

Ectogenesis or gestational justice?

Introduction

Imagine a society - Barrenia - where reproduction is impossible without an essential bio-chemical resource: 'Serum X', which only about half the population, known as 'carriers', can produce. Carriers are morphologically distinctive, and thus identifiable from birth. Harvesting Serum X, typically undertaken between the ages of 20 and 35, is extremely painful. It can lead to ongoing health problems and is occasionally fatal. Carriers are assumed to have a powerful biological urge to undergo harvesting, and it is widely regarded as a profoundly meaningful experience in a carrier's life. Some carriers suffer from medical problems that prevent them producing Serum X. They are termed 'inseminate'. Research is underway to help these inseminate carriers experience the joy of harvesting.

Historically, carriers were excluded from education and careers, and their consent was not required for harvesting. In Barrenia, this has changed: carriers are now encouraged to pursue education and careers; harvesting without consent is illegal. However, there has been a dramatic fall in numbers of carriers undergoing harvesting. Facing a national deficit of Serum X and dwindling population levels, some Barrenian policy-makers argue that tax and benefits adjustments might help. Others point out that in Nobetter, up North, extensive socio-economic measures have been implemented to help carriers integrate harvesting with other life goals, but its harvesting rates are plummeting even faster than Barrenia's.

Across the ocean is Coercem, a country whose harvesting rates remain extremely high. There, carriers' consent for harvesting is not regarded as essential and their educational and career opportunities are limited. Some Barrenians suggest incentivising migration from Coercem to Barrenia to counter labour shortages and population decline. However, critics regard it as unjust to rely on forced harvesting practices in Coercem to support the carriers of Barrenia in their right to choose. Meanwhile, an increasingly vocal faction proposes a return to 'traditional' Barrenian values, urging carriers to prioritise harvesting over jobs, education and economic independence.

Recently, scientists in Barrenia have announced a breakthrough: the synthesis of a lab-grown precursor of Serum X. This has been used experimentally to kick-start viable Serum X production in inseminate carriers, enabling them to experience the 'joy of harvesting'. Some Barrenians wonder if research should be directed towards fully synthetic Serum X, circumventing the need for harvesting entirely. However, this is dismissed by scientists, doctors and almost everyone as wild, implausible and undesirable.

Taking pregnancy seriously

Many nations today face problems similar to those described above. In countries where women can choose whether and when to reproduce, not enough babies are being born to sustain populations at replacement level (Sigmarsdóttir 2018, Elliott 2016, OECD 2022). Offspring are in one sense, a social good (Shields 2025). But they are attainable only through the bodies of our citizens. The idea of gestation as a phenomenon requiring its own brand of justice may seem bizarre. The thought experiment of Barrenia aims to show that it is not. But if so, why is gestation not more widely recognised as a concern for justice?

Historically, mainstream philosophy has regarded the embodied experiences of women as irrelevant for philosophical inquiry. Recent work by philosophers such as Elselijn Kingma (2019), Suki Finn (2023) and Amy Mullin (2002) has helped to address this, but their focus is not on justice per se. Among the philosophers who do discuss justice, many of the most influential, such as Rawls (1971), Nozick (1974) and Hume (1998) have constructed their theories in ways that exclude whole

swathes of human experience, particularly those associated with women, and the family. This renders power structures invisible insofar as they exist within this family space (Okin 1989). An exception here is Mill, who specifically highlights the injustices suffered by women in the family, describing their plight as a form of slavery. Mill, however, does not discuss reproduction and gestation specifically (Mill 1984). Even now, questions related to reproduction and the family still tend to be construed as private, unsuited for the concerns of justice per se. Ronald Dworkin (1993), and John Harris (1998), for example, see reproduction as a private matter, akin to freedom of speech/religion – and thus not the domain of the state. More recent approaches to justice – even those that focus on gender – do not usually consider gestation per se, with only one or two notable exceptions (Konstandi 2020, Chadwick and Jabulile 2021).

In bioethics, reproduction is a central theme. But the dominant influences in reproductive ethics focus on abstract, gender-neutral and disembodied concepts such as procreative liberty and reproductive autonomy (Robertson 2008). For thinkers such as Robertson, Harris, Dworkin, etc, the primary ethical concern related to reproduction and reproductive autonomy is *parenthood*. Gestation matters only insofar as the gestator intends to become, or not become a parent (Robertson 2017). As a phenomenon in its own right, it is – seemingly – irrelevant.

Yet gestation is not merely a means to parenthood. It is a distinct phenomenon with its own set of specifically embodied and gendered issues. Moreover, its relationship with parenthood is not straightforward. Not all parents gestate, and not all gestators parent. Thus, concepts such as reproductive autonomy or reproductive justice cannot capture the specific challenges of pregnancy itself. This leaves a lacuna right at the heart of reproductive ethics – a space that requires a theory of *gestational justice*. Without this, we render up women as victims to the disembodied and disgendered ideas of reproductive autonomy and parenthood.

