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Baldwin, Kylie

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### Kontakt/Contact

ZBW – Leibniz-Informationszentrum Wirtschaft/Leibniz Information Centre for Economics  
Düsternbrooker Weg 120  
24105 Kiel (Germany)  
E-Mail: [rights\[at\]zbw.eu](mailto:rights[at]zbw.eu)  
<https://www.zbw.eu/>

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## Chapter 2

# Contemporary Debates in Social Egg Freezing

The first chapter of this book sought to introduce social egg freezing by situating the technology within its specific social, economic and technological contexts. By drawing on social science literature and theorising, and in conjunction with work from legal scholars, feminist researchers and bioethicists, this chapter seeks to go a step further in examining the phenomenon of social egg freezing by exploring several contemporary debates which have emerged in recent years related to the practice of the technology. In particular, this chapter maps and explores key themes relevant to the practice of social egg freezing, including the medicalisation of reproductive ageing, issues of commercialisation and exploitation, the role of commercial interests in the regulation of fertility, and notions of reproductive choice and control. This chapter begins by exploring how reproductive ageing has become medicalised by new fertility monitoring and extension technologies and examines how these new technologies have reshaped the process of reproductive ageing into a pathology requiring fixing and repair. It then explores how egg freezing technology has produced a highly commercialised and lucrative form of revenue for fertility clinics which not only exploits women's desires for a genetically related child but also creates and capitalises on new anxieties related to anticipated infertility. As part of this examination this chapter also considers how improvements in the technological processes of egg freezing may lead to greater exploitation of those involved in the selling or donation of eggs, particularly those who come from more marginalised and less economically stable groups. Following this discussion this chapter then turns to explore the highly contentious issue of company-sponsored egg freezing (CSEF) and maps the benefits of such a funding model, but also more critically examines the potentially negative implications of such an offer on the progression and well-being of women in the workplace. Finally, it concludes by considering to what extent social egg freezing enhances women's reproductive choice and considers whose reproductive and mothering horizons are being broadened by the technology as well as whose are being left behind.

### 2.1. Medicalisation of Reproductive Ageing

Social egg freezing is part of a wider array of technologies, treatments and procedures organised around the medicalisation of infertility and of women's bodies in the reproductive domain which are known to have gendered, classed and

racialised dimensions and effects (Becker & Nachtigall, 1992; Spallone & Steinberg, 1987; Stanworth, 1987). However, unlike traditional IVF, social egg freezing and allied technologies of fertility testing such as 'Fertility MOTs'<sup>1</sup> go beyond the medicalisation of infertility and take as their target the natural and inevitable process of age-related fertility decline. Age-related fertility decline has historically proven difficult to predict, visualise or mitigate against. However, through the (pseudo)quantification of women's reproductive potential via ovarian reserve tests and in the number of eggs 'banked' for future use, fertility monitoring and extension technologies are providing new ways to render fertility decline visible and thus open to monitoring and management. I suggest that by reconstructing reproductive ageing as something malleable, the process of ageing becomes reframed not as something natural, inevitable and thus beyond the control of social actors but as something pathological and in need of a techno-medical fix. By widening the scope of medicalisation to include reproductive ageing, the nature of in/fertility also becomes redefined; the normal stage of assumed fertility all but disappears and what is left behind are two pathologies of infertility, and what Martin (2010, p. 526) has termed 'anticipated infertility'.

Martin (2010) describes anticipated infertility as the condition of believing or expecting that one may be infertile in the future and notes how this new reproductive pathology, like infertility, requires management and treatment in order to fulfil normative social expectations of motherhood. The pathologising of ovarian ageing engendered by technologies of fertility monitoring and extension and the way fertility decline is reconfigured as something to be monitored and managed also gives rise to new anxieties and responsibilities on behalf of women to not only anticipate their own infertility but also consider drawing on new biomedical interventions to secure the mothering futures that they may desire. This is significant as 'anticipated infertility' as a category is expansive and applicable to many if not most women who have not yet been diagnosed as infertile. Thus it is important to recognise how, unlike more traditional and established forms of assisted reproductive technologies, egg freezing and fertility testing are targeted at presumably healthy women and how women are incorporated into what has been referred to as the 'fertility industrial complex' (Campo-Engelstein et al., 2018) long before they know whether they will 'need' fertility treatment, or even before they have decided whether they want to become a mother. The expanded scope of medicalisation to include age-related fertility decline is highly congruent with a culture that constructs ageing of any kind as a defect or disease

