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## Reproductive Empires and Perverse Markets: Unpacking the Paradoxical Dynamics of ART Market Expansion in Non-urban India and Beyond

Bronwyn Parry

King’s College London

bronwyn.parry@kcl.ac.uk

Rakhi Ghoshal

King’s College London

rakhi.ghoshal@gmail.com

### Abstract

The global use of assisted reproductive technologies (ARTs) to address structural infertility has burgeoned since the early 2000s. Large corporate in vitro fertilization (IVF) providers from the metropolitan north quickly identified India as a prime location for service delivery, creating satellite clinics in its metropolitan centers. Having learnt from their European masters the colonizer’s art of exporting ART services from the metropolitan core to the periphery, a leading cabal of senior Indian reproductive specialists have since created their own “reproductive empires” perfusing service provision into peri-urban and even semi-rural localities in India and equally underserved emerging markets in Africa, the Middle East, and Latin America. In this paper, we chart the contours of these new empires and explore the implications of this progressive colonization for the quality of service delivery. We argue that the vast scale of expansion has resulted in unwelcome stratification as unscrupulous providers dilute the quality of services to render them affordable to lower socioeconomic groups. Weakly formulated iterations of ART legislation have also allowed this market to thrive under chaotic and uncertain conditions. These dynamics, we argue, create *perverse markets* that increase, rather than reduce, patient infertility, by holding unsuspecting clients in *extended regimes of indentured therapy*. In unpacking the drivers of this phenomenon, we identify several key factors: the neoliberalism of health service provision in India; the privatization and corporatization of care; gendered competitiveness; and potent cultural preferences for biologically related children.

### Keywords

Assisted reproductive technologies, perverse markets, surrogacy, neocolonialism, subaltern biologies, IVF regulation, sub-imperial power

### Introduction

In a landmark paper published in the mid-1970s, the eminent Indian sociologist Hamza Alavi produced an analysis of what he termed “the colonial mode of production,” examining its role in shaping India’s agrarian economy during the twentieth century. In setting out its structural contours, Alavi notes that this mode of production is typically characterized by economic and social systems that enable “a substantial part of the surplus generated in the colonial agrarian economy, and colonial industry, to be appropriated not directly within the colonial economy but rather at the imperialist center…in ways that benefit the imperialist bourgeoisie rather than the colony from which they are extracted” (1975, 1253). Forced into the wider network of world capitalist exchange relations, India became, he argues, a site of subordinated agrarian, and industrial, production for the metropolitan centers of the West. India has since, he argued, moved into a postcolonial mode of development (particularly in high tech industries) that is characterized by different dynamics: typically, a much closer “convergence of interests between the big Indian bourgeoise and the imperialist bourgeoise” and new structures of indigenous capitalist development. These, he predicted, would allow “an increasing proportion of surplus value to be appropriated internally by an indigenous capitalist class” (Alavi 1975, 1253–60). Much of Alavi’s initial research concentrated on the impacts of colonial and postcolonial modes of development in the agribusiness sector, explicating their effects in shaping corporate and state involvement in the Green Revolution of the 1970s.

More recently, India has moved (under the impelling forces of neoliberalism) into a new phase of vigorous economic growth, particularly in the life sciences industry, becoming a testing ground for an array of novel biotechnologies. It has also consequently become the site for what Aditya Bharadwaj terms a “red revolution”—an ambitious new regime of biocapitalist value creation that takes as its resource base human tissues, cell lines, gametes, and allied reproductive and clinical labor (cited in Nayantara Sheoran Appleton and Aditya Bharadwaj, 2017, 213). Despite the clear genealogical connection between these two epochs of biotechnological development, little attention has yet been given to charting how the legacy of colonial and postcolonial modes of development continue to inflect and shape the desires, imaginaries, and approaches of those who seek to deliver high tech biotechnological products and services in India today (with some notable exceptions: see Bharadwaj and Glasner 2008; Vora 2015; Bharadwaj 2016a, 2016b; Rudrappa 2018). In taking this agenda forward, our intention in this paper is to concentrate on one aspect of that wider biotechnological economy: assisted reproduction.

The global use of assisted reproductive technologies (ARTs), and especially the phenomenon of cross-border reproductive travel, has burgeoned since the early 2000s, and India has become a prime destination for service delivery (Pande 2014; Parry 2015; Rudrappa 2015; Deomampo 2016). The Indian commercial market for ART services has expanded exponentially over that period, in a series of phases that mirror, in fascinating but not entirely predictable ways, Alavi’s earlier forecasts.

We argue here that the dynamics of neocolonialism and imperialism that Alavi identified have come to infuse both the logics of expansion in assisted reproduction and its underlying ethos. In drawing out these points of connection, our aim is threefold: (1) to map the successive waves of expansion that have occurred in the provision of ART services in India since the 1980s, (2) to attend to the personal motivations and impulses that have incentivized its very rapid expansion across the Indian subcontinent, and (3) to understand the social implications of these colonizing impulses. In so doing, we produce the first empirical evidence of the profound hardships and inequities that this rapid expansion has visited upon those who are the targeted consumers of this extended service provision—some of India’s most stigmatized and indigent rural women.

Very little research has yet been conducted on the political economy of India’s domestic ART markets, but even less has been dedicated to exploring Indian providers’ ambitions to penetrate new and emerging markets in the wider Global South. Nevertheless, it is apparent that they are now moving into new geographical domains, using satellite providers to create new globally expansive “reproductive empires” to serve the desire for biologically related children amongst some the world’s most impoverished communities. Building upon our analysis of the affective impact of these neocolonial relations within the domestic ART sector in India, we promulgate a theory that these have also had a sustained effect on the tenor of their subsequent forays into international ART empire building. India’s powerful indigenous ART sector, whilst theoretically liberated from the yoke of colonialism, has seemingly inherited quite similar compulsions, with many of its leading practitioners productively drawing on the colonizer’s art (to which they had once been themselves subjected) in pursuing their own economic ends. These they are now visiting upon even more underdeveloped and peripheral neighboring economies in what appears to be a reproductive elaboration of what Ruy Mauro Marini (1965) termed “subimperial power.”

### Methods

In presenting these arguments, we draw on findings from a five-year qualitative research project undertaken between 2012 and 2017 and funded by the Wellcome Trust. This research provides a detailed analysis of the expansion of assisted reproduction across India; the political economy of its emergent markets; the ways in which cultural expectations, conventions, practices, and beliefs shape motivations to access ART services amongst the rural and urban poor of India; and how clinical ART services are consequently marketed and delivered to such constituencies. Fieldwork was conducted in the geographies of peri-urban Jaipur (in the state of Rajasthan), urban pockets of Mumbai (in the state of Maharashtra), and in Bangalore (in the state of Karnataka). Semi-structured interviews were conducted with 120 key stakeholders, including ART clinicians, turnkey providers, policy makers, and pharmaceutical executives. Communities of clients and surrogacy providers were represented by intending parents, gamete donors, and commercial surrogates. All interviews were audio taped after obtaining the informed consent of the respondent; in cases of a refusal of consent to record, handwritten notes were taken with consent. Audio recordings of the interviews were transcribed and thematically coded for analysis. Anonymity has been preserved at the request of the respondents.