Nevertheless, there are two aspects of gestation that have garnered philosophical attention in recent decades: surrogacy and abortion. In both cases, however, pregnancy itself is not the central focus. Abortion is frequently construed as a tension between *reproductive autonomy* and the moral status of the foetus (Johnston and Zacharias 2017, Steinbock 2011, Ziegler 2013).^{*} This approach makes pregnancy itself all but irrelevant, since reproductive autonomy – as noted above – concerns the wish to *be a parent*, rather than the wish *not to be pregnant*. The problem here is that parental aspirations simply do not map onto gestational aspirations in the way that current debates assume. Most men who have parental aspirations neither wish nor expect to gestate. Likewise, many women who might wish to be mothers would rather not gestate. Conversely, many people who gestate do so only because they find themselves pregnant and prefer not to abort (or cannot)[†] but nevertheless do not plan to parent the baby.

Among those who gestate but do not parent, surrogates have been the subject of considerable ethical concern. However, gestation itself is not the focus, but rather the fact that surrogacy agreements deviate from the usual trajectory that leads towards *parenthood* for women. (Every father relies on a gestational surrogate, but this does not generate ethical concern.) Scholars who discuss justice in this context tend to locate the problem in the fact that a (presumably) powerful woman chooses to offload the gestational burdens proper to motherhood onto a (presumably) less powerful woman (Wilkinson 2003, Ber 2000, Blazier and Janssens 2020). Thus, questions of justice in relation to *gestation itself* are overlooked.

This is troubling, given that societies around the globe are struggling with declining birth rates (Smajdor 2024). Pronatalist measures are in operation to various degrees (Lee 2024, Bhanvi 2024). In this scenario, the distinction between surrogacy and ‘ordinary’ pregnancy becomes blurred. The pressure on women to give birth to suit national or social expediency, can be viewed as a form of

^{*} Aside from the work of Judith Jarvis Thomson (1971)

[†] This issue has become more salient in the post-Dobbs environment (Tillman et al 2023). The U.S. Supreme Court’s decision to overturn *Roe v. Wade* shows that legal protections established for decades are by no means permanent.

societal surrogacy. A key point here is that it is *women's* ability to choose that has affected birth rates. Men do not need to weigh their parental aspirations against their own health or bodily autonomy. The fact that women *do* suggests it is a central, yet unacknowledged factor, in the correlation between fertility control and lower birthrates (Schumacher et al 2024).

There is a devastatingly effective solution to low birth rates: to withdraw the rights and freedoms afforded to women over the past 100 years. This is already happening to some degree in the US (Coen-Sanchez et al 2022, Gostin 2022), and is increasingly being argued for in other jurisdictions (Asadisarvestani and Sobotka 2023, Dildar 2022, Bajaj and Stade 2023). A Japanese politician recently argued for the exclusion of women from universities, and compulsory hysterectomy for women who have no children by 30 (Muzaffar 2024).

As long as societies rely on women's bodies for the production of new citizens, women will function as societal surrogates. This makes it precarious to be a woman.[‡] Perhaps this would not matter so much if pregnancy were not risky. Where medical care is unavailable, childbirth is dangerous (WHO 2019, Torjesen 2011). In the developed world, improvements in maternal mortality and morbidity have stalled (Joseph et al 2024). Gestation and childbirth also involve risks to the child. Being born is one of the riskiest events of a 'natural' human lifetime (WHO 2024). The intrinsic risks of gestation are amplified by 'obstetric violence': harm suffered during women's interactions with obstetric medicine (Hakimi et al 2025). For example, the Ockenden Report (2022), detailed a series of failures in the care of labouring women in the UK, leading to a number of avoidable deaths. Medical staff were incentivised to reduce C-sections. These targets were linked with a powerful ideological goal: "natural birth is best" (Lothian 2022), and women were harmed as a result.

Even if obstetric care improved, making medical risks in childbirth negligible, there would still be a case for gestational justice, though it might be less pressing. Gestating women, as well as women who are expected to gestate in the future, come under pressure from a variety of social, medical and governmental institutions to minimise risks to foetuses that they are gestating, *or may gestate in the future* (Cutas et al 2018). Women's behaviour is thus policed even in liberal western democracies, whether or not they are, or plan to become, pregnant *solely because of their gestational capacity*. Therefore, while pregnancies must be carried in women's bodies, their freedom and autonomy are at risk, even in the absence of direct physical or health risks.

