Breastfeeding 3

The political economy of infant and young child feeding: confronting corporate power, overcoming structural barriers, and accelerating progress

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Despite increasing evidence about the value and importance of breastfeeding, less than half of the world's infants and young children (aged 0–36 months) are breastfed as recommended. This Series paper examines the social, political, and economic reasons for this problem. First, this paper highlights the power of the commercial milk formula (CMF) industry to commodify the feeding of infants and young children; influence policy at both national and international levels in ways that grow and sustain CMF markets; and externalise the social, environmental, and economic costs of CMF. Second, this paper examines how breastfeeding is undermined by economic policies and systems that ignore the value of care work by women, including breastfeeding, and by the inadequacy of maternity rights protection across the world, especially for poorer women. Third, this paper presents three reasons why health systems often do not provide adequate breastfeeding protection, promotion, and support. These reasons are the gendered and biomedical power systems that deny women-centred and culturally appropriate care; the economic and ideological factors that accept, and even encourage, commercial influence and conflicts of interest; and the fiscal and economic policies that leave governments with insufficient funds to adequately protect, promote, and support breastfeeding. We outline six sets of wide-ranging social, political, and economic reforms required to overcome these deeply embedded commercial and structural barriers to breastfeeding.

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Introduction

The displacement of breastfeeding and breastmilk with commercial milk formula (CMF) over the past century and a half represents a major transition in the nutrition and care of infants (aged <12 months) and young children (aged 12–36 months) worldwide.[1] Today, breastfeeding rates remain greatly reduced compared with rates practised before CMF marketing efforts intensified in the mid-20th century. The transition for infants and young children to diets that are higher in CMF has accelerated in recent decades, alongside rapid growth of ultra-processed food markets, especially in highly populated lower-middle income and upper-middle income countries.[2–5] This dietary change raises serious concerns for human and planetary health, given the long-standing association between exposure to CMF marketing and infant malnutrition, ill health, and mortality (so-called commerciogenic malnutrition); displacement of the health, developmental, and food security benefits of breastfeeding; and the contributions of CMF supply chains to global heating and other forms of environmental degradation.[3,6,7]

The first and second papers in this Series[8,9] present several reasons for the global rise of CMF in human diets, including the CMF industry's exploitation of parental anxieties; ubiquitous marketing; and absent or inadequate protection and support for breastfeeding within health-care systems, work settings, and households. In this Series paper, we look further upstream and examine the root causes of low worldwide breastfeeding rates[10] to understand why so many women and families are prevented from making and implementing informed decisions about feeding and caring for infants and young children; why so many policy makers and health-care professionals are co-opted by CMF marketing and other commercial forces; and why so many countries have not prioritised and implemented policies to protect, promote, and support breastfeeding. It is important to note that we use the terms women and breastfeeding throughout this Series for brevity, and because most people who breastfeed identify as women; we recognise that not all people who breastfeed or chestfeed identify as women.

We adopt a political economy approach (figure 1 and panel 1) that examines the role of actors, interests, and systems of power in shaping infant and young child feeding patterns and outcomes across three domains of society. The first domain is commerce, which focuses especially on the power of the CMF industry and the commercial determinants of infant and young child feeding. The second domain is care and work, which focuses on gendered power systems, women's social roles and rights, and how society values breastfeeding and other forms of care work. The third domain is health systems, which focuses on the reasons why breastfeeding protection, promotion, and support is often inadequate. Throughout, we recognise breastfeeding and the capability to breastfeed as vital contributions to the realisation of human rights for women and children, including the right to the highest attainable standard of health and nutrition, and the right to life.[10,33]

