

## Nurture commodified? An investigation into commercial human milk supply chains

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### ABSTRACT

The material conditions in which women provide breast milk range widely, on the basis of their class and geographical provenance. The commercialisation of breast milk provision throws up questions related to debates on the transnational reconfiguration of social reproduction as they intersect with discourses on motherhood and healthy child development as well as contemporary processes of commodification of the body and the emergence of new gendered forms of atypical work in the global economy. This article presents a study of the first commercial human milk processor in India, NeoLacta Lifesciences that obtained an export license for the Australian market in 2017. These practices may be seen to be part of a wider Reproductive Industrial Complex, in which women's reproductive bodily capacities are enrolled in wider economic and financial processes, instantiating new relations between gender, race, economics and care. This article employs a feminist political economy framework that places into dialogue analyses of social reproduction and commodification with feminist science/technology studies and medical/political anthropology in order to analyse the social, political, and technical processes that transform breast milk into a commodity that is internationally traded and the implications of this for contemporary understandings of work and gender.

### KEYWORDS

Feminist science/technology studies; feminist political economy; social reproduction; commodification; breastfeeding; gender and work; critical global value chains

### Introduction

In the last 15 years, human milk has been transformed from 'just' an embodied food substance into a tradable commodity. In the intervening years since Nestle began to market its infant feeding supplement, and the battles that have ensued over that since 1974, breastfeeding has become a politicised public health issue with its own biopolitics. The production, politics and economics of human milk markets is an extension of that history with its own unique set of economic and political implications.

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The biopolitics of breastfeeding and of the health benefits of human milk for vulnerable infants, rather than manufactured milk substitutes derived largely from cows, has led to a demand for breast milk in high income countries, especially by parents who do not breastfeed for various reasons including physical difficulties and facing pressures to return to work owing to the lack of paid maternity, adoptive parents and parents of babies carried by surrogates. This demand has largely been met on a relatively local scale through informal networks of milk sharing, commercially through milk banks and largely unregulated peer-to-peer selling, to finance maternity leave for example (Kent *et al.*, 2019). More recently, transnational breast milk supply chains have emerged to serve the growing market. The Utah based Ambrosia Labs established clinics in Cambodia and began exporting breastmilk to the US in 2015. The practice ceased in 2017 when the Cambodian Government banned exports owing to concerns over the exploitation and vulnerability of women who sold 'excess' breastmilk and the implications of the practice for their own children's nutrition and health. Ambrosia Labs on the other hand have emphasized the voluntary nature in women entered into commercial relationships and stressed the relative benefits of milk provision as a source of income over the alternatives away from their young children.

Concerns over the ethics and exploitative practices of paying women to supply human milk have also been raised in relation to the Oregon-based Medolac Laboratories targeting of African-American and low-income women (Ronan, 2015). This continuation of 'stratified reproduction' (Colen, 1990), depends on the willingness of poor racialised to supply the much needed milk (see also Lee, 2019). Medolac calls its product 'co-op donor milk', due to the relationship it had with a 'mothers milk cooperative', presenting it as though it were a shared ownership among donors and eliding the fact the donors are not themselves profiting from their milk providing labour in the same way the actual owners of the company are. Lee (2019) suggests that this company and others operate what they refer to as 'public' milk banks out of hospitals in a manner that also obscures the commercial nature of production which takes place when the milk goes from the milk bank to processing and packaging sites. This 'cooperative' milk model was halted due to the efforts of black feminists in the Detroit area opposing the sourcing of milk from a population with generally low breastfeeding rates, lack of partnerships with local breastfeeding organisations and as a response, as well, to the history of black women acting as wet nurses to white women (Allers, 2014; Harrison, 2019; Lee, 2019).

Such criticisms and concerns are central to the emphasis by another US firm, Prolacta, on their voluntary and non-incentivised practices of sourcing of donor milk. Prolacta runs a project that receives donor milk in the US and ships it to Africa, appearing as an international aid project. This project was started by a breastfeeding mother but, according to Lee (2019) is now managed by Prolacta, which sells most of the milk in the US for a profit. Whilst voluntary and non-incentivised, the colonial nature of international aid has been widely critiqued and discussed (Cohen *et al.*, 2008). In addition, the simple use of the term 'voluntary' does not infer that no labour or exploitation is taking place. Companies such as Prolacta are relying on common assumptions that where there is no monetary exchange there is no participation in exploitative labour relations or market practices.

The emergence of international supply chains for human milk can be viewed from the perspective of the ‘crisis of care’ in the Global North. Rooted in the inherent contradiction between economic production and social reproduction under capitalism, the contemporary crisis of care is an expression of the contradiction under financialized capitalism (Fraser, 2016). The crisis of care has resulted in a “dualized organization of social reproduction, commodified for those who can pay for it, privatized for those who cannot” (Fraser, 2016, p. 104) Filling the ‘care-gap’ with commodified care work relies upon the labour of racialized, poor and migrant women whose resulting ‘care gap’ is filled by still poorer caregivers along ‘global care chains’ in a process of displacing the care-gap from richer to poorer families and from the Global North to the Global South (Dunaway, 2013; Fraser, 2016; Lee, 2019; Sen, 2009; Vertommen et al., 2021; Vora, 2015).

The ‘choice’ for women to breastfeed has been expanded *via* the development of the breast pump that is presented in the first instance as a tool for ‘liberating’ new mothers from the domestic realm to return to work whilst providing optimal nutrition for their infants<sup>1</sup>. New technologies for home pasteurization of breastmilk have been promoted in Bangladesh so that women can work long shifts in factories and still nurse their infants. Meanwhile, Ambrosia Lifesciences justified their purchase of breastmilk in Cambodia as a means to save women from arduous factory working conditions by providing an alternative source of income. The contrast of these narratives highlights that the distinction between women inserted into the supply chains of corporations as suppliers and those that enter the factory as a wage worker is not a straightforward one.