### Strange Bedfellows: The Parallel Growth of Anti-natalism and Assisted Reproduction in India

We explore the operationalization and impacts of what we here describe as “neocolonialist modes of (re)production” in order to make an important conceptual and empirical contribution to recent debates on the political economy of assisted reproduction (Salter, Zhou, and Datta 2014, 2017; Knecht, Klotz, and Beck 2012; Müller and Schurr 2016; Van de Wiel 2020). This we do by exemplifying how these practices of reproductive empire building contribute to the generation of global fertility chains, which, as Sigrid Vertommen, Vincenzo Pavone, and Michal Nahman (2021) argue, constitute “a nexus of interconnected practices, operations and transactions [that enable] reproductive services (such as egg provision or surrogacy), commodities (such as a stem cell line, a regenerative drug or therapy) and data, to be produced, distributed and consumed across the globe.” Although such analyses remain at a nascent stage, they suggest the ways in which complex networks of sociotechnical engagement, state involvement, and uneven geographies of economic and social development threaten to materialize new and potentially exploitative modes of value extraction across an emergent global fertility chain network. Understanding the historiography of these dynamics requires us to begin, in this case, by unpacking why and how ARTs were first developed and delivered in India. Exploring the local contextual circumstances of their emergence provides valuable insights into the longer-term social implications of the Indian state’s long-standing ideological position on reproduction, which has historically been largely anti-natalist. For although it seems counterintuitive, it was, ironically, the introduction of state-sponsored mass sterilization programs that first legitimized and facilitated the provision of infertility treatment to India’s poorest women.

Soon after India gained independence, it became subject to a series of natural disasters, famines, and extreme food shortages that placed the state at what was perceived, by the former imperial powers of the United States and Britain, to be an increased risk of conversion to communism. Two sets of interventions were introduced by these powers to reduce this perceived risk. Both were technological fixes. The first, the introduction of engineered high yield crops under the banner of the Green Revolution, was designed to improve the well-being of existing populations; the second, a comprehensive five year “population limitation plan” introduced by then Prime Minster Nehru and subsidized by corporate US aid organizations including the Rockefeller and Ford Foundations, was designed to significantly reduce overall population growth. As part of the population control agenda (euphemistically titled the “family planning” program), the state implemented a two-child norm and began to promote contraceptive measures, including subdermal implants and injectables. Almost 2,500 clinics were initially created to provided free contraception to low-income clients; however, as they were expected to serve some 66,000 women each, they struggled to meet demand (Connelly 2006, 642). The Medical Termination of Pregnancy Act of 1971, which was ostensibly introduced to give women greater reproductive choice, also enabled them to legally abort unwanted pregnancies, thus limiting population growth. Abortion consequently became a state-sanctioned family planning mechanism in India, and sex-selective abortions of female embryos increased. Hoardings went up in public places exhorting people to think wisely and spend ₹500 in advance to avoid paying ₹500,000 later in dowry (Patel, 2007, 311).

As Matthew Connelly (2006) notes, whether driven by eugenic or Malthusian concerns, or simply impatience with the failures of the contraceptive policy, Lyndon Johnson’s administration moved throughout this period to prosecute an agenda of postcolonial reduction in aid dependency through yet more interventionist approaches to population control. Aid packages now came freighted with structural adjustments, including the successful delivery of forced sterilization initiatives. The devastating impacts of these continue to resonate to this day, as evidenced by the recent Bilaspur tragedy (Nadimpally et al. 2015).1 Despite the pressure to submit to sterilization, some women baulked. Many were unconvinced by the narrative that limiting family formation would deliver economic stability. Conscious that it might be wiser to preserve their future fertility given the exceptionally high child mortality rates, they remained suspicious of sterilization and unwilling to participate. The state worked hard to counter such doubts by pushing forward a new set of arguments: that there was nothing to fear in sterilization as new biotechnological interventions, including ARTs, could simply reinstate their fertility, should the need arise. In 1984 the Indian Council for Medical Research (ICMR) released a statement that suggested how such inducements would work: “If a couple is convinced that pregnancy could be achieved with certainty by the IVF-Embryo Transfer technique, in the event of their losing their existing children, they might readily accept tubal sterilization as a method of family planning. Thus, in vitro fertilization could be of great relevance to our national welfare program” (cited in Nadimpally and Marwah 2015, 4).

An aggressive liberalization of the Indian economy, the incentivization of technological remediation of infertility, a distinct lack of state regulation and increasing demand from consumers at home and abroad for biologically related children, precipitated a considerable expansion of IVF provision in India throughout the 1990s. The repro-politics of this phase of expansion warrant further analysis. In a first iteration of what we might consider to be the colonizing impulse in global fertility chain development, leading British IVF providers began to eye this emergent Indian market as a satellite node in an expanded network of service delivery. Robert Edwards and Patrick Steptoe, the two British clinicians who were given attribution for creating the world’s first test-tube baby, Louise Brown, had initially established the world’s first IVF clinic at Bourn Hall in Cambridgeshire in 1980, with the help of a number of previously unattributed female colleagues, including Jean Purdy, Muriel Harris, Lillian Lincoln Howell, and Ruth Fowler (Johnson 2018). Recording their initial motivations as a desire to meet the underserved infertility needs of India’s indigenous population (*Hindu* 2011), they initially set up a clinic in Kerala (citing higher levels of literacy, later marital age, and increased awareness of IVF as important pull factors for that location) with the intention of scaling operations to another sixteen to eighteen clinics nationwide.

Analyzing the fate of just this one ambitious operation provides an opportunity to examine and complicate existing “unidirectional diffusion models of science and modernity” (Pollock and Subramaniam 2016, 953) that present technoscientific knowledge and praxis as something that arcs out across the world in apparently linear fashion from the supposedly enlightened center to backward periphery. On the contrary, this, and other similar cases, demonstrate the sometimes contradictory outcomes that result when “the empire strikes back”—that is to say, when local entrepreneurs draw on their existing expertise to challenge the penetration and dominance of northern enterprises, introducing in their place practices designed to address more localized, culturally distinct, but also highly stratified reproductive needs and markets.

The arrival of IVF providers such as Bourn Hall, badged as they were with all the imprimaturs of Western scientific excellence and white privilege, was designed to signal to the Indian consumer market the “value added” of accessing imported “world-leading” care over domestic offerings that were presented as basic or at least in their infancy. As Sandra Harding reminds us, though, these kinds of simplistic binaries “always homogenize and often essentialize the contrasted groups [and their] significant internal divisions…that are often organised hierarchically” (2016, 1076). As she goes on to suggest, they also “overemphasize the distinctions between such groups thereby obscuring their commonalities” (1076). In charting the ultimate fall of Bourn Hall’s operation and the concomitant rise of India’s domestic IVF industry, we hope to explicate how the knowledge and practice of ART provision perfused from the metropolitan West into Britain’s former colony, but more importantly how it was there entirely “rephrased” to suit the grammar of local reproductive markets, and with what effects. We begin by analyzing how domestic clinicians responded to the influx of foreign ART operations and the evident opportunities that these modeled for their economic and social advancement. In unpacking these dynamics, we pay particular attention to the highly gendered nature of the provision that emerged, and its inflection along the axes of class and caste.

### ART Dreaming I: Subaltern Domestic Markets

As Sandra Bärnreuther notes, the historiography of IVF often defaults to “unilinear modes of history telling” that privilege simplistic narratives of diffusion from valorized sites of innovation in the northern heartlands of the metropolitan West to the provincial hinterlands of the Global South (2016, 75). This ostensibly unidirectional diffusion of scientific knowledge, expertise, and clinical advancement necessarily has the effect of segmenting the world into “innovators on the one hand and imitators or re-interpreters on the other” ( Bärnreuther 2016, 75). Recent research on the genesis of ART in India (Bharadwaj 2016b; Bärnreuther 2016) has revealed the fundamental insecurity of such accounts, which fail to reflect the complexity of the dynamics at play. For example, although India’s first officially registered and state-sponsored IVF baby was purportedly born at Mumbai’s King Edward Memorial Hospital in 1986, it is now clear that the first Indian IVF baby was, in fact, born just sixty-seven days after Louise Brown was produced in the UK by Steptoe and Edwards by a local West Bengal team of physicians led by Dr. Subhas Mukherjee of Bankura Sammilani Medical College (Chatterjee 2018). Within a year of Brown’s birth, Mukherjee announced the birth of the world's second test-tube baby with a team comprising Sunit Mukherji, a cryobiologist, and Saroj Kanti Bhattacharya, a gynecologist. Mukherjee, like so many of his contemporaries, had initially benefited from clinical training at the University of Edinburgh but had later returned to practice in India, creating his own ground-breaking techniques that resulted in their independent, and nearly simultaneous, replication of Steptoe and Edwards’s feat.