Gestational justice is therefore required for three basic reasons:

- Societies depend on women's bodies for the gestation of new citizens, and
- Gestation is physically and psychologically risky, and
- Gestational capacity is an *unchosen* biological attribute

As long as these facts obtain, women are vulnerable even in societies that currently respect their rights and interests. In what follows, I take a broadly luck-egalitarian approach, drawing on the work of Ronald Dworkin (1990, 1993). That is, I suggest that biological inequalities are a matter of concern for the just society. The specifically luck-related element is the unchosen nature of these inequalities. I have argued elsewhere that a luck egalitarian approach gives us powerful reasons to develop ectogenesis (Smajdor 2007, 2012). However, ectogenesis alone cannot achieve the kind of justice I have in mind. It is necessary therefore to examine more closely how the biological inequalities involved in gestation should be addressed.

Rawls and Dworkin focus primarily on *equality of resources*, broadly understood to include liberties and opportunities. Critics have argued that these conceptions of justice posit an 'ideal'

[‡] I use the term 'women' to denote those who are identified as such by the people around them, irrespective of how they identify. It is these individuals whose presumed gestational capacity is regarded as essential for the production of society's babies.

society (Farrelly 2007), whereas actual societies are far messier. My conception of justice goes beyond the question of how resources should be distributed in an ideal society. It addresses *ideologies*, including those associated with justice itself. An explicit conception of gestational justice is thus a necessary prior step for any just distribution of goods. Insofar as ectogenesis is a good, it is a secondary goal, to be considered in relation to gestational justice itself.

In order to do this, I draw on examples from the imperfect world around us, to show how we can make sense of gestational justice, despite the flawed nature of our societies. I compare gestation with ‘risky professions’ such as fire-fighting. I consider whether gestational capacity can be construed as a form of biological disadvantage, and I draw parallels between the role of the gestator in today’s society and that of a participant in clinical research. Drawing on these three examples, I flesh out the conditions for gestational justice. However, I first look at the question of why ectogenesis alone — despite its potential to eliminate physical risks — is not enough to achieve gestational justice.

‘Foetal rescue’: why ectogenesis[§] is not enough

As in Barrenia, we are on the verge of developing alternatives to pregnancy: partial ectogenesis is already in use. Some scholars regard ectogenesis as a crucial step towards a feminist realisation of equality (Bidoli 2024, Zhou 2024, Takala 2009). But ectogenesis is *not* being pursued in order to achieve these feminist goals. Scientists and medical institutions explicitly limit ectogenesis to what I call ‘foetal rescue’ - where foetuses are at risk of serious harm from adverse uterine conditions or extreme prematurity (McGovern et al 2020). This mirrors the trajectory of foetal surgery: ultrasound routinisation enabled in utero anomaly detection, motivating interventions that require anaesthesia and surgery for a healthy woman, not straightforwardly in her best interests. This raises troubling questions about consent, and women's sense of having ‘no choice’ but to prioritise the foetus (Smajdor 2011).

Sophisticated health services cannot guarantee safe childbirth (Smajdor and Räsänen 2025). It is the *ideological commitments* underpinning medical practice that make the difference. Accordingly, ectogenesis for foetal rescue risks making the lives of gestating women more burdensome. It reinforces tropes of passive maternal altruism on the one hand, as mothers submit their bodies to whatever benefits the foetus. On the other hand, in some states of the US, women can be imprisoned for behaviour deemed risky to the foetus (Bruzeliuss 2024). In this environment, ectogenesis and foetal rescue may form a toxic alliance, whereby ectogenesis becomes a punitive instrument in its own right. Moreover, pregnancy is one of the occasions in medicine where the wishes and autonomy of competent patients are most at risk of being ignored or dismissed (Martínez-Galiano et al 2021, Chadwick 2023). These risks are compounded by existing vulnerabilities, disproportionately affecting ethnic minorities and less affluent women. Ectogenesis for foetal rescue provides a new tool with which to serve the ideologies of motherhood. Given the widespread problem of obstetric violence, there is little reason to suppose that ectogenesis would sweep away the problems I have described (Fraser et al 2025).

Societies therefore need to respond to the challenge I set out above. That is, the recognition of gestation as a concern for justice, and an undertaking to mitigate its burdens. Perhaps some of these burdens could be alleviated by ectogenesis, but *only in the service of gestational justice*.

In what follows, I suggest some ways of conceptualising gestational justice, drawing on comparisons between gestation and other phenomena that share relevant features.

[§] Ectogenesis is one of a number of terms that refers to the gestation of human foetuses outside a living human body. Ectogenesis may be construed as a full or partial alternative to human gestation. My argument refers to both unless otherwise stated.