In the following section, we discuss approaches from feminist economics, feminist political economy and feminist science studies and anthropology that seek to resolve the dualisms between work/non-work, productive/reproductive labour, gift/commodity, that girder the methodological and structural separation between domestic and productive realms in relation to human milk provisioning. We then turn to our empirical analysis, based on first hand research, of the fluid distinctions and relations between paid/unpaid, wage/unwaged and work/non-work in the process of breastmilk commercialization by analysing the supply chain of NeoLacta Lifesciences, an Indian firm established in 2016 and based in Karnataka that specialises in infant nutrition produced entirely from human milk. Our analytical approach has been informed by critical approaches to global value chains and feminist science/technology studies (STS) which has demonstrated how things come into being through practices that produce them (such as Anne-Marie Mol’s work on the materialisation of arteriosclerosis in *The Body Multiple*, 2002). This approach involves tracing the social and technical processes *via* which human milk is transformed into a commodity. In this way, our analysis moves the international and feminist political economy literature forward by marrying insights from critical approaches to global value chains/global commodity chains that link global processes of economic restructuring with local experiences of production and labour exploitation with insights gained from feminist STS that inform a feminist everyday political economy (Elias & Rai, 2019).

The findings are based on online research and research on the ground between December 2019 and February 2020. Methods include semi-structured qualitative interviews, ethnographic participant observation, documentary analysis of ‘artifacts’ from the field, including forms from laboratories, public health documents, and online resources<sup>2</sup>. The article concludes with some reflections.

## Acting on dualisms

Since at least the 1970s feminist scholars from various disciplines have interrogated dualisms (Ortner, 1972; Elias & Rai, 2019). Specifically, feminist political economy and anthropology have dealt with questions surrounding the methodological/structural separation between domestic and productive realms and the extent to which paid/unpaid, wage/unwaged, work/non-work, productive/reproductive labour, gift/commodity (Federici, 2012; Strathern, 1988; Vogel, 1983) These are understood as Cartesian dualisms or fluid distinctions and relations that are socially constructed and in some cases instrumentalised – e.g. to reduce financial compensation for work done. The example of the commercialisation of human breastmilk offers a case study for arguing that the distinction between social reproduction and productive realms becomes blurred, with the sites of social reproduction being not just places that support the productive realm but are a part of the wider chain of value production and appropriation that is best understood as a dialectical process. In this respect, we raise similar issues to those investigated by Vertommen and Barbagallo in their study of commercial surrogacy in this issue while offering a different case study where the product of women’s work is more readily commodified. This section presents a selective review of approaches from feminist economics and political economy to the dualisms pertinent to the question of women’s work in breastmilk provisioning and its commercialisation.

## Putting a price on it

Smith (2004) presents a feminist economics analysis of breastfeeding. Its starting point is in a common critique levied by feminist economists and pioneered by Marilyn Waring’s critique of national accounting (Waring & Steinem, 1988). Waring argues that conventional economic approaches to public policy that rest on misleading measures and concepts of economic efficiency render much of the work of women, particularly in relation to domestic labour, invisible and unaccounted for. Smith’s concern is that, whilst putting a dollar value on mother’s milk might appear morally repugnant, the economic invisibility of maternal labour “can have major consequences for the ‘market’ for mother’s milk, for infant and maternal health and well-being, and for appropriate public policy” (Smith, 2004, p. 369).

Whilst correctly pointing to the unpaid nature of breast feeding and the social institutions that reproduce the false dichotomy between ‘altruistic’ and ‘market’ motivations that are at the fore of feminist economics analysis (Folbre, 2013), there are limitations with the way that Smith proceeds in developing a valuation of the processes for women’s labour in milk production and infant feeding. Smith (2018; 2013; 2012) and Smith and Ingham (2001) approach the valuation of human milk within SNA by imputing the market value of the product from the price of human milk substitutes as a shadow price alongside prices for human milk charged by some milk banks. It is therefore devoid of an ‘objective theory of value’ – price and value are synonymous in the neoclassical economics framework as value is imputed by the amount a consumer is willing to pay. This renders the prices that arise along commodity supply chains as ‘natural’ reflections of ‘value-addition’, rather than patterns of value creation. This in turn obscures corporate practices of valuation and value appropriation that are made possible in the first place by unequal

power relations between suppliers and buyers along these chains (Quentin & Campling, 2018; Selwyn, 2019). Our analysis below of the process through which human milk is turned from a bodily fluid apparently devoid of economic value and labour, through a chain of socio-economic-technical processes, into a commodity bears this out. We begin with the understanding that value is created by human labour involved in milk production and reveal how power imbalances affect the price at which human milk is traded along the chain, and hence the distribution of value appropriation. A detailed account of the processes de-naturalises the market pricing and renders visible the way value is appropriated from women's bodies and *via* scientific techniques.

Further, Smith (2018; 2012) points out that only expressed human milk can be included in household production under existing accounting conditions as the act of breastfeeding would be classified as a childcare activity. This involves the conceptual separation of human milk as a food, the nutritional content of breastfeeding that is more readily commodifiable<sup>3</sup>, from the practice of nurture (or indeed labour) involved in the act of nursing which is perceived as a childcare activity under national accounting conventions. In this way, rather than resolve, or undo, the dualisms of the economic/noneconomic, social reproduction/economic production, affective/material labour, the incorporation of human milk into the system of national accounts as a food reproduces these demarcations. Our analytic descriptions below of this process, which we observed in practice in India, also demonstrate more clearly how this is the case. Moreover, it will be seen that such dualisms are instrumentalised and reproduced in the proliferation of multiple calculus of valuation that serve the extraction and appropriation of value from women's work.

### ***The co-constitution of commodity and non-commodity (work and non-work)***

Bourgeois political economy and contemporary mainstream economics conceptualise the world as if it were fully commodified. The justification for its market-centred epistemology comes from viewing all economic variables of capitalism as being subsumed to capital's inner commodity economic logic. This also places a sharp and apparently immutable barrier between the economic and non-economic. In this conceptualisation the absence of a price for breastmilk or breastfeeding becomes an issue of market failure, or it is attributed to its inherent non-economic nature.