Indigenous expertise in ART continued to increase significantly over the following decade, culminating in the birth of baby Harsha at the King Edward Memorial Hospital in 1986, albeit under contested authorship (Bharadwaj 2016b). Although the ICMR and its state-sponsored Institute for Research in Reproduction played the central role in creating and leading the clinical team responsible for baby Harsha, much of the credit eventually came to attach to Dr. Indira Hinduja, one of the collaborating gynecologists based at King Edward Memorial Hospital. Much of the frenzied media reporting that surrounded the baby’s birth sought to amplify claims to India’s modernity by noting that the “miracle baby” had been engineered by a female doctor. So sedimented became this view in subsequent retellings that, as Bharadwaj reminds us, “no media account could [later] begin without playing tribute to ground-breaking achievement of ‘the lady who did it first’” (2016b, 58). Although it has yet garnered little attention, it is important to note the role that gender, and caste, have played in the early development of IVF in India.2

As the cost of specialist training and technologies, and demand for state-funded medical education and clinical services increased in India throughout the late 1980s and 1990s, the state began to retreat from the market, in many instances actively facilitating the privatization of healthcare. ART service provision was no exception, becoming similarly concentrated almost exclusively in the hands of India’s privately funded urban elites. As Bharadwaj has noted, many experts also began to leave the state sector in search of an “otherwise unattainable degree of autonomy and freedom” (2016b, 55). The media fueled public veneration of ART specialists, who, as Bharadwaj argues, were increasingly positioned as “gods” with the capacity to deliver the infertile from a life of shame and stigma “set in motion a competition for respect, status and credit” 2016b, 56). This, in turn, began to perpetuate a self-fulfilling cycle of growth and expansion. Media reportage valorized leading clinicians, enhancing their public reputations, and with it the reach and penetration of their practices within the wider infertility market.

Although senior female clinicians initially dominated the private ART market, these dynamics seemed to increase the lure of ART for many male clinicians. This first cohort of senior women thus went on to develop interesting lines of descent for their lucrative practices, identifying up-and-coming young male gynecologists of similar faiths and castes who would inherit their mantle, if not even the practice itself. Most of the largest indigenous ART clinics in India’s metropolitan cities thus came to be led by an elite cohort of male obstetricians and gynecologists. These consultants were drawn to the specialism for a variety of reasons: they were already witnessing, and wished to emulate, the local success of larger international IVF consortiums; were attracted to the idea of working with cutting-edge technologies, could see the potential to create lucrative private practices, and found the sociability of the hours of work and the attraction of a lifetime of veneration compelling.

One leading clinician succinctly explained these attractors in one of our interviews:

From the doctor’s perspective, you don’t do night-on calls, five thousand UK pounds [to do an IVF cycle] by doing a [regular] delivery you don’t earn this much, and there is no risk. Nobody will die of IVF, only rarely you might have hyper stimulation kinds of things...but nobody will die. There is a chance of failure, so people will accept failure. So, if you don’t succeed, it’s not a big deal, go ahead, gain. From the physician’s perspective, it’s a good life, good money, good status, and if somebody is conceived, he will worship you all his life. It’s very rewarding…a less-input, high-output kind of business. (Mohan, industry clinician and IVF clinic owner, London, June 5, 2013)

Many ART clinicians have been supported in their ambitions to establish private fertility centers by what are termed in the industry “turnkey providers.” These companies (such as Trivector and Shivani Scientific) act as franchising agents, providing interested gynecologists with everything they need to establish an IVF clinic—or a network of clinics.3 They identify and contract suitable space (sometimes within private hospitals), secure all the necessary equipment, negotiate contracts for pharmaceutical supply, and identify and subcontract IVF technicians, many of whom service multiple, geographically disparate clinics. Perhaps more significantly, they also service the hopes and dreams of the clinician, but not, it would seem, without the return of a very significant commission. As Mohan went on to explain,

They charge outrageous amounts of money to help set up. They make the cost of IVF impossibly high, but you know, they are feeding your dream. Suppose you [the clinician] are sleeping one night and you get up in the morning and you meet this person, and he says, “I can make you run a clinic…I don’t see why you can’t successfully run an IVF unit.” It’s a big money-rolling machine, and then this person will give this doctor a sleepless night and a lot of dreams. Next day he explains he will supply and do everything …“I will buy machines for you,” and he will take commission from the machine company, and he will say, “I will buy your drugs,” and he will take commission from the drug company, and “I’ll get you an embryologist” who will be traveling everywhere. There’s a lot of traveling embryologists. They are all flying everywhere. And then the person who will do the egg pick-up; they can also supply the person who will do the procedure, so what the doctor is doing is just prescribing the drugs and they will even be given the protocol, so when an infertile woman comes: “you do this set of tasks, if this, then this, you give this medicine,” so everything is done. So even if you make your accountant sit and do the job, he can do it! With one month of training, he can do it. Some big players, per cycle, they will charge Rs 50,000 but nearly one-third (around Rs 14,000–15,000) goes to them [the turnkey provider]. Someone is charging for doing nothing because all the equipment, disposables, and media are purchased by this guy. So, it’s for nothing, just for making things happen.

This level of “facilitation” stimulated what might at first appear to be simple market expansion bought about by the “routinization” of provision (Wahlberg 2016), yet its underpinning dynamics were imbued with a very specific “coloniality of power,” one that, we argue, organized “the distribution of epistemic, moral, and aesthetic resources in a way that both reflected and reproduced empire” (Alcoff 2007, 83). Powerful domestic ART providers pre-empted local demand, penetrated prospective markets, and began to proliferate their services through semi-urban, rural, and other underserved spaces. However, they did so by often imposing on potential beneficiaries, the expensive interventions originally designed for the elite clienteles of the metropolitan center. Most of these less well-resourced consumers had vanishingly little knowledge of the science of ART and found themselves unable to assess the utility of the treatments they were offered, whilst others became subjects whose own bodies were colonized for the purposes of surrogacy or oocyte donation. In this sense, the colonized were subjected, as Linda Alcoff argues, “not simply to a rapacious exploitation of all their resources but also to a hegemony of Eurocentric knowledge systems” (2007, 83). Both contributed directly to a gradual but highly pervasive colonization of the subaltern ART market in India—one designed to meet the needs of a vast, underserved populace with unaddressed fertility needs.

The power of this enterprise was such that they ultimately succeeded in thwarting the advances of many international ART conglomerates. Bourn Hall, for example, had initially aspired to build a presence across India. However, they were ultimately outcompeted by their Indian counterparts (Ramanathan, 2016). These domestic providers recognized early that ART markets were highly stratified; that it was not just India’s urban elite who sought access to reproductive technologies but also its peri-urban and rural poor. By accessing support from turnkey providers, a range of ambitious ART specialists thus began to establish stand-alone and satellite clinics in smaller and more remote centers, diffusing expertise and access well beyond the metropolitan cities. Whilst the economic geographies of ART expansion in India are complex and multiple, it is possible to chart this process of diffusion and the emergence and operation of the burgeoning array of ART clinics that now dot India’s landscape.