Gestational capacity as biological inequality

Having a uterus exposes one to risks that are not faced by those who lack this organ. What should this mean in terms of justice? While Rawls' approach to justice concerns only socio-economic inequalities, Dworkin's expansion of Rawls' justice domain is relevant here in several ways. Dworkin (1993) argues that inequalities resulting from 'brute luck' are a concern for justice. A person born blind is an example of this kind of unchosen inequality. An ideal society might arrange itself so that the blind individual suffers no disadvantage. But even in such a society, the blind person remains vulnerable to social vicissitudes which may arise in the future. Moreover, the border between biological and social disadvantage is not a bright line, but is increasingly recognised as a porous boundary. Accordingly, disadvantage may be internal as well as external. It may internalise and reproduce external inequalities and vice versa (Castagné et al 2023).

Dworkin's approach makes sense in societies with advanced biotechnological resources. There are biotechnological as well as socio-political possibilities for mitigating disadvantages that arise as a result of brute luck. In Dworkin's theory, the blind person *may* accept financial support offered by the state. But she may also/instead, seek biomedical intervention to address the biological inequality directly at its source. The question of whether a blind person should seek financial/social rather than biological/medical intervention is one that is at least in part, subjective (Ueda and Okawa 2003). Similarly, if we apply Dworkin's reasoning to sex, we can see that it helps to make sense of a terribly fraught field. A trans person is biologically disadvantaged insofar as their biological makeup is misaligned with their gender identity. However, another person with the same biological attributes may be perfectly happy. Dworkin's approach avoids the need to classify biological inequalities as disease, disability or dysfunction.

Gestational capacity, like unwanted biological sex characteristics, or congenital deafness/blindness is unchosen. ** A person's perception of her gestational capacity is partly a matter of subjective preference. Likewise, although some people regard their deafness as a desired state of being, others may feel very differently. Gestational capacity is perhaps a more plausible candidate for the kind of intervention that Dworkin considers appropriate for biological inequalities such as blindness or deafness, because it is a double disadvantage. Not only do those with a uterus face health risks that others do not; the fact of having a uterus puts one in possession of something that others have an interest in controlling.

Accordingly, gestational capacity is a biological inequality that merits a justice-based response. Characterising it as such requires no contentious claims about its status. It is simply an unchosen attribute with significant risks—both intrinsic (biological) and external (societal). A just society should recognise this, and seek to minimise risks, *and* address the unequal distribution of risks involved. This may entail exploring biotechnological alternatives alongside socioeconomic mitigations. Since responses vary with subjective values, not all with gestational capacity will prioritise the same solution.

To summarise here:

- Gestational capacity can be construed as a biological disadvantage
- The associated health risks *and* the unequal distribution of the capacity, demand a justice-based response
- Mitigation options include socio-economic measures and/or ectogenesis
- Gestational justice is a prior aim to the achievement of equal distribution of goods (thus we avoid the prospect of coerced ectogenesis for foetal rescue)

** In some cases, e.g. uterus transplants, having a uterus is chosen. But are de facto instances of where the biological condition is not regarded as a disadvantage, and where it is chosen. Thus, the possibility of choosing to have a uterus does not undermine my overall argument here.

Gestation, clinical trials and the supererogatory

Pregnancy involves risks for the gestator, while the benefits of reproduction extend to society more generally. This is also a challenge in the context of participation in clinical research: participants undertake risks, while society benefits. Appalling abuses in the past have led to a recognition of the need for stringent protocols and constraints (Smajdor 2023). Participants in clinical trials are painstakingly informed about the risks involved. Only with their fully informed and freely given consent can the research go ahead. A hallmark of ethical research requires that consent can be withdrawn at any time, and for any reason (Schmidt 2023). This combination of voluntariness and withdrawal of consent establishes research participation as an inherently supererogatory activity.^{††}

However, some philosophers, such as John Harris (2005), argue that participation in clinical research is a moral *duty*. Since everyone benefits from participation in research, refusal to participate would mean freeloading: unjustly benefiting from the sacrifices of others. Analogously, one might argue since all of us benefit from gestators' contribution to society, all of us have an obligation to gestate if we can. Harris is ambivalent on the subject of coercion: he suggests that it could be 'in principle justifiable', but does not explicitly advocate it. Thus, for Harris, it seems that participation in research is a defeasible duty – one that can be overridden in light of other significant moral concerns. If we accept Harris' claim, perhaps the same reasoning could be argued to apply to gestational duties.