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Key messages

- Less than half the world's infants and young children are breastfed as recommended, despite evidence of the importance of breastfeeding and knowledge about how breastfeeding can be effectively protected, promoted, and supported. Political economy research helps to understand the social, political, and economic reasons for the low rates of breastfeeding worldwide.
- The substantial power of corporate and financial actors with interests in expanding commercial milk formula markets, underpinned by global trade, investment, and financial institutions, is deployed in various ways to block more effective commercial milk formula marketing regulation and breastfeeding protection.
- In addition to causing health harms, new analyses show the extractive nature of the commercial milk formula industry, and how it also contributes to widening socioeconomic inequalities and considerable environmental harms.
- The inadequacy of governments and economic systems in recognising the value of breastfeeding and care work (predominantly done by women), and insufficient investments in maternity protection are also factors underpinning the growth of commercial milk formula markets. Half a billion women worldwide are denied adequate maternity protection, most of whom are in underpaid, precarious, or informal work.
- Several structural drivers contribute to the widespread inadequacy of breastfeeding promotion, protection, and support within health-care systems. These drivers include gendered and biomedical power systems that undermine culturally appropriate and women-centred maternity care; ideological factors that accept and encourage corporate influence within health systems; and economic policies that constrain public budgets.
- Overcoming structural barriers to breastfeeding requires determined and wide-ranging reforms that extend beyond the health sector. These reforms include actions aimed at social and political mobilisation, and curtailing corporate and financial power. Furthermore, reforms to protect and uphold the rights of women and children and to eliminate deeply embedded gender biases within the economy are required.

The commercial determinants of infant and young child feeding

The global expansion of the CMF industry has transformed infant and young child feeding into an object of commerce and trade by displacing breastfeeding, as a biopsychosocial system of nutrition and nurture, with commercial supply chains across ever-widening populations of women and infants and young children.[34–36] Commencing in the 1860s with the invention of CMF, this commodification has played out along two main axes.

See Online for appendix

The first axis is through globalisation, and the expanding geographical reach of the CMF industry and its marketing practices. Corporations from Europe and the USA first expanded in the markets of their home countries and of their colonies, and then from the mid-20th century onwards, more intensively in low-income and middle-income countries (LMICs).[35,37,38] Within countries, CMF markets generally spread first among wealthier consumers in urban centres, before expanding to more socioeconomically disadvantaged consumers and areas.[39] In the past four decades, structural transformations in the global economy, including an explosion of trade and investment agreements, have constrained the power of governments to regulate domestic markets, while enabling the CMF industry to globalise their supply chains and marketing.[34,40] The increasing power of financial actors in the global economy, resulting from deregulation and increased private financial flows, has further empowered corporations to globalise, and it has driven more aggressive modes of profit-seeking and wealth accumulation.[41–43]

Such profit-seeking is reflected in the second axis of expansion, whereby the CMF industry has widened the boundaries of CMF markets and infant and young child populations subject to commodification.[2,3,44] Product ranges expanded from mainly a single infant formula category (from birth onwards) before the 1980s, to include products for younger infants (aged 0–6 months), follow-up formulas for older infants (6 months or older), toddler and growing-up milks for young children (12 months or older), and products for pregnant and lactating women.[34,44,45] This diversification allowed corporations to rename products, with the intention of circumventing marketing regulations that they interpreted as applying to infant formula only, and to cross-promote entire product ranges by using near-identical branding and packaging.[8,9,44,46,47] Expansion further involved widening perceptions about the boundaries of diet-related infant and young child illness, through industry-driven over-diagnosis of medical conditions such as cows-milk protein allergy,[48–50] and by pathologising typical infant and young child behaviours such as fussiness, gas, and crying to induce demand for so-called specialised formulas that were claimed to deliver treatments.[44,51]

The CMF industry and the state-industrial complex

Despite the adoption of the International Code of Marketing of Breast-milk Substitutes in 1981 and of subsequent resolutions (hereafter referred to as the Code),[52] global CMF sales grew 37-fold between 1978 and 2019, from US$1·5 billion to $55·6 billion annually.[34] Nestlé, Danone, Reckitt, Mead Johnson, Abbott, Friesland Campina, and Feihe dominate today's global market, collectively controlling 60% of CMF sales in 2021 (appendix p 4). As markets have grown, these corporations have