Rather than continuing to impute such dualism or immutable and polarised concepts, Fraser (2016; 2014) refers to the boundaries between economy and society, production and reproduction, work and family as sites of struggle over the boundaries that delimit one concept or space from the other. In some cases, these struggles can result in the redrawing of boundaries for example between the domestic and commercial spheres, work and non-work commodity and non-commodity. By interrogating the dialectic between these oppositional concepts, the interactive and dynamic co-constitution of commodity/gift, work/non-work, economy/society etc. reveal contemporary expressions of the contradiction of social reproduction under capitalism. The examples ahead bear this out.

Fraser (2014, p. 59) counters the view that capitalism "propels the ever-increasing commodification of life". She argues that capitalism has always operated

on the basis of ‘semi-proleterianized’ households leaving a significant portion of activities and goods outside of the market since households, especially those in the Global South, derive significant portions of their sustenance from sources other than cash wages. Further, Ranjana Khanna writes about how former slaves and colonised people never had access to ‘the market’ but were integral to its functioning (Khanna, 2007), and Alys Weinbaum’s work on reproduction and slavery, or the ‘slave episteme’ extends and deepens that critique (Weinbaum, 2019). This, it should be emphasised is in tension with arguments around the ‘neoliberalized’ markets of eggs, surrogates and sperm (Cooper & Waldby, 2014) which argue that these markets are based on a change in capitalism in the 1970s, and elide the fact that the global South was always relied upon by capitalist markets for sources of unpaid labour (see also Vora, 2015 on this in relation to surrogacy). Breastfeeding itself is a case in point, with the incursion into infant feeding by producers of dairy based breastmilk substitutes as an attempt to marketize infant nutrition (Campbell, 1984; Palmer, 2009). Infant feeding, as in many aspects of capitalist society involves the continued coexistence of the marketized and non-marketized. This is not a coincidence, rather, as Fraser insists, it is part of the DNA of capitalism. The commodity and non-commodity, marketized and non-marketized depend upon one another under capitalist relations of production in society. “Markets depend for their very existence on non-marketized social relations which supply their background conditions” (Fraser, 2014, pp. 59–60).

In the remainder of this article, we present an analysis of value creation and appropriation along a newly emerged commercial human milk chain, or human milk commodity chain, in India. Whilst value is created through women’s labour in the production and expression of breast milk, commodity production relies on unwaged labour. In this way, the human milk commodity chain resembles value chains for extractive industries such as mining, fracking or fishing where profit is made through primitive accumulation, exploitation of the natural world, in addition to labour exploitation. In the case of the human milk commodity chain, the site of extraction is the body of the worker who labours in the expression of milk for little or no material compensation. We therefore investigate the related processes that commodify human milk and render women extractable.

## **The commodification of human milk in India**

India has a notably high rate of infant mortality, premature birth and low birth weights. These, as well as the prevalence and danger of ‘necrotising enterocolitis’, are referred to in the literature and were discussed in the field by our interlocuters repeatedly. It is clear that donor milk is an objectively ameliorative substance for conditions that can be managed with use of sterile, nutritious infant feeding. A major public health issue in India is the care of young infants, and yet the bio-ethical and political issues surrounding this are not without debate (Gupta, 2020).

### ***Milk banks: Supply and demand***

Asia’s first milk bank was established in Mumbai in 1989. Between 20 and 30 milk banks operate across India and geographical coverage remains sparse. The

overwhelming majority of these operate in the NGO and not-for-profit space. In this section we introduce NeoLacta Lifesciences, the first for-profit milk bank in India, and compare it with two not-for-profit milk banks funded by the Breast Milk Foundation in order to better understand similarities and differences between for-profit and not-for-profit human milk provisioning.

NeoLacta Lifesciences Private Limited was incorporated on 12<sup>th</sup> April 2016. It is registered as a company whose main activity is the manufacture of dairy products. Its output is classified in class 0121 which relates to the production of raw milk. All of NeoLacta's output are "human milk based nutritional products". It is the only commercial human milk processor in Asia.

More recently, two not-for-profit private sector milk banks have opened in Dehli and Bengaluru. The Amaara milk banks began with funding from Breast Milk Foundation, the CSR project of The Srivastava Group. These milk banks each provide thirty 130 ml bottles of pasteurised human milk to government hospitals free of charge and sell the remainder of their processed milk to private hospitals for a 200 INR per 130 ml. Amaara operate a strict prescription requirement for the provision of donor milk only to pre-term low birthweight babies who's mothers are unable to breastfeed and will only supply within a hospital setting. Amaara has received requests from parents of full-term babies for donor milk but has a strict refusal policy. In this way, donor milk is kept out of the market and its distribution is determined by medical need rather than wider demand.

On their website, NeoLacta's stated market includes neonatal intensive care units (NICU) as well as babies whose mothers have difficulty feeding their own babies due to medical reasons and babies born through surrogacy or IVF<sup>4</sup>. Our interviews with neonatologists in Bengaluru and NeoLacta employees confirmed the sale of their product to parents of full-term babies and outside of the hospital context and parents of surrogate born babies have approached NeoLacta for a supply of human milk. NeoLacta thus operates within and develops a wider market for human-milk products with a range of end-uses and demands.

### ***NeoLacta's human milk value (added) chain***

NeoLacta's product value chain starts with the recruitment of 'donors', providers of their key input, human milk. According to their website, recruitment involves a detailed questionnaire of on the donor mother and family as well as the signing of a consent form. Once donors have passed the first stage of screening, they are required to provide samples for a number of serological tests that include HIV 1 & 2, Syphilis, Hepatitis B and Hepatitis C. Once passed, milk expression can begin. Interviews with NeoLacta personnel, neonatologists and donors in Bengaluru confirmed that expression took place in the home or workplaces of donors. NeoLacta had not been providing donors with breast pumps although new incentive schemes have been mooted to include compensation for the cost of pump equipment used by donors. Initially donors are provided with sixty 100 ml bottles. Donors are trained on how to safely store milk in their home freezers until they have collected 2.5litres or more for collection by drivers who deliver it in a cold chain to the NeoLacta facility ensuring that the milk is kept at a temperature below  $-10^{\circ}\text{C}$ . Once it reaches the factory, the milk is stored in a deep freeze at  $-20^{\circ}\text{C}$  before it is pasteurised and chilled to  $5^{\circ}\text{C}$  in keeping with WHO guidelines. Analysis is then

conducted on the pasteurised milk, and only if it contains zero microbial growth can it be distributed.