Indigenous-led ART clinics (including stand-alone private clinics and private clinics embedded in private or corporately run hospitals) were initially highly concentrated in India’s largest metropolitan centers, including Kolkata, Mumbai, Pune, Chennai, Ahmedabad, Delhi, and Bangalore. The years from 2010 to 2014 saw an initial expansion into what are termed in India Tier 2 and 3 cities—for example, Nasik, Latur, and Dhule—through a franchising model.4 One of the turnkey providers we interviewed outlined what we might think of as a capillary mode of market penetration. This methodology enabled clinics to reach into previously untapped markets in some of India’s poorest districts. As one traveling embryologist who works under contract to several Mumbai-based ART clinics explained, “One center in each of these towns reaches out to patients in the surrounding four to five districts. They go with their local gynecologists and sit for one day; they do this greeting of the patients and picking out the right patients to refer back to their clinics…They are approaching very aggressively and trying to reach to the geographies that they can manage in these smaller towns and nearby” (Jaipur, March 6, 2014).

ART provision boomed in other parts of the country, such as Kerala and Punjab, for curiously idiosyncratic reasons. Many laborers from Kerala spent extended periods abroad servicing the booming petrodollar industries in Saudi Arabia and the Middle East, whilst workers from Punjab (who drew upon extended family networks to secure employment in Canada) also spent considerable periods of time abroad during their prime procreative years (Nair 2010). Many of these laborers returned home with an increased “need” for IVF (induced by sustained periods of enforced abstention; toxic workplace exposure; and rising age) but also with increased funds to pay for treatment. These were peculiar trends: although these families were structurally part of the lower middle class, they had suddenly acquired access to a surplus of liquid capital which could now be channeled to address their lack of biological progeny. The changing dynamics of employment of the middle classes within these pockets of semi-urban India (pre-COVID) drove up demand for ART dramatically, resulting in the exponential growth of satellite ART clinics in interior towns. These clinics were so small that they often evaded oversight by ART regulatory bodies, their relative invisibility contributing to a significant underestimation of the overall rate of expansion of ART services across the country. Nonetheless, it is estimated that the number of fertility clinics in India rose from 120 in 2010 to over 20,000 in 2020.5 The growth in IVF cycles in the large metropolitan cities consequently began to slow from 2015 onwards, as smaller clinics opened up in Tier 2 towns and Tier 3 districts, and began, as one clinician put it, “picking up the rump of patients and retaining those patients there.” Understanding how and why this occurred helps elucidate both the changing social and spatial dynamics of ART provision in India, and the implications of its expansion for patient care amongst the country’s lowest socioeconomic orders.

### Perverse Markets

In unpacking the nature of these emerging markets, it is not our intention to default into “a cartographic exercise that designates incompliance and ‘maverick’ practice as localisable to the wayward developing world and good science to a predominantly Euro-American haven” (Bharadwaj 2013 85). The standards of patient care and technological expertise in India’s indigenous ART sector are generally commensurate with those found in the West, and in some clinics in Tier I cities are world leading. The desire to conceive a genetically related child is not, however, experienced solely by those who can afford to access such clinics. Even infertile couples from rural localities, who often face the added challenges of extreme financial deprivation and limited access to education and information share such biological aspirations, seeking any and all possible remedies for their infertility. The infertility treatment market in India has become highly stratified in response, as providers “adapt” their offerings and standards of care to meet the needs of the most indigent. Some of the metropolitan clinics that moved into rural and semi-rural localities in Maharashtra and Hyderabad provided subsidized IVF for their more impoverished rural clients. Motivations for doing so are varied. Some providers seem genuinely impelled by a desire to improve access to care; others appear to be utilizing gifting as something more akin to a “loss leader” model of business expansion.

Much existing literature on cross-border exchanges and flows of reproductive capital and labor has shed light on the gamete donors, surrogates, and intending parents who have moved across borders to seek and supply care (Gerrits 2018) and the increasingly corporatized global fertility industry that has expanded globally to meet their needs (Whittaker, Inhorn, and Shenfield 2019). India’s ART market, conversely, appears to have been subject to more centripetal forces, imploding inwards to capture the spaces of its own rural/semi-urban interiors, its neocolonizing impulses being allowed to play themselves out on its own poorer subjects. A relative lack of effective regulatory oversight has allowed ambitious providers to populate the reproductive landscape with a superabundance of so-called ART clinics. Situated on any number of dusty street corners, these facilities purport to offer advanced technologically assisted interventions that consumers believe have the capacity to “cure” their infertility.

However, the ART market has not simply replicated itself as it has diffused into these rural areas, but has, instead, fragmented. In some quarters, service standards have been maintained, but, in many others, they have devolved alarmingly into the shabbiest kind of service provision, one that bears almost no resemblance to that provided to the metropolitan elites of India. This form of ART provision, which operates as a mere shadow of its ideal self, creates what we term “perverse markets”: those whose continued economic growth and geographic expansion is predicated on the sale of treatments and interventions that are unlikely to effectively address, and may even exacerbate, the problem they purportedly seek to solve.6 This iteration of a perverse ART market caters to a specific population, a population of less affluent, less informed, less aware subjects: the subaltern infertile class of India’s rural districts.

In syncing itself with the different socio-cultural coordinates of this new space, service provision itself has become disjointed and unscrupulous, creating, in the process, some extremely adverse implications for client care. Much attention has been focused in recent years on the purported subjugation of those Indian women who have been drawn into the service of the ART industry as producers of vital clinical labor, including surrogacy and egg donation (Cooper and Waldby 2014; Pande 2014; Rudrappa 2015; Vora 2015). These represent, however, but a tiny fraction of the women who are now being much more crudely exploited by the lowest echelons of the ART industry in India today. These service providers have been very accommodating and inclusive of poor women who have been beckoned and incentivized to participate in this perverse market, one cynically customized to maximize the returns that can be secured from their lack of awareness and knowledge. An economy of high-cost/low-quality treatment provision coupled with exceptionally poor information dissemination and non-existent or weakly formulated consent regimes has thus unfolded and become normative within this space. The owner and director of a leading IVF turnkey provider in an Indian metropolis that has helped set up more than two hundred ART clinics across India and several dozens in other countries, reflected on the circumstances that have led to the emergence of this subpar iteration of IVF and its implications for patient health:

Many B-town clinics and those further into the interior promise cheaper rates than what clinics in Mumbai or Delhi offer. But such cheaper rates are impossible to sustain in real life: see, of the total cost they incur, the maximum is for the medicines they use, and the prices of medicines are the same whether a clinic in Mumbai buys them or one in a B-town buys them. The manufacturer of the drugs will not give extra discounts to the suburban clinic! So, what happens then? The suburban clinics shall have to make up for the lower costs in some way. They do that by luring the patient into more cycles than she needs. It’s a vicious and tragic chain, actually. The patients get trapped once they enter these clinics, these women are usually not well informed, who do not know how to browse proper literature on the internet and so on; they would usually do what their in-laws or husband says. And for the family who has taken the bold step of confronting their infertility and come to the clinic, there is not another easy second option—the next nearest clinic is probably in the city, many kilometers away. These patients are effectively trapped. Once they have begun the cycles, they feel probably some sort of moral compulsion to go on until either they get pregnant, or the doctor gives up. The latter, as you understand, happens very late. (Owner and director of a major ART Turnkey business, Mumbai, March 21, 2017)

Although many of these lower order clinics are generically branded as offering IVF most are essentially ovulation induction clinics (in other words, intrauterine insemination clinics [IUI]) and are run by clinicians with only very basic fertility training. They have no laboratory facilities and primarily offer services such as oral ovarian stimulation drugs and intrauterine insemination. The old-school urinary-derived gonadotrophins that they prescribe (such as clomiphene) are comparatively less expensive and in many cases less effective than more sophisticated recombinant gonadotrophins offered in metropolitan IVF centers, and practitioners consequently make less profit per cycle when administering them. Most of the clinician’s income is therefore derived from the obstetric delivery of the child, when conceived. There is, therefore, a perverse incentive to retain the patient until conception is achieved. Lacking equipment, expertise, or in some cases, simply the desire to scan patients, these “specialists” exploit their new subaltern consumer base by binding (sometimes even contractually) this vulnerable population into what might be described as extended regimes of indentured therapy that are, in many instances, technically incapable of delivering the remedies they purport to supply.