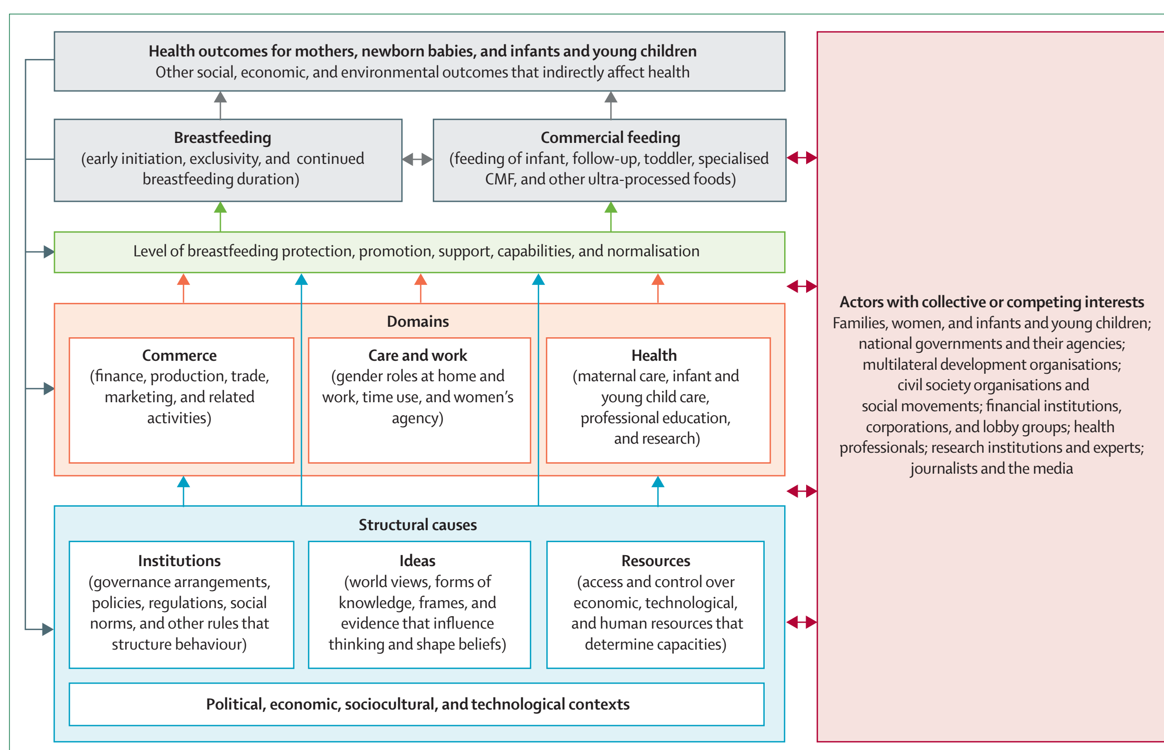

Figure 1: **Framework for investigating the political economy of infant and young child feeding**
This framework is conceptual only and not intended as a complete representation of infant and young child feeding systems; we acknowledge infant and young child feeding practices other than either breastfeeding and commercial feeding, including for example, feeding one's own or another woman's breastmilk from a cup or bottle, breastfeeding by a person other than the mother, feeding other liquid or home-prepared complementary (solid) foods, and mixed CMF and breastfeeding. We use the term breastfeeding women, acknowledging that lactating women besides the mother (eg, family members) also breastfeed infants and young children, except in instances where we cite studies that specifically use the term mothers. CMF=commercial milk formula.

accumulated substantial material resources, enabling their acquisition of competitors, large investments in marketing, and implementation of globally coordinated political activities to protect their interests.[34,53] This growing material power manifests in oligopolistic markets, with three or fewer corporations dominating in most countries.[34] These oligopolistic markets parallel increased consolidation in the food sector more generally, reflecting lax anti-trust and competition laws, and the growing power of transnational corporations to gain policy and fiscal concessions from national governments in a globalised economy.[54,55]

The interests of CMF manufacturers intertwine with other corporate actors and sectors. For example, manufacturers employ global advertising agencies to implement their marketing strategies, which are now enabled by digital surveillance technologies.[53,56] Nestlé alone spent approximately $9·9 billion on consumer facing advertising in 2016 (for all products), making them the third highest spender among all corporations worldwide.[9,34] The dairy industry also has a vested interest in expanding CMF markets, evidenced by its aggressive lobbying against CMF-related regulations.[34]

To help promote market expansion, major dairy and CMF producing countries—especially the USA, Australia, the EU, and New Zealand—have advocated on behalf of these industries in international fora. These states, and sometimes the dairy and CMF industries themselves, have sought to influence infant and young child feeding policies and food regulatory standards at WHO and the Codex Alimentarius Commission, and used World Trade Organization (WTO) and bilateral processes to challenge, and ultimately weaken, breastfeeding protection laws in other member states (panel 2).