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<sup>1</sup>Ovarian reserve tests are sold by some private clinics as a part of 'fertility assessments', 'fertility check-ups' or 'fertility MOTs' costing around £200–£300. An ovarian reserve test seeks to assess the quantity of a woman's remaining egg supply in an attempt to predict reproductive potential. Ovarian reserve assessments are undertaken through blood tests to measure the presence and amount of follicle-stimulating hormone (FSH) and anti-Müllerian hormone (AMH). An antral follicle count can also be undertaken using transvaginal ultrasonography to identify the number of visible ovarian follicles.

that can and should be monitored, slowed or ameliorated through biomedical intervention (Petersen, 2018). As such, the expectation placed on individuals to draw on new biotechnologies such as social egg freezing in the pursuit of parenthood is highly reflective of a social context which encourages social actors to engage with the mechanisms of the market in the construction of their biographical project as well as to transform themselves through the act of consumption.

## **2.2. Commercialisation and Exploitation**

The fertility market is extensive and has been growing at a significant pace over the last four decades and offers those with the financial resources required the opportunity to transform their bodies and lives through the procurement of various fertility treatments and procedures to help achieve the goal of parenthood. The development and refinement of egg freezing technology is the latest reproductive tool to have been commercialised, and it is possible to identify multiple dimensions of this commercialisation. Social egg freezing has been commercialised firstly as a new reproductive practice of fertility extension and genetic conservation related to the management of anticipated infertility and fertility risk. However, the technology has also more generally become commercialised as a new tool in the practice of egg donation. These two dimensions of commercialisation and their potential effects are now examined in turn.

The notion of social egg freezing as a form of consumption is evident in the language used in its discussion, which is laden with market-based and economic references and metaphors (Romain, 2012). These metaphors and tools routinely present egg freezing as a form of ‘insurance’ and as an ‘investment’ and construct the female user as a ‘fertility banker’ who deposits her biogenetic resources with the possibility of returning to make a withdrawal at a later date (Carroll & Kroløkke, 2018, p. 993). The practice of social egg freezing sits within a wider ‘tissue economy’ wherein bodies and body parts such as organs, blood and reproductive cells have become reified and commercialised both as commodities for the self and as resources that can be ‘gifted’ to others (Waldby & Mitchell, 2006). Like other forms of autologous tissue banking, social egg freezing is inherently future oriented and sees the banking of reproductive biovalue which becomes more precious once it is frozen and stored than it would be left to age contained within the body. Thus, the egg freezing market is predicated on the banking of an object that declines in value prior to cryopreservation and which is not easily exchangeable in transactions due to its own unique and therefore priceless quality (Campo-Engelstein et al., 2018). The biocapital created via autologous egg banking for future use therefore emerges not from the reproductive material being used in the development of new therapies or treatments but in the way the eggs can be deployed in selling a vision of the future, in particular one where the possibility of genetic motherhood has remained intact (Petersen, 2018). As with many other technologies of assisted reproduction, the possibilities offered by social egg freezing remain tantalising for potential users due to the way it may enable access and

participation in the social world of the family. However, it is perhaps this very quality of the technology which leaves women vulnerable to exploitation by the commercial profit-driven enterprise of the fertility industry.

The potentially commercially exploitative nature of social egg freezing has been critiqued by several authors who suggest that the technology may ultimately be selling women false hope for a future child (Harwood, 2015; Mohapatra, 2014). Deceptive marketing tactics and a lack of clarity and transparency about success rates have also been accused of making it difficult to distinguish hope from hype when it comes to the chance of a future live birth (Reis & Reis-Dennis, 2017). Indeed, Carroll and Kroløkke (2018) have suggested that egg freezing may be a technology of 'cruel optimism' which could result in significant disappointment for many of its users. Social egg freezing not only deals in discourses of hope by exploiting the desire for a genetically related child but also creates and capitalises on new anxieties related to anticipated infertility as well as socially produced expectations of responsible and active ageing (Brooks, 2017). These issues, and how women experience them, are explored in more detail in Chapter 4. Whilst the commercialisation of social egg freezing has no doubt had an impact on women who draw, and consider drawing, on the procedure in an attempt to extend their fertility, the increased viability of egg freezing is recognised more widely as one of the most significant recent developments in reproductive medicine which has far-reaching implications beyond the use of the technology as a form of fertility extension and genetic conservation. As such, the second way in which egg freezing technology has been commercialised is as a tool in the practice of egg donation.