As one Indian multinational pharmaceutical manager explained,

What is happening, one of the challenges in India, is that all IUI doctors technically, as per the [ICMR] guidelines should not do more than three IUIs and you should then refer patients for an IVF, if the prognosis warrants it. But what happens is that most of these IUI practitioners try to keep the patients along with themselves and keep delaying the process of sending the patients from them to IVF…By the time they reach a real IVF center, with all the capabilities, they [the female patients] have either lost their reserve for their eggs or they would miss out in terms of age, and the endometrium and the quality of the eggs would be really much poor. All those complications arise because these guys do not want to lose the financial benefit which they would get if the pregnancy is getting delivered at the same clinic where they do it. They have fear that if I give the patient to some IVF doctor, my patient will not come back to me for obstetrics practice, which in India is around 10 to 15 thousand (rupees) depending on the town. (Manager of a multinational pharmaceutical company, Delhi, June 26, 2014)

The clients who visit these clinics are typically drawn from the semi-urban and rural populace. Often already highly stigmatized because of their infertility, they also lack access to education, and technical information on ARTs. Such women frequently lack autonomy and remain dependent on their husbands and wider marital family for all reproductive decision-making. When such clients, already so marginalized, are further ensnared by the perverse strategies of the IUI clinics, the compounded consequences are indeed profoundly adverse and unethical. As cycle after cycle of fruitless hyperstimulation occurs, their ovarian reserves plummet whilst the cost of treatment continues to rise, miring them, their partners, and family in ever greater indebtedness. Only a tiny minority of such patients eventually manage to make their way to more sophisticated ART facilities in larger metro centers through referral. One IVF clinician who directs such a center in Jaipur shared the acute distress she has experienced in treating women who have been subjected to such poor care that they are now technically, and effectively, more infertile when they reach her office than they were when they first decided to seek medical intervention for infertility:

She came to me from this village in Maharashtra; she had not conceived after eight years of marriage and had visited a local ART clinic four years ago. The couple had sold their cattle and mortgaged their farmland for affording ten rounds of stimulation cycles over three years. Can you believe it?? When they ran out of money, they took a break; the doctor kept on assuring them it would surely happen the next time, until they saw through him and arrived here. I did some tests and realized the woman had blocked fallopian tubes. It was a birth defect! I was so shocked when I understood that the basic tests had not been done for her! Had she gone to a proper doctor at the start, they would not have spent such huge amounts of money, at least. (IVF clinician and clinic owner, Jaipur, August 6, 2013)

Leading IVF clinicians in Mumbai drew our attention to the size of the potential market for ART services in India. With an estimated national population of over 1.1 billion, some 350 million couples are part of the reproductive age group. If only 2 percent of this number are infertile, the prospective market is still strikingly large, some 7 million couples—a very significant number. It could be argued that the domestic ART industry in India successfully did what its international competitors such as Bourn Hall could not: splitting and devolving their provision, and tailoring their services to meet the highly variegated economic and social conditions, solvency, and knowledgeability of a multitude of differently positioned market consumers. The cost, in terms of standards of reproductive care, has yet to be fully measured. It is evident, however, that the degree of penetration of the domestic ART industry across all localities and the “localized calibration” of clinical practice did undermine the potential reach of international service providers such as Bourn Hall.

Their prospective colonization of the domestic ART market was built on the premise that consumers would be drawn to internationally benchmarked five-star service provision that was both highly regulated and protocolized. Importing and working to standards of care set out under guidance published by the UK’s Human Fertilisation and Embryology Authority, the clinic sought to offer what the first CEO of Bourn Hall India, Dr. Pravin Kinim described as “the Louis Vuitton of IVF…promising the same type of treatment one world get in the UK” (Ramanathan 2016, 3). Unlike Indian ART culture, in which provision is dominated by, as one commentator put it, “a star-doctor-driven market,” Bourn Hall decided not to operate on a cult of personality, but rather to populate their clinics with a staff of commensurately trained, if rather anonymous, clinical specialists. Credentialization provided the rationale for charging the maximum the market could bear at up to INR 3 Lakh (approx. 3,000 GBP) per cycle of IVF treatment. Backed by private equity firms, Bourn Hall India set up its first clinic in Kochi (Kerala) in 2011, with ambitions to develop a further sixteen centers across India in the following five years.

However, even returning laborers from the Gulf states found Bourn Hall’s costs excessive, particularly as they were not discernibly paying for a “celebrity” physician. Uptake of Bourn Hall’s service progressively fell as their Indian competitors learnt how to appeal to all strata of the local market, tailoring their provision to service the needs of a highly diversified consumer base right along the fertility chain, driving down costs and driving up belief in success through the production of a culture of clinical reverence. By 2016 Bourn Hall India had been entirely vanquished, the sixteen centers had failed to materialize and despite the intention to invest over Rs 620 crore (nearly USD 100 million), its flagship Kochi clinic had also closed. Although BHI came to admit defeat in the Indian market, its holding company re-invented itself in 2018 as Bourn Hall International-MENA with fresh ambitions to penetrate the Middle Eastern market, particularly the UAE. Interestingly, these failed as well, and the company has since gone through a formal liquidation/dissolution process, being sold initially to TVM Capital Healthcare and more recently, in November 2021, to Mediclinic Middle East. Whether the “imperial brand” will prove sufficient to see off further competition from Indian and Middle Eastern ART providers in the MENA region is yet to be determined.

### ART Dreaming II: Reproductive Empires

Bourn Hall and other ART providers from the world’s metropolitan north undoubtedly have a strong colonizing instinct, but it is not one that they alone share. India’s most prestigious privately owned clinics, which are led by a select cartel of powerful Mumbai- and Delhi-based IVF specialists, have spun out their operations from the large metropolitan cities of India into the far-flung corners of India’s most humble rural towns. Their motivations for doing so are undoubtedly complex, but as one insider revealed in interview, highly gendered and inflected with colonialist desires:

You know these guys, [the leading Indian ART entrepreneurs] they like to think “we are running the show, we have control, we have power.” One says, “I am running four years, and somebody else will say I am running nine years…well, I am running twenty-three years and throughout the country!” And surprisingly, I don’t know how I forgot to mention this, they are all males who are doing this, none of them are females. In reproduction, they have status, you know, because “people are coming, and my apostles are coming, and I have this lady, I have that lady” [the female reproductive specialists they recruit to run their satellite clinics], and that gives them a thrill because they start with a small clinic and they made a big hospital, now they are running fifty hospitals, so it gives them like an empire, and that gives them like an imperial, it’s more like a colonial kind of pleasure, as they try to colonize the country and there are many of them; if you see map of India, they are based in Bombay, they run in Kashmir, they run in Punjab, they run in Assam, and now they are running in Africa too. These people you need to talk…you can’t not talk to them, because these are the mafia, the godfathers who run the business in India. (Clinician and IVF clinic investor, Mumbai, October 5, 2014)

Much of their colonizing ethos, it could be argued, was learnt at the knee of those prominent European IVF consortiums that first entered the Indian market in the late 1990s and early 2000s. At this time, Indian specialists watched as an influx of leading fertility providers from Europe and the UK entered their market, including those such as Bourn Hall, who set about progressively franchising their businesses into larger cities across the subcontinent. Global corporations such as TVM Capital Healthcare later bought holdings in many of these European operations, enabling them to further extend their reach by creating franchised satellite clinics in emerging markets such as the Africa and the UAE.7 Research carried out in sub-Saharan African countries such as Uganda and Ghana show that in 2012–13 most local ART providers continued to “obtain support for their professional initiatives” from erstwhile colonizer/first-world nations such as the UK and Germany (Hörbst and Gerrits 2016). This research demonstrates how Indian providers have since replaced these traditional colonizers in these countries. The transition is, of course, a complex one, initially mirroring the historical dynamics of colonial expansion, in which Indian elites worked alongside the colonial state, acting as a comprador class there to represent and manage the colonizers’ interests in Kenya, Nigeria, or Ghana, before finally taking control of the market themselves.8

The dynamics of this initial project of imperial expansion were very evident to the Indian IVF specialists, such as traveling embryologists, who were employed to service satellite clinics in these developing states. Several expressed deep skepticism about the European clinics’ motivations for expanding into these previously underserved markets. Rejecting their public rhetoric, which privileged the altruistic intention to make ARTs more available to the impoverished infertile, they argued, conversely, that such corporations were simply interested in a much more conventional neoliberal process of value extraction. Many complained that the British companies were profiteering from the sale of equipment, media, and supplies, which Indian providers were prepared to offer at half the cost. In emerging markets such as Africa, British and German companies continued with their metropolitan pricing model, but this met with increasing resistance. It was not long, therefore, before India’s two largest IVF turnkey companies, Trivector and Shivani, identified therein an opportunity for their own business expansion.