Recent scholars critical of global value chains have pointed to the mechanisms by which chain governance intensifies worker exploitation and affects a distribution of income along the chain that favourably biases corporations and activities outside of primary production such as in management, finance, design, research and development, marketing, branding, advertising and sales that typically take place in the Global North. This distribution of income or 'value-added' has become normalised in mainstream business and economic literature as the 'smile-curve' (Quentin & Campling, 2018; Selwyn, 2019). Rather than reflecting the distribution of value creation along supply chains, which is focused in production – the material transformation from one thing to another *via* the application of labour, the distribution of value-addition is an expression of practices of appropriation along supply chains with highly uneven power relations between chain actors. Activities such as advertising and marketing are associated with the highest rates of value addition and provide the mechanism for the appropriation and transfer of value created elsewhere in the chain.

This feminist account of value addition through the labour of women and other workers involves a combined political economy, critical value chains approach, and anthropology/STS analysis that makes apparent the transformation of the milk from one thing to another. We begin with the narrative accounts of the key actors in NeoLacta and then move to an interpretive description of the milk transformation from a bodily substance of women to a commodity and the blurred nature of this.

Sourabh Aggarwal, the Managing Director of NeoLacta stressed that theirs, unlike Amaara and other milk banks in India, are *value-add* products.<sup>5</sup> His claim is that NeoLacta has established a value chain for human milk products. Their production process has been informed by the experience of Sourabh Aggarwal's father, Rakesh Aggarwal in the dairy industry in Australia where he developed and patented new technologies for the processing of human milk for therapeutic use within NICUs in Australia. In 2016, Rakesh Aggarwal divested from Australia and with his son Soubrah established NeoLacta as the first facility of its kind in Asia<sup>6</sup>. (Farnsworth, 2017) Similarities between the processing and production of human milk are also suggested in their job description for a production assistant that requires experience in food processing or dairy and describes the production work as 'homogenisation' and 'pasteurization'<sup>7</sup>.

The processing of human milk in their facility includes pasteurization using processes that comply with Indian Association of Paediatrics, Infant and Young Child Feeding (IAP), American Academy of Pediatrics (AAP) and Human Milk Banking Association of North America (HMBANA) guidelines. Each batch is said to go through 10 stages of 'rigorous' testing. Next they increase the protein content in human milk using their patented technology. Where breast milk in the first 6 months postpartum typically contains 50 kcal and 1 g of protein per 100 ml, NeoLacta's PHBM 70 contains 70 kcal and 3.96 g of protein. In addition, NeoLacta produce a patented human-milk-based fortifier that can be added to mother's milk to 'naturally' increase protein in breast milk (Sai Gopal, 2018).

In the above account of the creation of NeoLacta's milk there are several layers of claims to 'value addition' that take place through the use of concepts and terms



relating to science, scientific processes and ideologies of technological advancement. Concepts such as ‘rigour’ imply a promotion of presumed scientific objectivity and the ‘god’s eye view’ implied therein (Haraway & Goodeve, 2018). Ideas promoted by NeoLacta around ‘safety standards and certification that exceed the necessary minimum requirements in the Indian context’ as stated on the company websites suggest that value is inherent in these standards and certifications, by their addition mere ‘human milk’ becomes something else. This constitutes one more element of value-addition in the NeoLacta supply chain. These processes of value addition then justify the price of NeoLacta products at 450 INR for 15 ml (approximately 420 USD per litre) of PHBM 70 and 550INR for 5 ml of the fortifier<sup>8</sup> (Madhavan, 2018).

The NeoLacta production process acts to turn donor milk into something more ‘commodity-like’ and hence more readily sold for a profit. As in non-commercial milk banks, donor milk is mixed before pasteurisation but given the larger quantities, this more readily anonymises the donor women from whose bodies the milk has come. Additionally, the homogenisation process creates standardisation across batches such that there is minimal variation in the nutritional content of NeoLacta product from one bottle to the next. The extended storability of NeoLacta milk, 12 months when stored at –20 C compared with 3 months standard practice that is typical of milk banks, also enhances its commodity features.<sup>9</sup>

The mixing of different women’s milk is another step in the process that functions to obscure the social relations and labour inherent to its production. Similar mechanisms of alienation are at play in human egg fertility chains, where the distancing involved in ‘reverse traffic’ egg donation, where a. eggs are fertilised in another country, frozen and transported to intended parents in the egg donation commodity chain, obscuring uneven economic standing of donors and recipients, and b. circumventing anti-organ trafficking laws by freezing these fertilised eggs at an early enough stage so that they do not fit the UN definition of an organ (Nahman, 2013). Likewise, in surrogacy arrangements in India and across the globe, the surrogate, her labour and wellbeing tends to be an after-thought to those commissioning her labour, and often also to those campaigning for her ‘liberation’ (Rudrappa, 2015; Vertommen & Barbagallo, in this issue). Gestational surrogate labour is a hidden and obscured kind of labour that produces a child, a human that can never be conceptualised as a commodity, and yet clearly part of a global billion pound medical industrial complex (Pande, 2011; Vertommen, 2016; Vertommen & Barbagallo, in this issue). In the case of NeoLacta the milk becomes a reified commodity by the complex double-act of making women’s milk provision and act of ‘gifting’ whilst also hiding women’s labour and all the other labours inherent to producing the ‘value added’ commodity.