Many people, both philosophers and others, assume that gestation involves some form of duty, even if, as Scott (2000) says, such duties are 'extraordinary'. These duties are usually interpreted as relating to the foetus, rather than society. However, if we accept that gestational duties exist at all, it seems reasonable to question to whom they might apply, especially given the parallels I have shown between activities with broad social benefits, such as participating in clinical research, and gestation, which also has broad social benefits. Moreover, insofar as societies have an interest in gestation as a means of bringing new citizens into being, these interests are also deeply connected with the health of these new citizens. This means that there is not a crystal clear distinction between gestational duties towards the foetus, and those towards society more generally.

The intimate bodily connection between gestator and foetus makes it challenging to think about gestational duties in this way. Even if gestational duties *are* construed merely as existing between gestator and foetus, they can quickly come to seem excessively demanding. To expand the sphere of gestational duties to include obligations towards others than the foetus risks subjugating women entirely to their gestational capacity, in ways that are clearly at odds with their interests and autonomy. But perhaps this arises from a misunderstanding of the kind of duties involved. Fiona Woollard (2018) argues that gestation has been mis-characterised as involving 'maximal' defeasible duties to benefit the foetus. This would mean that the pregnant woman must provide powerful moral justification every time she drinks coffee, stays up late, eats fast food, etc. This results in pregnancy becoming intolerably burdensome. Instead, Woollard argues, gestational duties are *not* maximal. The welfare of the foetus need not be the primary goal at every moment of a pregnant woman's life. Nevertheless, Woollard says, there *are* some defeasible duties that mothers have towards their children (and by implication, pregnant women towards their foetuses). It is just that they are not maximal.

Woollard is surely correct that gestational duties cannot be maximal, but her position fails to help with questions about when or whether a woman may refuse or request C-section? Or ectogenesis? Treatment for her epilepsy? A glass of wine? Moreover Woollard, along with many of the other philosophers I discuss here, conflates pregnancy and its duties, with parenthood and *its* duties. The duties of parenthood are not necessarily embodied duties, while the duties of gestation *are*.

^{††} These measures are not perfect, of course. Unethical research still happens. But what is important for my argument here is the social and institutional *recognition* of this phenomenon as one that requires special ethical consideration.

Likewise, the duties of clinical research are embodied, in ways that make it imperative to consider the nature and limitations of embodied duties *per se*, without tangling it up with parenthood.

An alternative understanding of duties is to focus not on whether they are defeasible, but whether they are imperfect. Shapshay and Pimple (2007) adopt this approach, and propose a conception of the duty to participate in research as an *imperfect* duty. Defeasible duties – such as those that Harris argues for – can be overridden only where there are powerful moral reasons for doing so. Imperfect duties such as those that Shapshay and Pimple argue for, are much looser. Thus, if donating blood is an imperfect duty, any specific failure to do so needs no special moral justification. However, a person who *never* donates might be regarded as morally flawed.

Applying this to gestation, we could say a person with gestational capacity is morally flawed if she fails to fulfil her imperfect gestational duties, even if we cannot pinpoint any specific action as being wrong. However, I suggest that this is still unsatisfactory from a justice perspective. It reinforces the tendency to scrutinise pregnant – and pre-pregnant – women's behaviour. Moreover, it endorses the existence of *moral duties arising from brute biological facts*. It is easy to understand that congenital deafness or blindness might be disadvantageous. But if unchosen biological features also confer *moral* obligations to make one's body available to others, we have powerful justice-based reasons to be concerned.

There is an interesting parallel here with the fact that some indigenous groups are of special interest to researchers, to the extent that access to their DNA is eagerly sought. Scholars have highlighted the vulnerability of such groups (Carroll et al 2022). If we accept the existence of embodied duties arising from unchosen biological characteristics, it seems that such groups have a *duty* to permit themselves to be harvested, even if it is an imperfect duty. I suggest that the existence of such embodied duties arising from unchosen biological characteristics is untenable for a just society.

I do not deny that certain classes of acts (e.g. benefitting others) can constitute defeasible or imperfect duties in the Kantian sense. But my objection, which is broadly in keeping with a Kantian perspective, is that one cannot *owe oneself* to others. The idea that certain duties encompass *bodily obligations*, so to speak, is precisely the heart of the problem when we think about obligations to participate in research, or to gestate. This is especially problematic when these supposed bodily obligations can only be fulfilled by an already vulnerable subset of the population.

I therefore regard gestation *and* research participation as supererogatory: they are not duties at all. My position here aligns with that of Jan Narveson (1975). For Narveson, morality is not about bodies, but about *people*, and their interests. At first this looks like a disembodied and abstract ethics. But Narveson's point is subtler. We can wrong someone by doing things to her body. But it is not the *body* that is wronged. Conversely, when we have moral claims on each other, these are not claims on *bodies*, but claims on people. To accept that someone has a claim on another's body – against that person's will – is to separate the body from the person, treating them as two things, one of which can be used, transferred, populated, inhabited etc., in ways that are contrary to Kantian ethics, and also as Narveson says, to the most basic liberal principles.