Playing directly on Africa’s concerns about imperialist behavior on the part of these British and German IVF providers, and having been subject to similar processes of value extraction themselves, leading Indian providers set about offering sub-Saharan African entrepreneurs new lifelines: cut-rate supplies in exchange for their agreement to become satellites of leading Indian IVF chains such as Fortis Healthcare and Rotunda, thereby creating a kind of anti-colonial capitalist fertility chain. As the director of one such enterprise explained:

The Western companies were really exploiting these Africans. But they [the UK and German corporations] have gone out from Africa completely now because nobody trusts them. I was very surprised as I go to a clinic in Ghana [to practice IVF] and I was very surprised that if they want to buy a British product, they don’t buy it from the British company directly; they now go to an Indian agent here. So, there is a big deficit of trust in Africa now towards those [European] companies. They [the Africans] just get the feeling that they have been exploited all along. (Leading IVF clinician in Mumbai and owner of satellite clinics in Africa and the UAE, interviewed Mumbai, August 8, 2015)

Whether or not the Indian providers’ intentions are any more admirable than those of their colonial masters is, of course, open to debate. The African market for assisted reproduction is potentially huge and driven by several factors: increasing government support for the development of healthcare infrastructure, high existent levels of gynecological disorders; lifestyle-related declines in rates of pregnancies, and strong cultural desires for biologically linked children, which together create huge demand for IVF services (Ombelet and Onofre 2019). Market forecast reports for 2018 to 2023 predict that the African and Middle Eastern IVF markets will be worth USD 0.46 billion by 2023, having grown at a predicted annual rate of 16.64 percent between 2018 and 2023 (Market Data Forecast IVF Market Report, 2018). The excitement this invokes amongst Indian providers is palpable:

The market is huge! I had a trainee from Africa who stayed with us for six months. He went back there and took six months to open up a small center. He went first of all just to test the waters but is now doing two hundred cycles a month and its huge, the market there! I went there to help him with this first batch (of embryo transfers) and this place was like…well, it really looked like twenty years back, even compared to India, but still, they are paying the same as here. I’ve also now got a practicing license in the UAE as well, where childlessness is really bad, that’s why the expansion is there. (Leading IVF clinician in Mumbai and owner of satellite clinics in Africa and the UAE, interviewed in Mumbai, August 8, 2015)

Business expansion in ART provision is, it would seem, booming. But how are we to conceptualize the emergence of these new global fertility chains? Capitalist production of reproductive markets has not disappeared but rather is now being realized in new sites of accumulation. It could be argued, following Marini (1965) that dependent economies like India are compensating for prior imperialist processes of exploitation of their economies, resource, and labor by simply visiting on their near, and even more disadvantaged, neighbors their own iterations of colonial exploitation. Such behavior would certainly mirror that of many BRICS firms who have become, some argue, the most super-exploitative of the corporations engaged in accumulation in Africa.9 The surplus value of commodities, labor, and expenditure extracted from Africa to other BRIC nations is estimated to have risen from $28 billion to $377 billion between 2000 and 2014 (Bond 2018, 5).

Can this reproductive empire building be characterized though simply as a form of learned or sub-imperialism (Bond 2013)? As geographer Patrick Bond (2018) argues, such developments certainly complicate existing, rather unsophisticated narratives that seek simply to divide the world into oppressed and oppressor nations. These developments would seem to reflect more closely Vivek Chibber’s argument that such behavior actually constitutes an aspirational alignment of the BRICS elite with their imperial mentors such that we are now seeing the emergence of a new phenomenon: “the convergence of ruling classes in the global south and the global north into a common committee of global capitalist interests” (2018, 2). Despite this alignment, Indian IVF corporations are not simply acting as regional agents of Western imperialism or as the “deputy sheriffs” of European corporations, as Bond (2013) would put it, even though they established powerful new domains of influence in these new territories. The domestic Indian IVF elites who are driving global fertility chains and their attendant markets have clearly developed their own unique entrepreneurial style (highly flexible and adaptive) and successfully found avenues through which to exert their own influence.

Developing new markets in controversial technologies or practices (such as ART, surrogacy, stem cell therapies, or gene editing) requires the state to explicate its views on their morality, and potential marketability. It does so typically, as Brian Salter argues, “through national institutional sources of cultural authority embedded in state and religion” that inform and oversee a necessary and visible “contest in the politics of value” (2022,21). Many states wish to encourage new markets in such technologies but are concerned about appearing to support inventions or practices that may be perceived as illegitimate. India’s leading IVF specialists have played key roles in authoring the political compromise necessary to resolve this conundrum. Many of the “Mumbai IVF mafia,” as one of our first interviewees described them, were enrolled directly by the state as authoritative experts capable of determining, apparently without bias, how and in what ways these emergent ART markets could and should be governed. In acquiescing to their views, the ICMR effectively created a regulatory instrument—the *ICMR Guidelines on Assisted Reproductive Technology*—that went on to set very liberal parameters for the business expansion of ART both in India and abroad.

Deciding not to govern, or to govern weakly, is a political decision. Announcing formally ambitious plans to curb market failures (delivery of poor-quality services, overcharging, absence of licensing, etc.) whilst simultaneously turning a blind eye to the non-implementation of those very same regulations, creates ideal conditions for unregulated market growth. As Sonja van Wichelen notes in this special issue, once stabilized through this regulatory parsing work as a politically legitimate thing, the medical innovation (in this case ARTs) can be spun off as an admissible and thus marketable commodity in a variety of local (pan-Indian) and international (emerging markets) contexts. However, what we hope to have demonstrated here is that without adequate regulation, the sites into which they are exported risk becoming, at the hands of expeditious entrepreneurs, potentially even more super-exploitative of their local populations. “Imperialism,” in this context, thus takes on a more nuanced form as something negotiated both economically and ideologically with sophisticated local interests to deliver an outcome, in this case, market expansion under light touch or non-existent regulation, that works to support the colonizing logics of both European and Indian elites.

### Conclusion

As Bharadwaj reminds us in his 2013 work, to fully understand the construction and dynamics of new transnational networks of technology assisted industries and markets, it is vital to pay attention to the role of “local biologies” (Lock 2001). Assisted reproduction is one such market, and in this paper we have charted the contours of its recent expansion, revealing the complex landscapes and typologies of care that it has spawned across highly interconnected and now globally extensive fertility chain networks. Indian ART specialists have come to play a key role in these networks, servicing, initially, the colonizing aspirations of some of Europe’s largest IVF providers, before realizing their own ambitions in reproductive empire building. We argue here that the diffusion of knowledge and expertise about IVF has not been unilinear, but rather has been transposed and rephrased in the Indian context with surprising effects. The entrepreneurial spread of second-rate reproductive services throughout India and into sub-prime Africa is, as we hope to have demonstrated here, driven by a complex interlinked suite of cultural and economic dynamics: the neoliberalism of health service provision in India; the privatization and corporatization of care, potent cultural preferences for biologically related children, and gendered competitiveness, but also, and perhaps most significantly, by the impulses of colonialism and imperialism, which we suggest, have come to inflect both the logic of its expansion and its underlying ethos.