The CMF industry's political strategies

The ability of CMF corporations to expand and sustain their marketing practices worldwide[8,9] is only possible because of their large investments in corporate political activities aimed at fostering policy, regulatory, and knowledge environments conducive to such marketing.[34,70–72] These activities closely mirror those of the tobacco, alcohol, and ultra-processed food industries.[73–75] Together, these activites represent two faces of corporate power: a covert one intended to constrain critical discourse, co-opt opponents, and curtail regulation; and a public-facing one that projects an image of benevolence and corporate social responsibility.[34,60] The CMF industry has established a global influence network of trade associations and front groups that lobby, often covertly,

Panel 1: A political economy approach to infant and young child feeding

Political economy research typically involves examining complex, multifactorial, and context-dependent phenomena. Hence, we adopted a multidisciplinary and interpretive approach, involving the synthesis of diverse data sources, collected in two steps. First, extensive branching searches of scholarly databases and organisational websites to source documentary evidence. Second, key informant interviews with 86 participants, including those from multilateral development agencies, national governments, international and national civil society organisations, and research institutions. These data informed the overall paper, plus the development of an international case study, and country case studies, on the corporate political activities of the CMF industry (appendix pp 1–3).

By adopting a political economy approach, we emphasise how political, economic, and social factors combine to structure infant and young child feeding patterns and outcomes at the population level (figure 1).[11–13] This approach follows UNICEF's conceptual framework, which identifies "economic structures and political and ideological factors that control and distribute resources across society", as the basic causes of child malnutrition and mortality.[14,15] We focus especially on the distribution of power and resources between different actors and interests in society, and the processes that sustain and transform these distributions over time.[16] We consider how specific knowledge systems, discourses, and beliefs (ie, ideas) influence thinking and action in society;[17–20] how economic arrangements, policies, regulations, and social norms (ie, institutions) structure behaviour and decision making;[21–23] and how the distribution of financial power and other resources determine the capacities of different actors to meet their needs and pursue their interests.[24–26]

Political economy research is typically critical in its orientation, recognising that overly technocratic and compartmentalised problem-solving approaches, or those that ignore the role of actors, interests, and power,[27] are inadequate to address the scale and complexity of the challenge of improving worldwide infant and young child feeding patterns and outcomes.[28,29] We examined the interactions between actors with interests in the promotion and expansion of CMF markets, and those with obligations and interests in realising the rights of women, infants, and young children to the best possible nutrition, food security, and health breastfeeding provides.[30] And we questioned why—40 years after the WHA adopted the International Code of Marketing of Breast-milk Substitutes—so few countries have fully implemented its provisions, or those of subsequent WHA resolutions, into national law.

Political economy research also investigates how different actors acquire and deploy power and resources to further their interests and agendas. This research includes highlighting the structural factors that determine distributions of power and resources between governments, corporations, and civil society within a globalised economy; between men and women, and adults and children; and between various actors and models of care within health systems. Different forms of power are available to different actors: the power of states to make and enforce laws in support of the progressive universal realisation of human rights; the material power of financiers and corporations to grow and sustain CMF markets; the moral power of civil society actors to hold governments, corporations, and health professionals to account; the epistemic power of scientists and health professionals to generate evidence and knowledge; and crucially, the agency of women and families and their capabilities to pursue the infant and young child feeding options that they value most.[31,32]

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against strengthening and implementing the Code and other breastfeeding protection measures at international (panel 2) and national (panel 3) levels.[34] This network is a major impediment to worldwide implementation of the Code. Such lobbying contradicts the corporation's public-facing corporate social responsibility initiatives, and stated commitments to breastfeeding. Although Nestlé, Danone, Reckitt, and Abbott have corporate policies to interact responsibly with public authorities, they outsource much of their lobbying to a diverse range of front groups, many of which they have co-established and coordinate.[34]

The first such group, the International Council of Infant Food Industries, was established in 1975 under Nestlé's leadership to enable third-party rebuttals against breastfeeding advocates.[88] Since then, other international peak bodies have been established and disbanded. Core to this influence network today is the International Special Dietary Foods Industries and its 20 member associations spanning six continents, who lobby specifically in relation to CMF marketing and other baby food regulations.[34] Some have authoritative names akin to professional bodies, for example the Infant and Pediatric Nutrition Association of the Philippines.[70] Other industry groups—including advertising associations, food manufacturing associations, dairy associations, and science communications organisations—lobby against market regulations, promote voluntary self-regulation, and disseminate corporate-funded science.[34]