The development of ectogenesis in an environment that lacks a conception of gestational justice is highly precarious. Add to this the idea that gestation is *any* sort of duty, and face the prospect of deliberating when a woman must submit to her baby being rescued from her uterus, and whether there are any countervailing moral considerations that might override such a duty. Instead, we must accept that there *is no such duty*. Unchosen biological characteristics cannot form the basis for the kind of duties that Harris describes, in a just society. It is worth reiterating a point about embodied duties here: just as we have no *right* to use another person's body (even to save a life), we have no *duty* to allow others to use ours (Thomson 1971). This is not a trivial point. Up until very recently, women had legally enforceable duties to allow their bodies to be used sexually by their husbands.

Must we ask whether the law changed because these duties are *defeasible* or *imperfect*? Or simply because such duties are incompatible with the most basic tenets of justice and ethics?

If we reject the idea of duty in favour of a supererogatory understanding of activities that involve the body, this makes sense of the fact that people are not obligated to participate in medical research, and that if they do choose to participate nevertheless, we may admire them for doing so. It makes sense of the fact I am not obligated to donate my kidneys or blood even though I could save a life, or many lives by doing so. Contra Scott, there is *nothing extraordinary* about this. My approach is thus less exceptionalist than many other understandings of duties in pregnancy. It extends to other spheres of human activity, and to men as well. People have neither rights to the bodies of others, nor duties to make their bodies available to others (Schaefer et al 2009).

Like participation in clinical research, if we recognise gestation as supererogatory, it makes sense that *ongoing* consent is required. Once a participant signs the consent form, this is not the end of the arrangement. One cannot simply contract away one's autonomy and bodily integrity (Prentice et al 2007). Without *ongoing* consent, intervention on a research participant constitutes assault. To continue to have sex with someone who has withdrawn consent is to rape them; to perform surgical interventions on patients who have withdrawn consent is to wound them. Analogously, in my approach to gestational justice, the focus is on voluntariness and non-coercion.

- Gestation is a supererogatory endeavour and remains so throughout pregnancy
- Gestation should never be forced on someone without their consent
- Gestators should be able to withdraw from a gestational project at any time and for any reason
- Risks involved in gestation must be kept as low as possible
- Those considering gestational projects must be fully informed of the risks
- Relationships between gestators and medical and social institutions should be the subject of special scrutiny and oversight

Gestation and socially valuable professions

Societies have a powerful interest in ensuring that people gestate.^{††} This interest can be pursued in a variety of ways. We can coerce, nudge or cajole women to become pregnant. We can valorise pregnancy and motherhood or deny access to contraception and abortion. All of these tactics are in relatively common use in much of the world. In *The Subjection of Women*, Mill (1984) compares the social need for women's willingness to become wives (and implicitly, mothers) with that of the need for sailors to fight in wars. He observes that even a genuine social need does not justify coercion ('pressganging'). Instead, governments must work to make these tasks acceptable or even desirable. Mill argues that women likewise should not be forced towards marriage and motherhood through being debarred from other options, even though it would be socially catastrophic if women stopped marrying and reproducing.

While liberal Western societies have accepted Mill's message insofar as it relates to women's access to the vote, education and career opportunities, the expectation that women should produce society's offspring in sufficient quantities remains rooted in sexist and essentialist beliefs that reproduction and parenthood is women's natural calling. Women are regarded as foolish, cold, selfish and ignorant in their failure to live up to this natural calling. But as Mill himself points out, if women are really impelled by nature to get married, have babies, etc, they should not really need exhortations, coercive measures or incentives in order to do so. So if the natural impulse to have

^{††} Some might object to the idea that pronatalist policies are justified, given that there are still many babies being born across the globe, that there are climate and resource issues at stake, or that immigration could solve the issue in a preferable way. I agree that there may be grounds to push against states' interests in increasing reproduction, but my argument here is designed to apply to cases in which state and citizens agree, with good empirical grounds, that there is a need for continuing reproduction.

children is no longer sufficient to generate the children that society needs, what measures *are* ethically appropriate?

In order to answer this, we have to move away from the habitual discourses that frame gestation purely as a matter of personal fulfilment. Gestation is a socially valuable endeavour, in the same way as firefighting or national defence. People may gestate in order to fulfil their own aspirations, but these aspirations can be considered in the context of the broader social value of the endeavour. The two are not mutually exclusive. Firefighters, soldiers, healthcare workers and police etc, are valuable to society. Yet –in liberal democracies – people *choose* to pursue these professions. Sometimes, these careers are so deeply entwined with one's values and identity that the element of choice disappears. It is debatable to what extent it is healthy to feel such compulsion. But what matters for my argument is that such feelings exist, and are immensely powerful. Given this, the dichotomy between performing a role of high public value, rather than pursuing one's own individual conception of the good, is a false one. People choose pathways in accordance with their aspirations, *as well as* in view of their value for society. The degree to which one or another motivation prevails may differ, but both are likely to be in play to some extent.