Whilst mapping the contours of these emergent reproductive empires demands further empirical and conceptual work, the evidence marshalled here suggests, at least, that these expansive global fertility chain networks have the capacity to embed or re-embed in particular sites of economic and cultural vulnerability, new amoral economies of reproduction, by making such technologies seemingly more available yet less assuredly beneficial, either biologically or economically, to their intended recipients. In unpacking the ambitions, compulsions, dreams, and instincts that have shaped the transition of ART provision in India from a satellite in a transnational network of service provision to now one of its most powerful hubs, we hope to have cast light on the complex ways in which science and technology are remade in situ but also how the historiography of colonial relations can return to haunt contemporary practices in ways that threaten to materialize new and potentially highly exploitative modes of reproductive value extraction across global fertility chain networks.

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### Notes

1 A sterilization camp organized by the State Department of Health under the National Family Planning Programme to perform laparoscopic tubectomies was held in Bilaspur, Chhattisgarh, India on November 8, 2014. It has been argued that “target-driven” nature of this family planning program resulted in rushed and botched ligations that violated all standard operating procedures and ethical norms. Eighty-three women from predominantly Dalit and tribal groups were subjected to sterilization within six hours by one surgeon using an assembly line technique with one laparoscope with no precautions for asepsis, resulting in the deaths of thirteen women. For a detailed account, see Nadimpally et al. 2015.

2 For example, leading and highly venerated women such as Saadhna Desai, Feroza Parekh, and Indira Hinduja all developed large private practices that attracted patients from their own faith communities; Desai is a Gujarati; Parekh is a Parsi, and Hindujha is a Sindhi. Desai, for example, attracted many clients from the wealthy Gujarati jewelry- and diamond-trading community located within India and abroad, in Belgium.

3 Trivector Scientific Private Ltd. was initially a homegrown Indian company established in 1993. The Danish ART solutions provider Origio acquired a 51 percent stake in Trivector in 2012 to expand its own international sales market but sold their interest in 2015 as Trivector sought to regain control. Shivani Scientific Ltd. is an Indian-owned company that establishes new IVF facilities in India using products from twenty-six international ART technology, equipment, and consumable suppliers. See Shivani Scientific 2014.

4 Cities in India are categorized on the basis of a grading structure devised by the Government of India. This system helps the authorities to allot House Rent Allowance to the employees of the public sector, posted in different cities across the country. Tier I are India’s largest cities, Tier 2 and 3 are comparatively smaller cities, Tier 4 are towns. There are currently 8 Tier I cities, 26 Tier II cities, 33 Tier III cities, 5,000 Tier IV towns, and more than 638,000 villages in the country.

5 The *Times of India* suggested that India had in excess of 20,000 IVF and IUI clinics across India by 2017, but that less than 20 percent of them were registered by the Indian Council for Medical Research (Dey 2017). Bronwyn Parry and Sayani Mitra are currently undertaking a crowd-sourced mapping project to establish the true extent of this expansion of provision in recent years.

6 It can be argued, as one of our reviewers astutely noted, that the perverse markets theory can be said to be descriptive of the entire ART sector, being notably evident, for example, in its aggressive marketing of IVF add-ons. These include treatments such as assisted hatching and immunological testing, both of which have been determined by the UK’s Human Fertilisation and Embryology Authority to have little efficacy in assisting conception, but which are successfully marketed to consumers worldwide through the continually cited risk of “low success rates” and the associated exploitation of “patient desperation.”

7 For more detailed analysis of these trends, see Van de Wiel, 2020.

8 We remain indebted to reviewer two for their help in conceptualizing this.

9 The BRICS acronym stands for the most powerful of the emergent Global South economies: Brazil, Russia, India, China, and South Africa.

### References

Alavi, Hamza. 1975. “India and the Colonial Mode of Production.” *Economic and Political Weekly* 10 (33/35): 1235–62. <https://www.jstor.org/stable/4537329>.

Alcoff, Linda. M. 2007. “Mignolo’s Epistemology of Coloniality.” *The New Centennial Review* 7 (3): 79–101. <https://doi.org/10.1353/ncr.0.0008>.

Appleton, Nayantara Sheoran and Aditya Bhradwaj. 2017. “Biocrossing Heterotopia: Revisiting Contemporary Stem Cell Research and Therapy in India.” In *Global Perspectives on Stem Cell Technologies* edited byAditya Bharadwaj, 195–214. London: Springer.

Bärnreuther, Sandra. 2016. “Innovations ‘Out of Place’: Controversies over IVF Beginnings in India between 1978 and 2005.” *Medical Anthropology* 35 (1): 73–89. <https://doi.org/10.1080/01459740.2015.1094066>.

Bharadwaj, Aditya. 2013. “Subaltern Biology? Local Biologies, Indian Odysseys, and the Pursuit of Human Embryonic Stem Cell Therapies.” *Medical Anthropology* 32 (4): 359–73. <https://doi.org/10.1080/01459740.2013.787533>.

Bharadwaj, Aditya. 2014. “Experimental Subjectification: The Pursuit of Human Embryonic Stem Cells in India.” *Ethnos*, 79 (1): 84–107. <https://doi.org/10.1080/00141844.2013.806947>.

Bharadwaj, Aditya. 2016a. *Conceptions: Infertility and Procreative Technologies in India*. New York: Berghahn Books.

———. 2016b. “The Indian IVF Saga: A Contested History.” *Reproductive Biomedicine & Society Online*, no. 2, 54–61. <https://doi.org/10.1016/j.rbms.2016.06.002>.

Bharadwaj, Aditya, and Peter Glasner. 2008. *Local Cells, Global Science: The rise of Embryonic Stem Cell Research in India*. London: Routledge.

Bond, Patrick. 2013. “Sub-imperialism as Lubricant of Neoliberalism: South African ‘Deputy Sheriff’ Duty within BRICS.” *Third World Quarterly* 34 (2): 251–70. <https://doi.org/10.1080/01436597.2013.775783>.

———. 2018. “The BRICS, Global Governance, Accumulation, Class Struggle and Resource Extractivism.” Committee for the Abolition of Illegitimate Debt. April 25, 2018. <https://www.cadtm.org/The-BRICS-global-governance-accumulation-class-struggle-and-resource>.

Chatterjee, Pradrip. 2018. “Creator of India’s First Test-Tube Baby Awarded Posthumously.” *Millennium Post*, April 23, 2018. <http://www.millenniumpost.in/kolkata/creator-of-indias-first-test-tube-baby-awarded-posthumously-296047>.

Chibber, Vivek. 2018. “South Africa, the Global South and the Future of Capitalism: Interview.” *New Agenda*, February 21, 2018.

Connelly, Matthew. 2006. “Population Control in India: Prologue to the Emergency Period.” *Population and Development Review* 32 (4): 629–67. <https://doi.org/10.1111/j.1728-4457.2006.00145.x>.

Cooper, Melinda, and Catherine Waldby. 2014. *Clinical Labor: Tissue Donors and Research Subjects in the Global Bioeconomy*. Durham, NC: Duke University Press.

Deomampo, Daisy. 2016. *Transnational Reproduction: Race, Kinship, and Commercial Surrogacy in India*. New York: NYU Press.

Dey, Sushmi. 2017. “Only 20% IVF Clinics 2% ART Units Registered with ICMR.” *Times of India*, August 21, 2017. <https://timesofindia.indiatimes.com/india/only-20-ivf-clinics-2-art-units-registered-with-icmr/articleshow/60150184.cms>.