CMF manufacturers promote self-regulation through corporate policies on responsible marketing, as a strategy of policy substitution to delay or replace state regulation, alongside corporate social responsibility activities projecting an image of ethical and sustainable conduct

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Panel 2: Political activities of the CMF industry and allied governments at the international level

The CMF industry, and the governments of dairy-producing and CMF producing nations, have created substantial tensions between WHO and other global health actors seeking to protect, promote, and support breastfeeding, and those pursuing the harmonisation of international food standards in the Codex Alimentarius Commission, and trade and investment liberalisation in the WTO.[57]

In particular, WHO has faced repeated challenges from commercial interests. Although the WHA, as WHO's main governing body, has the power to establish binding international treaties, it adopted the International Code of Marketing of Breast-milk Substitutes in 1981 (hereafter referred to as the Code)[52] as a set of non-binding recommendations to appease opposition from the USA and dairy-producing member states at the time. Industry representatives lobbied WHO staff and member states, attempting to weaken the strength and scope of the Code's provisions.[58,59]

Since then, the CMF industry has contested WHO technical guidance and WHA resolutions intended to strengthen and update the Code. In 2016, for example, lobbyists opposed WHA Resolution 69.9 that urged member states to adopt technical guidance calling for an end to the inappropriate promotion (including cross-promotion) of foods for infants and young children. This resolution affirmed that the Code covers products for infants and young children aged 0–36 months, including follow-up formula and toddler milk products, which the CMF industry has long argued are outside of scope.[60] Two CMF industry lobby groups issued a statement to the WHO Executive Board opposing the guidance. A dairy lobby group endorsed their position, and further called on US officials to work aggressively toward improving the WHO's procedures. Despite a strongly worded resolution urging member states to implement the guidance, Nestlé insisted member states were not obligated to do so, because it used the wording "welcomes with appreciation", rather than "adopted" or "approved" the guidance.[60] An analysis of corporate lobbying in relation to US government positions to WHO found parties connected with the CMF industry or listing CMF-related concerns in their disclosures spent almost US$7 million on WHO-related lobbying activities in 2016.[61]

In 2018, US officials opposed Resolution 71.9, which addressed among other things, worldwide progress on implementing WHA Resolution 69.9, and conflicts of interest in nutrition programming. US officials called for changes to multiple provisions and threated to enact trade measures and retract military support for Ecuador, the resolution's proponent. This response had a chilling effect, with some other member states declining to support the resolution, although it was eventually adopted.[62,63] In 2000, a CMF industry lobby group requested WHO delay the adoption of new technical guidance, and hence the subsequent WHA Resolution, that would extend the recommended duration of exclusive breastfeeding from 4–6 months to approximately 6 months. This lobbying occurred across WHO's six regional committee meetings that year, and the Executive Board meeting and WHA the following year, indicating transnational coordination.[64]

The Codex Alimentarius Commission is the UN's food standard-setting body, jointly administered under the WHO and Food and Agricultural Organization food standards programme, which is responsible for establishing international food standards. This body spans the global health and trade regimes, with a dual mandate to protect public health, and to harmonise international food standards and facilitate trade. Codex Alimentarius standards provide minimum benchmarks for national food policies and standards, including on the safety, composition, packaging, and labelling of CMF and other baby foods. Some WTO agreements recognise the Codex Alimentarius Commission and its standards, meaning countries intending to establish more stringent regulations could be challenged by other member states (where industry has strong interests and influence) in WTO fora.

Subsequently, Codex Alimentarius Commission standard-setting processes have become highly politicised, and saturated with industry representatives.[57,65] Between 2005 and 2019, the CMF, dairy, and other industry representatives not only comprised 70% of non-state observers (without voting rights) in the Codex Alimentarius Commission Committee on Nutrition and Foods for Special Dietary Uses, but also 28% of the member state delegations (with voting rights), greatly out-numbering those from civil society groups representing the interests of women and infants and young children. Pro-industry positions concerning the Codex Alimentarius Commission Standard for Follow-Up Formula claimed that external references, including the Code and subsequent WHA resolutions, should not be cited; that CMF products for ages 12–36 months are not breastmilk substitutes, contrary to the aforementioned WHO technical guidance; that additives with sweet taste, types of sweeteners, and sugar content should not be restricted; and that the marketing technique of cross-promotion be excluded.[57,66]