### ***Food or drug: Appropriation through the ‘scientific’***

In the 1890s Nestle formed as a company and began to assert that the science of infant feeding was within the grasp of doctors who would create sustenance that could improve infant growth. Infant feeding became seen as a public health issue in Europe, as it was in the UK in particular, after the loss of the war (Davin, 1978). Declining colonial power in Europe was blamed on the weakness of the soldiers and working class mothers were blamed for not knowing how to feed their children sufficiently well. Programmes for educating poor mothers were instituted

(Peplar, 2002). Nestle has been at the centre of the shift towards the medicalisation of nutrition, namely the detachment of nutrition narratives from the analysis of commodified food production, trade policies and labour regimes in favour of nutritional narratives based on individual consumption and biomedical understandings and the co-option of medical professionals in the marketing of (health) food products (Stevano forthcoming).

NeoLacta exploit the fluidity with which donor milk is viewed as a food, drug or human tissue in their business operations, for the marketing and sourcing of donor milk and the exploitation of regulatory gaps. On the one hand, NeoLacta instrumentalises the WHO recommendations for breastfeeding in promoting new markets for donor milk by appealing to studies in the medical sciences and soliciting endorsement from health professionals and the presentation of its product as a medicalised product likened to a drug. On the other hand, NeoLacta is registered as a dairy processing company and its human milk products are licenced and regulated as a food product by the Food Safety and Standards Authority of India (FSSAI).<sup>10</sup> Occupying the regulatory space of food has allowed for the issue of an export licence for products composed entirely of human milk in 2017 to begin exporting to Australia (Farnsworth, 2017).

The corporate image portrayed by NeoLacta, evident in the juxtaposition of 'Life Sciences' in their name, is that of a biotech firm. The company describes itself as "a fast-growing company in the healthcare space, redefining nutrition for neonatal care".<sup>11</sup> Their processing site/laboratories in Jigani, some 30 km from the centre of Bengaluru, has been carefully selected as an industrial area with a relatively high concentration of biotech firms.<sup>12</sup>

In India, the WHO Code of Marketing of Breastmilk substitutes has been implemented comprehensively through legislation, due in large part to feminist and medical NGOs working against the commercialisation of infant feeding (see [ibfan.org](http://ibfan.org)). By contrast, human milk banks are currently unregulated. In this way, for-profit milk banking firms such as NeoLacta can freely promote their products in healthcare spaces and solicit the support of health professionals in their marketing through incentivisation programmes reminiscent of Nestle in the 1980s (Zelman, 1990).

NeoLacta furthered their 'biotech' image by initiating an award for student of neonatology called NORM (NeoLacta Ongoing Recognition of Merit). The first prize was a scholarship to an international conference, whilst second place receives a scholarship to attend a regional conference (Asia Pacific) and second runner up receives a scholarship to attend a national conference in India. The first awards ceremony took place in February 2020 and a video of the proceedings was posted on YouTube. The Award is presided over by a senior consultant, and given biomedical authority in this manner. Whilst its milk production being based on recognised scientific processes and procedures of sterilisation and pasteurisation, these neonatology prizes demonstrate an effort to co-opt young and ambitious doctors to medicalise the product as a life saving supplement.

### ***NeoLacta's recruitment of donors and the sourcing of human milk***

NeoLacta have been running an active digital marketing campaign for the recruitment of donors as well as the marketing of their products since the middle

of 2019. This included the recruitment of a new digital marketing manager who runs campaigns on Facebook, LinkedIn, Twitter and Instagram, the introduction of a toll-free enquiry line advertised on their website, and the publication of regular blog posts that present the experience of donors as well as scientific claims over the nutritional benefits of donor milk in infant feeding. The NeoLacta website and Facebook pages contain multiple videos of ‘middle-class’ donors speaking positively about their experiences as well as local neonatologists speaking of the benefits of human milk and its potential lifesaving properties.

It is evident from NeoLacta’s online donor recruitment strategy that they wish both to target potential donors, and portray existing donors as, coming from a certain social class, namely educated, city dwelling professional women. The donors to the Amaara milk banks are drawn from a similar section of society since they are recruited from the private clinics that they attend. Both the NeoLacta MD and another employee that we interviewed, who was based in their Bengaluru office<sup>13</sup> rather than their Jigani plant, stressed the voluntarism of donors and the digital channel as the main source of recruitment along-side counsellors in private hospitals. These claims contradict earlier interviews with NeoLacta published in news reports and are countered by the job advertisements for NGO liaison workers across four states in India (Madhavan, 2018).

It is not a surprise that NeoLacta’s recruitment of (poorer) ‘donors’ in rural areas is conducted under a shroud of secrecy, in 2016, an attempt by NeoLacta to collect breastmilk from the largest government hospital for women and children in Bengaluru, Vani Vilas, was abandoned after serious concerns over the “commercial exploitation of breastmilk” (Yasmeen, 2016).

NeoLacta has a far-reaching procurement network across the country. NeoLacta operates through an unknown number of NGOs in rural areas across at least four states in India. The mission of the NGOs that we have identified included rural women’s economic empowerment and women’s health. In a similarly colonial strategy to Nestle’s operations (Campbell, 1984; Sen, 2009) across India where impoverished rural women were marketed to aggressively, *via* intermediaries, that the health and wellbeing of their babies could only be improved with a westernised, scientifically developed ‘product’ of infant formula milk. In the contemporary case, human milk is being bartered for goods and money.

In villages across India, NeoLacta, with the aid of local NGOs, has been operating a network of ‘education’ of the importance of human milk to infant survival, and procuring milk from women living in these villages. These women, from what we have gathered so far, are largely uneducated, hard to convince, and receiving either financial support or food for their milk providing efforts (Madhavan, 2018).

This ‘education’ is one of the colonial-style labours integral to the procurement of the milk that harkens back to the colonial practices of Nestle. Hence, NeoLacta’s work in India is not without precedent but exists on a continuing historical trajectory of colonial extraction and exploitation. According to one of the NeoLacta employees we interviewed, a lack of education among the women in the remote villages where the milk is accessed is the biggest block to the procurement of milk from them. Human milk therefore transforms into something one must *learn to know* about. NeoLacta work with NGOs across the country to ‘educate’ the workers about the importance of human milk in saving neonatal babies and those workers

'educate' the women in villages. As noted earlier, the spread of these operations is nationwide.