Human eggs have long been commercially valuable due to their increasingly diverse use in reproductive services and research. The ability to freeze eggs and effectively take them out of time and space expand the scope and possible use of the material and thereby their clinical and commercial value (Waldby, 2015). Extracted egg cells are a highly prized commodity in the fertility market as they can not only be used to achieve pregnancies following reproductive donation but are essential to new developments in reproductive medicine, such as mitochondrial replacement therapy, and are crucial to several areas of stem cell research, including somatic cell nuclear transfer (Baylis & McLeod, 2007; Dickenson, 2013; Robertson, 2014). However, the value that human eggs hold within the fertility and medical research industry is in part due to their scarcity as a biological resource (Waldby, 2015). Numerous studies examining altruistic egg donation have identified a low willingness among egg donors to donate eggs for research purposes who instead prefer to donate to individuals for use in fertility treatment (Byrd, Sidebotham, & Lieberman, 2002; Murray & Golombok, 2000). However, it is possible that eggs originally collected and stored for fertility extension purposes may emerge over the next few years as a new source of donor eggs available to researchers and clinics for use in third-party reproduction as well as in research.

Unlike sperm, the procurement and storage of eggs are much more complex. IVF using donated fresh eggs requires the synchronisation of donor and recipient cycles allowing retrieval, fertilisation and embryo transfer to take place at

the same time and place (Jackson, 2018). The development of egg freezing technology however has enabled the severing of this localised tie, which means that eggs can be retrieved from one individual, frozen and then transported in relative safety to a recipient who may be in an entirely different geographic location from the donor. These eggs may then be used in fertility treatment several days, weeks, months or even years after the initial retrieval took place. The development of viable frozen donor egg programmes has seen clinics in America and Spain, among other countries, import eggs from overseas as well as recruit egg donors not only from within their own borders but from other countries (First egg bank, n.d.; Heng, 2006). Indeed, research has shown that countries such as Spain routinely procure donor eggs from students and migrants from Eastern Europe (Bergmann, 2011). The development and refinement of egg freezing means that the transportation and storage of these eggs can be performed with greater ease, enabling in some cases for one yield of eggs from a single donor to be split amongst two or more recipients and thus increasing the revenue received from each donor (Robertson, 2014). As such, egg freezing technology is now playing a pivotal role in the thriving global bioeconomy of eggs (Waldby, 2019). However, the increasingly commercialised nature of egg donation engendered by practices of egg freezing has potentially significant implications for donors as the process of egg donation is not risk free. In countries such as the United States the selling or donation of eggs for use in third-party reproduction tends to privilege egg sellers with a 'desirable' phenotype which sees them disproportionately drawn from college-educated and middle-class groups who are often highly remunerated for their reproductive material (Johnston, 2006). By contrast, the procurement and use of eggs in stem cell research or in the process of mitochondrial donation most often only require eggs which will be enucleated. These eggs can therefore be drawn from a wider pool of egg donors or sellers regardless of their specific phenotype. Most often, however, these eggs will be procured at a cheaper rate from more marginalised, less economically stable egg sellers than those whose eggs go on to be used for reproductive donation (Dickenson, 2004, 2013). Thus, by enabling the storage and transport of eggs with greater frequency and ease, developments in egg freezing may have a significant effect on donation practices and may further expand the potential exploitation of egg sellers in other countries who, unlike those in the United Kingdom, do respond to payment incentives to sell their oocytes for research purposes (Bergmann, 2011). A further, but very different, way in which egg freezing technology has led corporate or private interests to intersect with the reproductive lives of women is via the offer of CSEF.

### **2.3. Company-sponsored Egg Freezing**

Like many other forms of assisted reproductive technology social egg freezing is an expensive procedure costing in excess of £4,000 in the United Kingdom for cycle of stimulation and retrieval, with additional storage fees of as much as £350 per year. This cost is particularly significant if women need to undergo