The WTO is the main member-state organisation for negotiating and enforcing rules governing international trade and investment. Although implementation of the Code provisions into national law is compatible with WTO law, and no formal legal disputes concerning this have occurred,[67] industry lobbyists have invoked legal arguments anchored in international trade and investment agreements to counter governments attempting to strengthen national breastfeeding protection laws.[34] Large dairy-exporting and CMF-exporting member states have frequently used WTO processes to challenge proposed or existing regulations of other member states. Between 1995 and

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2019, there were 245 interventions made in the WTO concerning CMF marketing, labelling, or safety testing regulations of another member state.[57] These interventions did not occur as formal legal disputes, but as interventions during sub-arbitration processes, the majority in the Technical Barriers to Trade Committee, and often challenging national regulations for allegedly being more restrictive than Codex Alimentarius Commission standards. Interventions also occurred during periodic trade policy reviews of member states' compliance with WTO agreements, and screening of non-member states seeking accession to the WTO.[57]

These interventions are inconsistent with the same member state commitments on breastfeeding and are a major barrier to strengthening national breastfeeding protection laws, including through their strong chilling effect on government regulators.[68,69] The case of Thailand (panel 3) illustrates how such interventions substantially weakened the country's attempt to strengthen such a law.

CMF=commercial milk formula. WHA=World Health Assembly. WTO=World Trade Organization.

(appendix pp 5–6). Although the Code requests that companies comply with its provisions, their self-regulation falls far short of compliance,[34,89] and violations have continued.[90,91] Some global health actors have assumed the strategy of trying to persuade companies to voluntarily adopt desired practices; however, this has not generated meaningful change. For example, no global market leading company responded to the Breastmilk Substitutes Call to Action. This Call to Action was issued by WHO, UNICEF, and leading non-governmental organisations (NGOs) in 2020 and called for commitments to full compliance to the Code by 2030.[89,92] Ethical investment approaches have also not established full compliance. For example, Nestlé qualified to join the FTSE4Good ethical investment index but only after its Breastmilk Substitute Marketing Criteria were watered down to align with Nestlé's own policy. Other companies viewed the FTSE4Good criteria as unrealistic because they would limit their ability to market.[34,60]

The CMF industry also uses corporate-funded science to portray products to consumers, policy makers, and health professionals as safe, scientific, and medically endorsed, with a vast research infrastructure to support this.[34,71,72] For example, the Nestlé Nutrition Institute (a not-for-profit established by Nestlé) is the "world's largest private food and nutrition research organisation".[93] The Nestlé Nutrition Institute employs approximately 5000 staff across 30 facilities worldwide, generating approximately 200 research articles annually, disseminated through an e-learning platform, which engages 300 000 health professional members worldwide.[93,94] Such research promotes a biomedical and nutrient-centric, rather than socially determined, interpretation of infant and young child nutrition, often focusing on product fortification (eg, added micronutrients), reformulation (eg, reduced lactose), and functionalisation with novel ingredients (eg, human-milk oligosaccharides).[34,95,96]

Evaluating CMF industry claims about its social, environmental, and economic value

The CMF industry's public relations messaging often emphasises the jobs, investments, and other socioeconomic benefits it provides to countries and warns against the adverse consequences of state-imposed regulation (eg, in the Philippines and Thailand; panel 3). However, these claims must be considered against the substantial negative externalities that the industry generates (panel 4). These negative externalities include adverse health outcomes for women and infants and young children; the related economic burden of higher health-care costs, reduced cognition, and workforce productivity; the diversion of household expenditure from basic foods, medicines, and health care; and the environmental harms associated with dairy production, CMF manufacturing, and packaging waste.

Furthermore, new economic analysis shows how the CMF industry contributes to the maldistribution of wealth and income across society in ways that hinder sustainable development.[113] Although CMF sales and profits have grown markedly in the past few decades, the industry's effective tax rate has fallen (figure 2), reflecting an international tax regime characterised by low corporate tax rates and tax concessions, and an international banking and accounting system that provides various avenues for tax avoidance.[119,120] Although the health, economic, and environmental burden of growing CMF markets is most prominent in LMICs, the wealth and income that these markets generate accrue almost exclusively to shareholders in high-income countries.