The reason we have the word 'educate' in quotes here is that it isn't simply a factual discussion of the health benefits of milk. A lot of work has to take place even before the milk is sourced, with the people who will gather the milk from women in villages. According to our interviewee: "So we are operating in four states and now slowly and steadily people are coming to work with us. They are confused, they do have some sort of (switch) in their mind that this is a new thing and that it is an ethical thing or an unethical thing, legal, all those complexities are there still. But the people who are working think that this is a good thing to create awareness and we can start this" (13 Dec 2019). So the moral and ethical negotiation becomes a precursor to the procurement of milk for the workers themselves who do the education work.

According to one of these educators working in a village in the state of Karnataka, "It requires a lot of counselling on breast milk donation. In X Village we took this as a challenge and did it to save the lives of children. We have sent 23 litres so far. It takes a lot to voluntarily donate milk. Mothers have to have a large heart to donate their milk to save another child. Many women do not want to do that" (13 Jan 2020). The phrase 'it takes a lot' whilst referring to the potential donors' own inclinations towards donation can also be a indication of the amount of emotional and physical labour required in convincing a mother to provide the milk.

"We have to counsel 4 to 5 times, not just the mother donors but also their husbands, mother-in-law and other members also come and sit. It takes a lot of effort. There is failure, failure, failure and the one will succeed. Some give as little as 10 ml." (13 Jan 2020) The wider family then, becomes a part of the process of turning milk from a substance in one's body to something one might express, bottle and give to another woman. The labour that these lactation health workers do is part of that process. One lactation worker called it a 'risky job' involving learning to use blood test instruments, taking blood samples, testing the milk, "We are also given milk testing instrument. We are trained by NeoLacta people in freezing milk which is sensitive to heat". The health worker we interviewed discussed the combined labour and health consequences of gathering donor milk for NeoLacta, "Due to health issues, lot of travelling and long hours I quit. I would leave at 7:30 and come back at 9:30. I would sometimes use my husband's vehicle. I have roamed more than 30 to 40 villages to get these 10. It is a risky job. If I say I will pay for the milk then that is it. The villagers will not leave me. It is philanthropic. We are not paying mothers" (13 Jan 2020).

It is clear from our research with NeoLacta that practices of payment or not vary. The point here is not whether milk is commodified through the exchange of money, rather that the milk is both a commodity and a human substance and that this is obscured when we do not know the aforementioned details regarding its procurement and the colonial style process of 'education' to elevate women to the status of so called knowing donors.

In sum, both the process of mixing and anonymising the milk, and the mode of procurement in countless villages across the country, with health workers travelling long, unsafe distances and women being convinced to supply milk reifies the

commodity by instrumentalising the fluid distinctions of human milk as a food, drug or human in their marketing and donor milk sourcing practices.

### **Women milk providers as donors or workers?**

“Donate, Gift a Future”

(savebabies.in)

*I used to put on alarms. I knew if I pump late that my reserve of milk would come down. My child wasn't taking directly from the breast. All day my mum was giving him bottle so at night he started refusing the breast—I was totally depending on expressing and feeding him. I was pumping every 4hrs and used to leave (the house) at 7am. I would wake up at 5:30m have my coffee and breakfast while I was pumping, eat my breakfast used to eat, and read, even at college I used to sit while eating lunch I used to pump. I used to pump because I knew it was very important. I used to sterilise all the parts, once every day. Twice when I was pumping more. As soon as I came back from the hospital and before I left. I used to store them in the Medela ice pack with the other equipment. I used to wash my hands, santiise the properly. I used to pump quick, in 20 mins to half an hour I used to pump on either side about 500ml. Before I used to get less, Since I was pumping and pumping the milk production drastically increased. ....I used to work 12hr shifts. (Dr Parvati<sup>14</sup>, multiple-time milk provider Amaara Milk Bank, Interview 10 Jan 2020)*

From this brief interview excerpt it is clear that the act of pumping milk is a multi-layered form of labour in and of itself, involving an ‘ontological choreography’ that Thompson described in relation to IVF (Thompson, 2005). Similar to providing donor eggs and surrogacy this is a kind of work that relies on making oneself ‘extractable’ (Almeling, 2011; Nahman, 2018; Pande, 2014). Dr Parvati was pumping not just for her child but for many other children over an extended period of time. A medical resident at a Bengaluru hospital she integrated her hospital work with her pumping work, both involved long hours. Below, we explore the following dimensions of breast milk provision: ‘donation’ and gift, excess and waste, the stratification of donors along lines of racialised class in order to think about the hidden labour of primary value creation in the NeoLacta value chain.

A focus on value-addition as opposed to patterns of value-creation along supply chains obscures and devalues the work done in primary production. In the case of the NeoLacta supply chain, patterns of value-addition that conform to the smile curve are made possible through the devaluation of donor milk and the work done by donor mothers by instrumentalising the notion of the ‘gift’ and the ‘non-work’ nature of breastfeeding and milk donation, namely placing the activity of human milk production strictly within the domestic realm through processes described by Maria Mies as ‘housewifization’ that obscures the critical role of women as primary producers of the key input into commercial human milk products (Mies, 1989).

Rather than in Cartesian dualism, the commodity and gift are co-constitutive within the commercial human milk supply chain (Appadurai, 2012; Kopytoff, 1986; Tsing, 2013, p. 22). The notion of mothers milk as a ‘gift’ of life is central to turning ‘donor’ milk into a commodity, as the NeoLacta ‘savebabies.in’ website attests. Gifts ‘animate value’ in different ways to other kinds of commodities. “Value in a gift system is in social obligations, connections, and gaps,” (Tsing, 2013, p. 22). By promoting a notion of gift NeoLacta and its intermediaries promote a very specific Indian notion of connection to the eternal, making it a very powerful inducement. It was evident from our interviews with NeoLacta donors, intermediaries such as NGOs and community health workers and NeoLacta

employees, donor milk is not framed as a commodity in spite of the marketisation of NeoLacta product. Rather, the way in which donor milk is operationalized as a ‘gift’ (or ‘*dan*’ in the Indian context) is built in to how it is commodified. A concept of donation then is a central part of this kind of women’s work, they are not separate.