multiple cycles to retrieve a sufficient number of eggs for storage. As the cost of egg freezing can be so high, the technology is only accessible to a small number of women who not only have the economic resources required to afford the upfront costs of the procedure and the ongoing storage fees but are also able to afford further IVF treatment should they need to use their eggs in fertility treatment in the future (Cattapan, Hammond, Haw, & Tarasoff, 2014). It was, in part, this exclusionary price tag which led Silicon Valley employers, Facebook and Apple, to announce in 2014 that they would be adding funding for social egg freezing to their employee benefit package. This new 'work perk' would allow eligible staff and their partners or spouses to be reimbursed by up to US\$20,000 for costs accrued during egg freezing as well as subsequent IVF treatment. Since their initial announcement, many other employers, including JP Morgan, Microsoft, Google, Intel, Uber and Netflix, have followed suit in adding the technology to the list of 'perks' that are available to their employees. Whilst the provision of employer-funded egg freezing was received positively by some quarters of the media, it is important to consider the potential implications of such an offer and the effect that CSEF may have on users, as well as on potential users of the technology both within and also beyond the Silicon Valley.

The offer of CSEF emerged in the context of a significant gender imbalance in the demographic of many Silicon Valley employees. Sixty-five to seventy per cent of the global workforce of Facebook, Apple, Twitter and Google are believed to be male, with women and people from ethnic minority backgrounds significantly underrepresented in these large companies (Datta, 2017; Grant, 2016). The gender imbalance identified in these organisations has been attributed, amongst other issues, to the male-oriented workplace environment which can be unfriendly to female employees, particularly those wishing to combine career and family plans (Geisser, 2018; Mertes, 2015). As such, the offer of CSEF is consistent with attempts by such corporations to further diversify their workforce as well as close their gender pay gap (Geisser, 2018). The architect of the Facebook egg freezing 'perk', Sheryl Sandberg described how the decision to include egg freezing in their benefit package was made not only to support the family building interests of women undergoing treatment for cancer but also to help attract talented staff members and to improve employee loyalty and retention (Datta, 2017; Grant, 2016; Mertes, 2015). Employee loyalty and staff retention are significant issues in Silicon Valley, which has a highly mobile talent base of professionals who routinely receive job opportunities from other employers (Harris & Alter, 2014). As such, a so-called perks arms race has erupted amongst many e-commerce, technology, finance and legal firms to recruit and maintain valuable staff members (Liu, 2017).

The benefits of egg freezing have been commonly couched in much discussion as providing women greater reproductive choice over the timing of motherhood as well as enabling them more time to find a partner, become established in their career and accrue a degree of financial stability prior to pursuing parenthood (Goold & Savulescu, 2009). However, fertility clinics have been accused of misrepresenting the costs and benefits of the technology and have been criticised for offering an expensive procedure which in some instances has a very low level of

success (Reis & Reis-Dennis, 2017). As Mertes (2015) has previously noted, one of the potential benefits of CSEF may therefore be that women who access the technology via their employer will not risk financial exploitation as they will not be paying for the procedure themselves. Equally she notes that by being able to access the procedure essentially free of charge, women who are considering freezing their eggs may make use of the technology at an earlier age when the chance of a future live birth may be higher. By drawing on the technology when they are younger women may also require fewer cycles of the procedure to bank a sufficient number of high-quality eggs for potential future use. Whilst the likelihood of achieving a live birth with frozen eggs may not be significantly high at any age, Mertes notes how the procedure may provide women an additional chance at genetic motherhood and therefore could be valuable to many women who would have delayed motherhood regardless of whether the CSEF was available to them or not.

Since egg freezing has only relatively recently been included as an employee benefit little is known about women's perception of such a 'work perk' and how, if at all, it has shaped their intentions towards the technology. Similarly, the consequences of offering social egg freezing as a benefit remain yet unseen. However, the move by employers such as the Department of Defence, Yahoo and Facebook to offer CSEF has prompted significant debate and discussion amongst social commentators as well as academic feminists, bioethicists, social scientists and legal scholars alike (Baldwin, 2014; Baylis, 2015; Bricknell, 2016; Geisser, 2018; Mertes, 2015; Moore, 2017). These authors and others raise several concerns about the message that CSEF conveys about the possibility of combining a family with a career and identify further potentially negative implications of such perks on the progression and well-being of women in the workplace.