So what can we draw from this in terms of gestational justice? Society needs gestators just as it needs firefighters, teachers, doctors, etc. It is in the interests of society that people value these careers, and identify with the roles in question. To this extent, perhaps societies should valorise these activities. But suppose we are already in the situation where numbers are dwindling? Here is where the justice issue becomes pressing. If there are too few firefighters, the state may offer incentives to encourage citizens to choose firefighting as a profession. It may increase salaries; offer improved insurance and healthcare options. But all of these are in a sense impersonal measures. No-one is born a firefighter or doctor, despite the rhetoric of vocation. In contrast, women are (usually) born with a uterus. From the moment of birth, they are inescapably the focus of whatever reproductive interests the state may have. Women are singled out from other citizens not on the basis of their own needs or interests, but because they are *societal surrogates*: their uteruses are necessary for the state to achieve its goals.

As in Barrenia, it is widely assumed that women are biologically driven to gestate. This enables states, governments and policy-makers to skirt around the considerations they might address if, for example, we lacked military personnel, firefighters or doctors. Moreover, because we lack a conception of gestational justice, the need to justify reproductive policies in relation to other political or moral goods is never explicit. One advantage of gestational justice is that reproductive policies would need to be *explicitly negotiated* with those affected by them. This in turn would force an evaluation of immigration and ecological questions that are engaged by these issues (Bacci 2018).

So how *do* societies respond where there is a conflict between the (perceived) needs of society, and the supply of citizens willing to undertake socially necessary but risky tasks? In a case where there are too few firefighters or nurses, a state might:

- Reconsider whether the goals in question are necessary or desirable.
- Find technical or other means of fulfilling the relevant needs.
- Mitigate the risks involved.
- Facilitate access. (Some professions are accessible only through complex pathways of education and training.)
- Increase salaries, decrease taxes, etc.
- Valorise the roles in question, e.g. link them with ideological values, teaching these ideologies in schools, etc.
- Designate certain groups — ethnic minorities, for example — or castes, as in India where certain professions are the province of particular castes (Ahmad and Shah 2022)—and compel them to undertake these roles.

These are roughly in order of most to least ethically acceptable. Coercive designation of specific groups to undertake risky tasks is, I suggest, unacceptable. The valorisation approach is also problematic; it conflicts with an important value for liberal democracies: citizens should have access to unbiased education and information, on which to form and pursue their own conception of the good. Moreover, valorisation is pernicious insofar as it undermines efforts to develop alternatives to the risky activities in question. As we saw in the case of Barrenia, scientists regarded the use of synthetic serum X to enable carriers to avoid harvesting as unacceptable *because harvesting was highly valorised*. Likewise in our societies, full ectogenesis is repudiated by many because of the ideological value ascribed to gestation.

My claim here is not that states must never attempt to shape citizens' beliefs and values, but rather that such attempts should arouse concern, especially when they press upon already vulnerable groups in society, defined by unchosen biological characteristics. A better approach is to start by asking whether these risky activities are really necessary. Are the grounds for this need well researched and based on reliable information? Are they made explicit to the people who will undertake these risks? The point about widening access is also worth noting. Some people are disbarred from gestation, even in cases where medical interventions could enable them to do so. This includes those born without uteruses.^{§§} Moreover, governments and medical institutions actively discourage certain populations from reproducing. Teenage or unplanned pregnancies are regarded as a public health problem, even in societies impacted by falling birth rates. At the other end of the spectrum, women over 40 are strongly discouraged from reproducing, and often debarred from fertility treatment (Klitzman 2016). If we really need new citizens, we could modify the social messages aimed at these groups, and even offer them assistance, whether medical, financial or social, to enable them to gestate.

To summarise here, given that societies rely on individuals' undertaking risky activities in order to produce wider social benefits, we have reason to ensure:

- The *need* for the risky activity is based on clear, and accurate information, and communicated openly to citizens
- Technological alternatives are explored alongside other strategies
- Active steps are taken to minimise the risks involved
- The risks are distributed equally – as far as possible – among those who are able to undertake them
- Those undertaking the risks are adequately recognised/rewarded
- Citizens are encouraged to respect the efforts of risk-takers, without the roles being excessively valorised
- Risks are not distributed on the basis solely of unchosen biological attributes

These principles may be drawn from more general principles of justice and fairness (Mill 1984). In this sense, they present nothing radical or counter-intuitive. However, it is clear that when we try to apply them to the case of gestation in particular, we face problems because of the biological and gendered nature of gestational capacity. A uterus is something that – barring a few exceptional cases (Brännström et al 2015) – one is either born with, or not. Thus, the final requirement here *cannot be met*. It is because of this that gestational justice is so important. Equal distribution of gestational risks and benefits cannot be achieved while women's bodies are still our only means of gestation. But we can try to come as close to it as possible, within the limits of our imperfect societies and the crude nature of our biological design.