There are, however, culturally specific notions of ‘gift’ that are useful to understand the particular kind of gift/commodity and its relation to the wider economic arguments we are making about gendered labours. The Indian notion of gift is termed ‘*dan*’ and whilst it emerges from Hindu religious text it has very strong present-day influence “saturated with associations connected with kinship, sacrifice, sinfulness, asceticism, merit, and caste identity” (Copeman, 2011, p. 1053). ‘*Dan*’ has been used in the anthropological literature as a direct route to understanding Indian culture (Copeman, 2011). But As Copeman notes, it is more an indication of ways in which people may comprehend transmission and the morals, that go along with giving and receiving. Copeman suggests, in relation to his work on blood donation in India, “what is unique about the gift is not that it passes on bi-moral qualities, but that it purifies the giver.” (2011, p. 1060). The invocation of the story of Lord Krishna who was breastfed by his adopted mother Janki as part of the ‘history’ of breastmilk donation by NeoLacta<sup>15</sup> also plays into Hindu morality and the responsibility of women as mothers beyond their own birthed children (Bharadwaj, 2006).

Tsing argues that in ‘gifts’ such as the one we are exploring here, ‘assessment’ or ‘sorting’ work is what purifies commodities. In the example of NeoLacta milk the ‘runners’ or health workers and the lab workers who administer blood tests, take the milk, combine, pasteurise the milk who in a literal sense ‘purify’ it. In this process they also somewhat ‘degrade’ the milk, taking away much of the goodness it is meant to impart to babies (Peila *et al.*, 2016). But this process of assessing the donor, transporting the milk is a process of distancing the giver from the receiver and transforming the milk from mere ‘*dan*’ to a human milk fortifier.

Part of this work lies in convincing women that the milk is ‘excess’ to their requirements. By turning women’s understandings of their own bountiful supply of milk into a sense of ‘waste’ NeoLacta contributes to their value extraction, “to understand value, we must study rubbish” (Thompson, 1979, p. 19). By looking at how milk gets framed as ‘excess’ we can understand the boundary between work and non-work (Millar, 2008).

On NeoLacta’s own website and in their social media posting there is a concerted effort to promote the idea that women produce excess milk. Here the milk itself is narrated as ‘too much’, ‘more than my baby needs’ and a ‘problem of excess lactation’. Below are some examples from the YouTube clips which NeoLacta have posted on their public channel:

Tanvi Mehta

“**Breastfeeding was not easy, and along with it came excess lactation.** But after consulting my lactation consultant, she introduced me to NeoLacta Life Sciences, where I could donate excess of my breastmilk. This would not only reduce the risk of breast cancer and regulate the milk supply for my baby.”

Shruthi, hospital worker, first time donor.

“After the birth of my child I **had an issue of excess lactation**. Then I consulted my lactation consultant. After the complete examination I was explained about the reasons behind the excess lactation and they told me the best way to address this issue is to donate the excess milk or to donate it to the babies who are really in need of it...it’s a great honour for me that I am donating the excess milk to the other preterm babies.”

Nanditha

“Once my milk supply was well established, I found I was producing **more milk than the baby needs**. Upon the advice of my lactation consultant I decided to donate my excess milk...every drop of excess milk can help to save a baby’

One of the NGO workers we interviewed also referred to this excess:

“I have 5 children. I have seen how one’s excess breastmilk could be wasted. Earlier in those days food was nutritious and women got good quantity of breastmilk.”

Yet the main problem in the general population for women is framed as having insufficient milk. Indeed, “insufficient milk syndrome” had been a fabricated narrative of Nestle when promoting breastmilk substitutes in the 1970s and 80s (Campbell, 1984). ‘Excess’ milk is a creation of the company NeoLacta, borrowed, extended and deepened into an ‘issue’ in order to produce the milk itself into a thing of waste that then becomes a commodifiable substance for the company. Value is extracted here on the basis of teaching women to think of their bodily productions as lacking in value. Contradictorily, this does not then mean we should impute value to it and pay the women ‘what they deserve’ (Smith, 2018).

### ***Stratified classes of milk providers***

Our first hand fieldwork in India and analysis of the online fora curated by NeoLacta, have demonstrated that there are two kinds of donors, stratified reproducers, as Shellee Colen would refer to them (1990) along lines of racialised class systems existing in India.

The first set of milk providers are the ones the company NeoLacta advertises on its websites (NeoLacta.com and SavingBabies.in); Instagram, Twitter and Youtube channel. These are working mothers who have come to milk-providing through some sort of experience of excess or lack in their own milk supply, interaction with lactation consultants who have either referred them to a milk bank or a milk bank has been referred to them. In the case of the donor we interviewed for the non-profit milk bank Amaara, as a doctor, she was familiar with milk banking and found Amaara by her own initiative.

We can characterize this first set of milk providers as urban, professional women working in large multinational corporations or in the medical field. Their narratives found online and gleaned in face to face or online video interviews indicate several interrelated features—women are working and managing feeding their own children alongside pumping in order to donate; they characterize their milk as ‘excess’; they are enrolled in emotional labour of thinking about saving other babies.