The male-dominated tech industry has been repeatedly accused of gender discrimination, sexual harassment, pay disparities, racial bias and ageism (Fowler, 2017; Huddleston, 2015; Levin, 2017). As such, the offer of CSEF has been received with much scepticism by many authors, who have accused employers offering the technology of providing only a piecemeal and even lazy response to the persistent inequalities in the workplace which instead require more thoughtful and concerted policy and cultural change (Geisser, 2018). Indeed, as François Baylis has argued, CSEF may not only be counterproductive in securing better workplace environments for women but could be considered 'offensive' and 'disempowering' due to the way it entrenches the otherwise subtle message that motherhood is incompatible with a career and that women who have children are not concerned with career advancement (2015, p. 65). Bricknell (2016) and Grant (2016) have similarly suggested that CSEF merely perpetuates a culture where a successful career and motherhood are deemed to be mutually exclusive and argue that the offer of such a 'perk' actually misrepresents employer discrimination as a fertility 'choice'. A further significant concern I raised when Facebook and Apple first announced their intentions with regard to the technology was that the availability of egg freezing, and its normalisation as a method of fertility management, could lead employers to expect women to engage with technology and, by extension, doubt the work ethic and career

commitment of those who resisted its use (Baldwin, 2014; Mohapatra, 2014). Several other authors have similarly noted how women may feel implicit pressure to draw on the technology or face the hazard of being considered a maternity risk by their employer and may feel under further pressure to delay motherhood potentially past the time they would ideally choose (Baylis, 2015; Harwood, 2015; Mertes, 2015). These authors note how such an adverse outcome for women would be in part dependent upon whether employers knew who had, and who hadn't, drawn on the technology. However, as Geisser (2018) has noted, even if employers were unaware of these details, users of egg freezing could nevertheless feel indebted to their employer in a highly personal way. Further complex issues also arise when considering, for example, what would happen to a woman's frozen eggs if she left the company. Would she be required to pay back the cost of egg freezing in a similar fashion to when an employer pays for the acquisition of a higher degree? What if the woman's contract was terminated? Furthermore, could the use of egg freezing come subject to terms and conditions detailing how long the user may need to wait to access their eggs, or a minimum term of employment the user needs to complete prior to having children? As Bricknell (2016) has previously articulated, an employer could argue that after paying for an expensive procedure it is not unjustifiable to require the employee to commit to working for the company for a certain period of time prior to having children to ensure the investment would be recouped. Such a circumstance whether explicit in the terms or conditions of access, or implicit as a tacit expectation of use, CSEF has the potential to be significant in constraining and not enhancing women's reproductive choices.

As Mohapatra (2014) has previously observed, if professional workplaces were more hospitable to working parents and supported women to have children at an earlier age, then it is unlikely that CSEF would hold such an appeal. Indeed, CSEF has been accused of being a short-term 'band-aid' or sticky-plaster which does little to challenge or disrupt the norms of male-oriented workplaces, but which may in fact further entrench their dogma (Geisser, 2018). Furthermore, by co-opting a rhetoric of reproductive choice through egg freezing the male-oriented workplace may not only be reinforced but more difficult conversations about workplace restructuring may be quietened (Datta, 2017). Thus, the deployment of egg freezing to address gendered inequalities in the workplace may be highly problematic if CSEF is implemented at the expense of, or not alongside, other more family friendly policies which support having children as well as delaying childbirth (Mertes, 2015). Whilst being one of the first companies to provide funding for social egg freezing, Facebook is known to offer a generous shared parental leave package which includes four months of paid leave, designated breastfeeding rooms, as well as US \$4,000 towards the cost of providing for the child. The company also provides paid leave to assist in the care of ageing or unwell family members, a role which disproportionately falls on women rather than men (Papastavrou, Kalokerinou, Papacostas, Tsangari, & Sourtzi, 2007). If egg freezing is not accompanied by such policies but is delivered at their expense, then a clear message is conveyed to staff members that their employers prefer

them to delay childbearing or even remain childless (Mertes, 2015). Such an environment is clearly alienating to women who wish to combine career building and success with motherhood.

As Heidi Mertes (2015) has argued, for CSEF to be a truly empowering and liberating experience women need to be fully cognisant of the benefits and risks of the procedure with a clear sense of how likely the technology may be in enabling them to become a mother in the future. She further notes that potential users should feel under no pressure to take up the offer of CSEF and that their use, or non-use, of the technology should have no influence on their career opportunities. Finally, she states how funding for social egg freezing should have no negative effect on other family friendly policies which should in fact accompany any offer of the technology. In such a situation, Mertes argues that CSEF may serve the interests of the small number of women for whom egg freezing is their best available option for achieving their parenting desires. However, she, like many others, remains sceptical about the feasibility of such requirements and instead suggests that all ‘sincerely feminist companies’ (2015, p. 1209) should not include egg freezing in their benefit packages. Instead she and other authors argued that companies should invest in enabling women (and men) to balance professional and parental obligations through family friendly policies and initiatives. This could include shared parental leave, flexible working hours, homeworking, on site or subsidised childcare, part-time working and job shares, as well as allowing parents to undertake a compressed working week (Datta, 2017; Geisser, 2018; Mertes, 2015). These policies and initiatives would have far more reaching benefits for a greater number of individuals than social egg freezing and would contribute to a significant step change by restructuring the male-oriented workplace into a space where those with caring responsibilities of all kinds could best thrive.

