 2007)). Put differently, the childless couple perceives that the society will criticize the "commercial exchange" of a baby through surrogacy on ethical grounds[18]. For the sake of simplicity one can assume that everybody gets to know that the couple has managed to have a child through commercial surrogacy. Given this we can model social ignominy of the intended parents as follows: we capture it as an increase in the cost of a successful project from $\bar{t}$ to $(\theta\bar{t})$. The parameter $\theta > 1$ denotes the social ignominy of the intended parents. If the project fails, the intended parents may choose not to admit hiring a surrogate and hence evade the social humiliation. Henceforth, the model is an identical treatment presented in section-3 and we may state the main findings as follows: a first best contract is never implementable under non-observable effort. Also the second best solution is found to be

[17] The underlying assumption is it is a common knowledge among social circle of the couple that the wife is unlike to conceive/carry a pregnancy under normal circumstances.

[18] This is a common belief that commercial 'rent-a-womb' industry requires insemination of the surrogate through sexual intercourse, which is of course distinct from the practice of IVF-ET technology. That is, in general perception the concept of gestational as distinct from traditional surrogacy does not exist.

unique corresponding to each level of the surrogate's outside option. The only point of departure from the previous case of surrogate's social ignominy is that the intended parents' social ignominy can be shown to have no effect on the nature of optimal implementable contracts.

## 5. Conclusion:

We in this paper make an attempt to characterize optimal gestational surrogacy contract in terms of a simple hidden action framework with limited liability but with discrete efforts. Here the implicit assumption is that the surrogate primarily views this as an economic activity. We show that inefficiency is likely when the surrogate has lower outside option but first best contracts can be implemented if the surrogate has higher outside option. That is, with surrogates having higher outside option, implementability of first best contracts ensure that the moral hazard incentives of the surrogate can be completely eliminated.

Next we address the interesting issue of social ignominy assuming that the surrogate suffers from a feeling of social ignominy since she views this renting a womb activity as a money making opportunity and feels that the society will look down upon her because of this. With this feature, the optimal incentive feasible contract is found to be unique. Interestingly with social ignominy optimal implementable contracts are not the first best. The reason is that the intended parents now have to offer higher incentive bonus and compensate the surrogate for the loss due to the feeling of social ignominy. This makes the optimal contracts costly and results in welfare loss.

**List of Figure:**

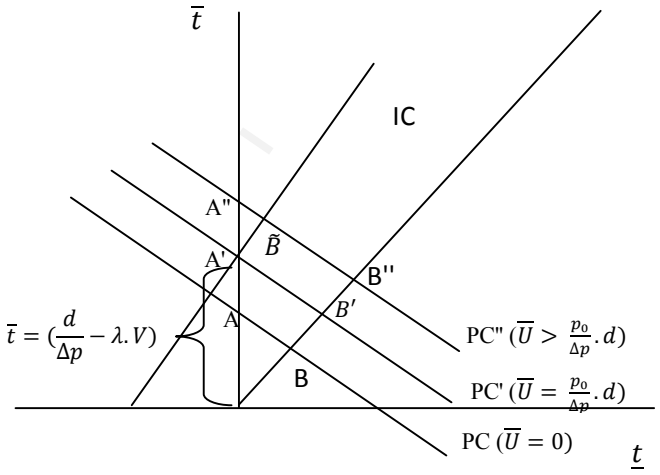


Figure 1: Tracking the optimal implementable contracts

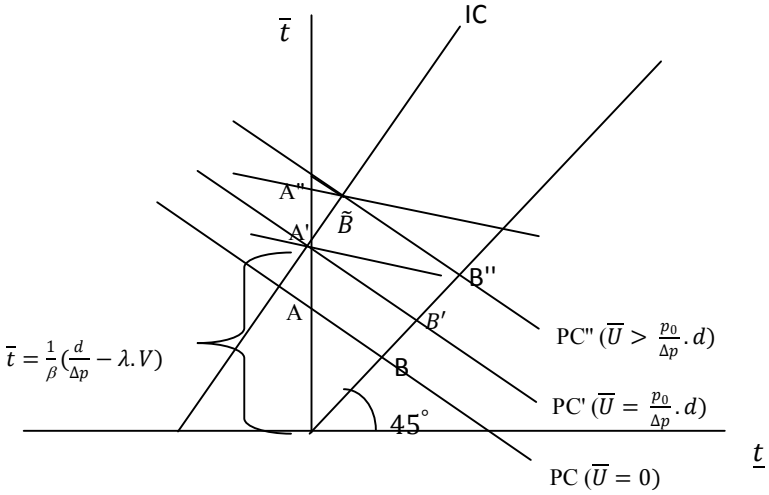


Figure 2: Tracking the optimal implementable contracts under social ignominy

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