Gerrits, Trudie. 2018. “Reproductive Travel to Ghana: Testimonies, Transnational Relationships, and Stratified Reproduction.” *Medical Anthropology: Cross Cultural Studies in Health and Illness* 37 (2): 131–44. <https://doi.org10.1080/01459740.2017.1419223>.

Harding, Sandra. 2016. “Latin American Decolonial Social Studies of Scientific Knowledge: Alliances and Tensions.” *Science, Technology, & Human Values* 41 (6): 1063–87. <https://doi.org/10.1177/0162243916656465>.

*The Hindu*. 2011. “Bourn Hall Clinic Opens First IVF Centre in India.” April 14, 2011. <https://www.thehindu.com/sci-tech/health/medicine-and-research/Bourn-Hall-Clinic-opens-first-IVF-centre-in-India/article14683115.ece>.

Hörbst, Viola, and Trudie Gerrits. 2016. “Transnational Connections of Health Professionals: Medicoscapes and Assisted Reproduction in Ghana and Uganda.” *Ethnicity and Health* 21 (4): 357–74. <https://doi.org/10.1080/13557858.2015.1105184>.

Johnson, Martin H. 2018. “IVF: The Women Who Helped Make It Happen.” *Reproductive Biomedicine & Society Online*, no. 8, 1–6. <https://doi.org/10.1016/j.rbms.2018.11.002>.

Knecht, Michi, Maren Klotz, and Stefan Beck, eds. 2012. *Reproductive Technologies as Global Form: Ethnographies of Knowledge, Practices, and Transnational Encounters*. Berlin: Verlag.

Lock, Margaret. 2001. “The Tempering of Medical Anthropology: Troubling Natural Categories.” *Medical Anthropology Quarterly* 15 (4): 478–92. <https://doi.org/10.1525/maq.2001.15.4.478>.

Marini, Ruy Mauro. 1965. “Brazilian ‘Interdependence’ and Imperialist Integration.” *Monthly Review* 17 (7): 14–24. <https://doi.org/10.14452/MR-017-07-1965-11_2>.

Market Data Forecast IVF Market Report. 2018.

[https://www.marketdataforecast.com/market-reports/mea-in-vitro-fertilization-market.](https://www.marketdataforecast.com/market-reports/mea-in-vitro-fertilization-market)

Müller, Martin, and Carolin Schurr. 2016. “Assemblage Thinking and Actor‐Network Theory: Conjunctions, Disjunctions, Cross‐Fertilisations.” *Transactions of the Institute of British Geographers* 41 (3): 217–29. <https://doi.org/10.1111/tran.12117>.

Nadimpally, Sarojini, and Vrinda Marwah, eds. 2015. *Reconfiguring Reproduction: Feminist Health Perspectives on Assisted Reproductive Technologies*. Delhi: Zubaan.

Nadimpally, Sarojini, Subha Sri, Vaibhao Ambhore, and Deepa Venkatachalam. 2015. “Bilaspur Sterilisation Deaths: Evidence of Oppressive Population Control Policy.” *Indian Journal of Medical Ethics* 12 (1): 2–5. <https://doi.org/10.20529/IJME.2015.001>.

Nair, Sadasiva, P. 2010. “Understanding Below-Replacement Fertility in Kerala, India.” *Journal of Health, Population, and Nutrition* 28 (4): 405–12. <https://doi.org/10.3329/jhpn.v28i4.6048>.

Ombelet, Willem, and Jaime Onofre. 2019. “IVF in Africa: What Is It All About?” *Facts, Views & Vision in ObGyn* 11 (1): 65 –76. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6822948/>.

Pande, Amrita. 2014. *Wombs in Labor: Transnational Commercial Surrogacy in India*. New York: Columbia University Press.

Parry, Brownyn. 2015. “Narratives of Neoliberalism: ‘Clinical Labour’ in Context.” *Medical Humanities* 41 (1): 32–37. <http://doi.org/10.1136/medhum-2014-010606>..

Patel, Vibhuti. 2007. “Female Foeticide, Family Planning and State–Society Intersection in India.” In *Sex Selective Abortion in India: Gender, Society and New Reproductive Technologies,* edited by Tulsi Patel, 286–316. New Delhi: Sage Publications.

Pollock, Anne, and Banu Subramaniam. 2016. “Resisting Power, Retooling Justice: Promises of Feminist Postcolonial Technosciences.” S*cience, Technology & Human Values* 41 (6): 951–66. [https://doi.org/10.1177/0162243916657879](https://doi.org/10.1177%2F0162243916657879).

Ramanathan, Arundhati. 2016. “How Bourn Hall Got Knocked Down.” *The Ken (India Edition)*, December 1, 2016. <https://the-ken.com/story/how-bourn-hall-got-knocked-down/?searchTerm=bourn%20hall>.

Rudrappa, Sharmila. 2015. *Discounted Life: The Price of Global Surrogacy in India*. New York: NYU Press.

———. 2018. “Land, Women and Techno-Pastoral Development in Southern Karnataka, India.” *Reproductive Biomedicine & Society Online*, no. 7, 141–49. <https://doi.org/10.1016/j.rbms.2018.12.001>.

Salter, Brian, Yinhua Zhou, and Saheli Datta. 2014. “Health Consumers and Stem Cell Therapy Innovation: Markets, Models and Regulation.” *Regenerative Medicine* 9 (3): 353–66. <https://doi.org/10.2217/rme.13.99>.

———. 2017. “Governing New Global Health-Care Markets: The Case of Stem Cell Treatments.” *New Political Economy* 22 (1): 76–91. <https://doi.org/10.1080/13563467.2016.1198757>.

Salter, Brian. 2022. “Markets, Cultures, and the Politics of Value: The Case of Assisted Reproductive Technology.” *Science, Technology, & Human Values* 47 (1): 3–28.<https://doi.org/10.1177/0162243921991929>.

Shivani Scientific. 2014. “About Us.” <https://www.shivaniivf.com/about-us.php>.

TVM Capital Healthcare. n.d. “Bourn Hall International.” Accessed December 10, 2021. <https://www.tvmcapitalhealthcare.com/portfolio/bourn-hall-international/>.

Van de Wiel, Lucy. 2020. “The Speculative Turn in IVF: Egg Freezing and the Financialization of Fertility.” *New Genetics and Society* 39 (3): 306–26. <http://doi.org.10.1080/14636778.2019.1709430>.

Vertommen, Sigrid, Vincenzo Pavone, and Michal Nahman. 2021. “Global Fertility Chains: An Integrative Political Economy Approach to Understanding the Reproductive Bioeconomy.” *Science, Technology, & Human Values* 47 (1). <https://doi.org/10.1177/0162243921996460>.

Vora, Kalindi. 2015. “Re-imagining Reproduction: Unsettling Metaphors in the History of Imperial Science and Commercial Surrogacy in India.” *Somatechnics* 5 (1): 88–103. <https://doi.org/10.3366/soma.2015.0149>.

Wahlberg, Ayo. 2016. “The Birth and Routinization of IVF in China.” *Reproductive Biomedicine & Society Online*, no. 2, 97–107. <https://doi.org/10.1016/j.rbms.2016.09.002>.

Whittaker, Andrea, Marcia C. Inhorn, and Francoise Shenfield. 2019. “Globalised Quests for Assisted Conception: Reproductive Travel for Infertility and Involuntary Childlessness.” *Global Public Health* 14 (12): 1669–88. <https://doi.org/10.1080/17441692.2019.1627479>.

### Author Bios

**Bronwyn Parry** is Professor of Global Health and Social Medicine at King’s College London.

**Rakhi Ghoshal (PhD)** is a researcher from the global south; her research interests and outputs are in the area of gender, (in)fertility, health and violence against women. Currently, she is leading a learning-intervention pilot on health sector response to violence against women in Bihar, India.