## **2.4. Extending Fertility and Enhancing Reproductive Choice**

In recent years social egg freezing has been the focus of growing academic enquiry and exploration and the technology has captured public imagination and initiated widespread debate in a way perhaps not seen since the initial development of IVF in the 1970s. Part of this enthusiasm and interest in the procedure no doubt stems from how the technology has the potential to further expand (some) women’s reproductive options, enabling greater reproductive choice about the timing and practice of parenthood. Indeed, since taking centre stage in the social zeitgeist, the technology has been heralded as marking the start of a new ‘reproductive revolution’ (Inhorn, 2017) and has been referred to as the twenty-first-century equivalent of the contraceptive pill which could be women’s ‘emancipation set in stone’ (Homberg et al., 2009, p. 1319). Whilst such proclamations may be somewhat hyperbolic, they nevertheless reflect the optimistic expectation that the technology may expand the reproductive options of its users in diverse and hopeful ways by extending the period of time in which women have to pursue biogenetic motherhood. This chapter will now conclude by

considering not only how social egg freezing may enhance the reproductive choices available to its users but also whose reproductive choices are being overlooked and marginalised by this technology.

As Dondorp and De Wert have previously noted, women are often 'caught between many demands calling for simultaneous realisation in a short period of their lives' (2009, p. 1781). This may include the completion of education, the pursuit of higher degrees, the establishing of a career and the development of an intimate relationship in which they may wish to pursue childbearing. However, unlike men who are able to go on producing children with relative ease as late as their 70s, women's reproductive capacities begin to falter as soon as their late 30s. As such, the development and possibilities offered by social egg freezing may be of significant value to women as it may allow them more time to become ready for motherhood (Goold & Savulescu, 2009; Harwood, 2015; Rybak & Lieman, 2009). Similarly, it has been noted that by being able to more safely delay attempts to conceive women may be able to take their time in choosing the right partner and father for their child and, as Petropanagos (2010) has observed, this may help them avoid rushing into relationships with the wrong partner, such as those who may be emotionally or physically abusive.

Unlike most other assisted reproductive technologies, egg freezing extends the amount of time women have to attempt motherhood using their own genetic material by conserving their reproductive potential which can then be deployed at a time of their choosing. The possibility of keeping open such a reproductive choice is significant given the way that genetic motherhood continues to be prioritised and held above all other forms of kinship relations (Carroll & Kroløkke, 2018; Mertes & Pennings, 2011). As well as conserving a genetic relationship between mother and child, the technology also maintains the possibility that women may be able to pursue parenthood with a chosen partner who will also importantly share a genetic relationship with the child. In doing so the technology provides some women with an additional reproductive option prior to pursuing single motherhood via sperm donation and enables them to maintain the possibility of pursuing the particular construction of motherhood which they most desire.

As well as avoiding or at the very least delaying the use of donor sperm, egg freezing also allows women the possibility of effectively becoming their own egg donor, thereby side-stepping the need to use eggs donated by another woman in future IVF treatment. Whilst the use of donor eggs has been shown to increase the success rate of IVF in older women (Navot et al., 1994), and despite the widespread acceptability and ethical sanction of their use, many women may feel uneasy about relying on the reproductive labour of a third party not just because the use of donor eggs severs the genetic relationship between mother and child but also due to concerns about the physical and psychological welfare of the donor (Rybak & Lieman, 2009). The use of donor eggs in reproduction also adds a further layer of complexity with regard to informing the child of their genetic origin which has the potential to cause emotional distress and confusion as they age (Allan, 2012). As such, the use of autologous self-donation

enabled by egg freezing circumvents these concerns and problems by preserving the possibility of genetic motherhood even as women age.