^{§§} Currently, lacking a uterus is not sufficient for a patient to receive treatment; they must also be regarded as biologically female by the medical establishment. Some barriers to gestation could be removed by allowing men, non-binary and trans people access to these procedures.

This requires that we acknowledge the need to negotiate from a standpoint of justice. States that need more firefighters negotiate with citizens, with firefighters, and where relevant their unions. Through these negotiations, payments and conditions are settled; problems of inadequate resources are exposed, and ongoing discourse is established. The results of such discourse are inevitably imperfect: such are the societies we live in. But they represent our best efforts to ensure that those who assume the risks that our society benefits from, are treated justly.

Conclusion: towards gestational justice

Gestation can be many things: life-threatening; profoundly meaningful and identity-affirming; an invasion of one's body; the most tender and intimate connection that one human being can have with another. Gestation is also of enormous importance to society, beyond its significance to individuals. This means that those deemed to have gestational capacity are vulnerable to exploitation and coercion as well as to the inherent risks involved in gestation itself.

It is gestation that sets women apart from men as the producers of new citizens. Reproduction per se, parenting, even breastfeeding are no longer gendered to the degree they once were. Just distribution of parenting responsibilities can be encouraged socio-politically. The burdens of gestation are less amenable to such redistribution. However, if we recognise gestation as a concern for justice, it may help in developing a better approach. In particular, gestational capacity should not be an acceptable basis on which to discriminate against someone, or to constrain their choices, or to override their bodily autonomy. Since biology itself discriminates, so to speak, gestational justice imposes extra duties on societies, including compensation/mitigation of burdens experienced by gestators. The precise nature of the compensation/mitigation is something I do not attempt to specify here. However, I set out below a basic outline of why gestational justice is required, and what it entails.

Gestational justice: grounds and requirements

Gestational justice is necessary because:

- societies depend on women's bodies for the gestation of new citizens
- gestation is physically and psychologically risky
- gestational capacity is an unchosen biological attribute

These grounds give rise to three interconnected requirements for gestational justice, drawn from the frameworks discussed above: biological inequality, clinical research, and socially valuable labour:

I. Voluntariness and non-coercion

Gestation is supererogatory: admirable when freely chosen, but never obligatory. This means:

- Gestation must never be compelled
- Gestators may withdraw consent at any time and for any reason
- Potential gestators must be fully informed about the risks involved
- Ongoing consent is required, as in clinical research

The supererogatory nature of gestation follows from the fact that no-one owes their body to others. Just as we have no right to use another person's body (even to save a life), we have no duty to allow others to use ours.

II. Risk minimization and equal distribution

Because gestational risks are significant, and fall on a group defined by unchosen biological characteristics, justice requires that:

- Active steps must be taken to mitigate risks involved in gestation (including, potentially, ectogenesis)
- Unavoidable risks should be distributed as evenly as possible among those willing/able to undertake them
- Relations between gestators and medical and social institutions must be subject to heightened scrutiny to prevent exploitation

III. Recognition without valorization

States' reliance on citizens' gestational labour gives rise to obligations of transparency and recognition:

- State interests in gestation must be clearly communicated to gestators and based on reliable, accurate information
- Gestators should be adequately recognized and compensated
- Citizens may be encouraged to respect the efforts of those who undertake the risks of gestation, but this must not drift into valorizing gestational roles or reinforcing pronatalist and misogynistic ideologies

Gestational justice and ectogenesis

It should now be evident why ectogenesis alone is unlikely to achieve gestational justice, or improve the lot of pregnant women. The injustices suffered by women and gestators in our societies are exacerbated by tacit assumptions that women are biologically driven to become mothers, that gestation is a largely unimportant step towards parenthood, that because childbirth is 'natural', medical assistance represents a failure, and that states have no legitimate interests in reproduction. If we can address these problems, we will go some way towards achieving gestational justice. Ectogenesis may have a role to play in bringing this about, but it is not the star of the show. Ectogenesis could easily exist in circumstances where coercion and exploitation of gestators are commonplace. Ectogenesis will not in itself cure misogyny, remedy obstetric violence, or reduce inequalities. In conjunction with gestational justice however, it has the potential to contribute to a solution.

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