The second kind of milk provider is represented as needing material incentivisation and educating. These are women who can barely afford to feed themselves, *let alone* supply sufficient milk for their infants. The women in this second group often do not have access to clean water and for whom necrotising enterocolitis (what breastmilk is meant to guard against) is a real and present danger. Women

who had lost their infants were also encouraged to donate milk. They are not so easily accessed by Western researchers, but our research consultants on the ground have found evidence that women are being actively pursued by NGOs and associated 'health workers' and paid either with cash in Rupees or with food packets containing foods such as such as jaggery, groundnuts, wheat and rice. The remuneration structure varies from woman to woman, even where they are organised through the same NGO. NeoLacta provide NGOs with freezers for storage but no breast pumps. Women express by hand. Remuneration can depend upon the volume that women provide. Some women receive gifts such as cookers or mixer grinders. One NGO worker interviewed informed us that they received approximately 25INR per ml that was collected. Another source informed us that an NGO received 11INR per ml from NeoLacta, 80% of the revenue would be paid to the mother with the NGO worker taking a 20% cut. Reproduction of the view of donated milk as a gift, a politics of maternalism and processes of housewifization, as well as the targeting of poor women more amenable to be influenced by NGO workers keeps the price paid to poor women very low, intensifying the rate of exploitation.

## Conclusions

The commodification of human milk along the NeoLacta supply chain has relied upon the production and maintenance of what Fraser (2014) has called zones of non-commodification. In these zones we have explored the specific social and cultural mechanisms through which this operates and the specificity of the production of the commodity in the chain of processes that turn a bodily substance into a product in a market. It is only through the assertion of donor milk as a 'gift' that corporations like NeoLacta are able to profit in the turning of mothers' milk into a commodity. By stressing the 'priceless' nature of the substance and its production as non-work and unpaid, NeoLacta mobilised cultural ideals of receiving eternal life through giving, and thus received the critical input of women's milk for free or at very low cost. In this way, surplus value is appropriated from women producers either as expropriation (primitive accumulation in gift giving) or exploitation at very high rates where they receive material compensation.

For this system to function there is dependence on a wider constellation of milk sharing practices that already exist – from private not-for-profit milk banks that provide free of charge human milk infant feeding supply to government milk banks and women feeding one another's babies in maternity wards – in order for expressed milk to enter the chain as a costless or low-cost input.

Due to the prevalence of homebased working for women in India it may be that this appropriation is easier to accomplish (Mezzadri, 2017; Mies, 2012). Given a woman's ability to perform piece work at home and simultaneously perform child-care and provide milk, this is potentially the case and will be explored in our future work in this area. Similar examples are demonstrated in other contexts where breast milk pumping doubles up the work (Boswell-Penc & Boyer, 2007).

What policy implications can we draw from this research? As Lee has pointed out, this issue is much more than a matter of moralising. Whilst it is evident that NeoLacta practices are exploitative, it would be short-sighted and limited to point a finger at any individual organisation or person. Rather, States and the wider international economy of extraction, appropriation and distribution are highly



complicit and facilitative in the site of value creation and commodification we have analysed. The regulation of human milk as food in India has played a facilitating role for NeoLacta production and marketing of human milk products, that include a licence for export to Australia, while simultaneously allowing the company to make claims on biomedical grounds without the stringent regulatory restrictions faced by drug companies.

We would not advocate an outright ban on selling of human milk, but to shift the vantage point towards greater support for women in pregnancy, birth and afterwards, more resources for childcare, and increased wages for all women workers. So in terms of thinking about the lines that are typically drawn between economic and social reproduction, we are asking for those lines to be redrawn, to see the site of value creation and labour as happening a lot earlier in the chain, and the various nodes of that value creation along the way.

## Notes

1. Feminists have critiqued this and argued that any technology such as the breast pump is always fraught and imbued with politics and difficulties in combining work with pumping Boswel-Penc and Boyer (2007) and Layne et al. (2010)
2. We worked closely with a public health researcher based in Bengaluru who has extensive experience of working with rural women in Karnataka in the area of gender and health. Our field advisor was integral in our research design and her practical local knowledge allowed us to access a range of informants. Further, interviews with NGOs based in rural sites were conducted by our field advisor in the local language of Kanada while the authors conducted interviews in Bengaluru and Delhi in English.
3. The SNA allows for the incorporation of non-marketed goods within GDP as long as they can be stored for future consumption or exchange.
4. It can thus be argued that NeoLacta milk is an extension of the wider multibillion pound assisted reproduction industry (Nahman, 2016).
5. Telephone conversation with Sourabh Aggarwal (13<sup>th</sup> January 2020)
6. Sourabh and Rakesh Aggawal currently own all the equity of NeoLacta.
7. <https://www.jobsindia.com/jobdetails.aspx?jobid=90772#> accessed 22/01/2020
8. Around 6.30 USD and 7.70 USD respectively or 420 USD per litre of PHBM 70.
9. A recent study suggests that the length of storage for pasteurised human donor milk can safely be extended to 8 months for milk banks (de Waard et al., 2018)
10. In addition to FFSAI licencing, NeoLacta are ISO 22000 certified for food safety and their facilities are Good Manufacturing Practice (GMP) certified for the manufacturing of active substances for the manufacture of human medicines.
11. In a recent job advertisement for a Senior Product Manager, NeoLacta stated the industry in which they belonged as “Pharma, Biotech, Clinical Research, Healthcare”. The advertisement stressed that only applicants with experience in the pharma and healthcare space would be considered. <https://intellijobs.ai/job/Neolacta-Lifesciences-Pvt-Ltd-Senior-Product-Manager-5-10-Bangalore-Karnataka-IN-dnJ2qXrm1i58hsX6jOcl>
12. In a job description for the post of Production Assistance, NeoLacta boast about the proximity of their facility to the Biocon factory. <https://www.jobsindia.com/jobdetails.aspx?jobid=90772#> accessed 22/01/2020
13. The NeoLacta marketing and sales team are based in a leafy Bengaluru, rarely travelling to the Jigani plant if at all. From our discussions there seemed to be relatively little direct communication between personnel across the two sites. The address of the Bengaluru office does not appear on the company website or on any business directories that we searched.
14. Names of breastmilk donor interviews are pseudonyms.
15. <https://neolacta.com/history/> (accessed 27/02/2020)

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No potential conflict of interest was reported by the authors.

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