As early as 2000, Gosden, Tan, and Oktay (2000) identified how social egg freezing could provide additional reproductive options to women who they described as 'late starters' (2000, p. 1057) and who were, for whatever reason, not yet ready or able to pursue motherhood but were nevertheless advancing towards the end of their fertile years. Indeed, social egg freezing has since been identified by many authors as offering some women the possibility of postponing motherhood whilst focusing on other pursuits such as the completion of higher education and acquisition of professional qualifications or by providing more time to secure and progress in their careers (Goold & Savulescu, 2009; Harwood, 2015). In doing so the technology has the potential to alleviate some of the stresses, guilt and anxieties experienced by women when having to choose between higher education and career development versus starting a family (Petropanagos, 2010). There are also obvious benefits inherent in allowing women more time to become financially, emotionally and psychologically ready for motherhood, and such benefits will most likely be shared by their offspring. However, whilst social egg freezing has the potential to expand and enhance the reproductive choices available to some women, as Mertes and Pennings (2011) have previously argued, egg freezing may only deliver on these possibilities for some of its users. As such, they suggest that for social egg freezing to be 'for better and not for worse' (2011, p. 824), the technology needs to be drawn upon by women before their fertility significantly declines, such as in their early 30s.

Whilst egg freezing may expand the reproductive options of some of its users, it is important to consider and recognise whose reproductive and mothering horizons are being broadened by this technology as well as whose are being left on the sideline. Egg freezing has previously been described as having the potential to 'level the playing field' between women and men, allowing women 'time unlimited control' over their fertility and enabling reproductive parity with potential male partners (Dondorp & De Wert, 2009; Rybak & Lieman, 2009). Indeed, as Jackson (2018) has previously identified, the technology has the potential to make the lives of affluent, well-educated women more like those of affluent well-educated men. However, the high cost of the procedure means that the technology remains out of reach even for some middle-class groups, with women from poorer communities excluded from accessing the technology all together (Inhorn, 2017). Even if CSEF is considered a social good due to the way it enables greater access to the technology, it is nevertheless important to note that that this 'benefit' is unlikely to ever be extended to women in insecure employment or in low-wage, low-status jobs (Jackson, 2018). Instead many authors suggest that employer coverage and widespread use of the technology would be likely to further re-entrench and aggravate racial and class inequalities, exacerbating the chasm between highly educated and privileged groups and those with less economic and social power (Carbone & Cahn, 2012; Geisser, 2018; Inhorn, 2017). Thus, whilst egg freezing technology grants some of its user's greater reproductive choice and control, it is important to remember that it remains beyond the reach of most

women and, as explored above, even further serves to commoditise the bodies of the most marginalised (Carroll & Kroløkke, 2018).

Whilst social egg freezing may enhance the reproductive choices and opportunities of the small number of women who actually draw on the technology, the *offer* of the procedure and its technological availability can be seen to affect women in much larger numbers. This is because women with ‘anticipated infertility’ are not only provided additional reproductive choices and options through the availability of social egg freezing but are also confronted with new responsibilities to consider the technology in the management of their fertility. Indeed, whilst the option of additional reproductive choices may seem self-evidently desirable, there are often costs associated with having such additional choices. These costs may include greater pressure to consider and engage with these technologies in the pursuit of parenthood as well as a fear of future regret and recrimination for failing, or being unable, to take advantage of them. Indeed, as Jackson has asked, ‘if a woman’s future infertility becomes something over which she could exercise some control, does it also thereby become her responsibility?’ (2018, p. 8549). This dual issue of responsibility and fear of regret are unpacked and explored in more detail in the context of participant accounts in Chapter 5 of this book. Thus, whilst social egg freezing may offer some women a chance to wield greater control over the timing and circumstances in which they pursue motherhood, it is nevertheless important to recognise how the offer of the technology is predicated on a highly individualistic orientation towards reproductive timing which obscures how multiple systems of power and inequality constrain the choice-making abilities of many women. Furthermore, it is important to note how the mere presence of additional reproduction options does not necessarily translate into greater empowerment and control since these new opportunities may also create new social pressures and obligations to act in a particular way (Harwood, 2015).

This chapter has explored several key debates related to the practice and experience of egg freezing and has identified themes of medicalisation, commercialisation, risk, reproductive control and reproductive choice which permeate throughout this text. The next chapter of this book turns to explore the complex issue of reproductive timing and examines how decisions about the timing of parenthood are highly interconnected and contingent on many different factors often beyond the control of women as individuals.