The CMF industry thereby actively contributes to the inadequate and shrinking fiscal space available to governments to mitigate the harms of CMF marketing, and to resource policies and services that protect, promote, and support breastfeeding.

Women, care, and work

In this section, we examine how gendered power systems shape breastfeeding patterns by influencing women's access to economic resources of time and money, while fostering dependence on CMF.[121,122] We describe the gender inequity of invisible, unfairly distributed, and under-resourced care work burdens.[123] In doing so, we reject the framing of breastfeeding as a free or costless activity, or as a lifestyle choice, which enables governments and other actors to minimise their own responsibilities for population nutrition and health, while encouraging the

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Panel 3: Country case studies on the corporate political activity of the CMF industry

Corporate political activity refers to the strategies and techniques used by corporations and their lobby groups to shape policies, regulations, and knowledge environments in their interests.[73,76,77] Here we present case studies of the CMF industry's corporate political activities in four countries.

The Philippines has a world-leading breastfeeding protection law (the Milk Code), which it has continuously strengthened in the face of industry opposition. Political commitment for a national infant and young child feeding policy framework resulted from the collective mobilisation of breastfeeding coalitions, civil society organisations, and women's groups.[70] In 2006, when the government moved to strengthen the Milk Code, a lobby group representing US CMF manufacturers appealed to the Supreme Court to rescind the regulations, resulting in a 398-day delay to adoption. Lobbying targeted the President; members of Congress; officials in the health, trade, and industry sectors; the US Philippine Embassy; and UNICEF's international and regional headquarters. In a letter to the President, the US Chamber of Commerce claimed "the country's reputation as a stable and viable destination for investments is at risk".[70] In 2007, a new lobby group was established representing European and US CMF manufacturers. Led by a former Congressman, the group operated more covertly. This new lobby group pursued partnerships with government agencies, lobbied against new Milk Code regulations, and supported proposed legislation that would weaken the country's infant and young child feeding policy framework. Messaging emphasised the industry's supposed contribution to jobs and the economy, CMF marketing as empowering women by supporting informed choice, and the country's obligations under the WTO's Agreement on Technical Barriers to Trade and the Agreement on Trade-Related Aspects of Intellectual Property Rights.[70]

Responding to WHA resolutions calling on countries to strengthen implementation of the WHO International Code of Marketing of Breast-milk Substitutes in 1981 (hereafter referred to as the Code),[52] Thailand began drafting a revised version of its own Milk Code in 2015. The proposed law introduced new provisions restricting educational, promotional, and marketing activities, including the use of trademarked brand names, packaging, and symbols, established criminal penalties for violators, and expanded product coverage from 0–12 months to 0–36 months.[57,78] Between 2015 and 2018, the Thai Government had repeated interventions in the WTO from the USA, New Zealand, the EU, Australia, and Canada, mainly in the Technical Barriers to Trade Committee.[57] In 2017, the US Trade Representative reported "seeking to ensure that Thailand's final measure takes into account appropriate scientific and technical information", and that it had engaged the Thai Government throughout the period "bilaterally and at the WTO and continues to monitor developments, particularly any potential regulations relating to restrictions on products for young children".[34] Evidence suggests CMF industry lobbyists met with senior government officials in the National Legislative Assembly and National Economic and Social Development Council, members of the press, and health professional associations. Lobbyists stressed the industry's supposed economic importance, including the jobs and livelihoods of dairy farmers.[78] In 2017, the Thai National Legislative Assembly passed the revised Milk Code; however, the extended product coverage for ages 12–36 months and criminal penalties had been removed.[57]

In 2012, South Africa passed new national legislation (Regulation 991) to implement the Code, replacing the country's earlier voluntary and unenforceable code of practice.[79,80] This followed the high-level Tshwane Declaration of Support for Breastfeeding in 2011, which declared South Africa as a country that actively promotes, protects, and supports breastfeeding. However, achieving Regulation 991 took 9 years, with many setbacks resulting from CMF industry lobbying. CMF manufacturers, led by Nestlé, formed a new lobby group, the Infant Feeding Association, which applied pressure for amendments to the regulations. Lobbyists raised concerns with the National Department of Health during the drafting process, which required detailed responses and legal advice, thereby creating a substantial work burden for health officials and time delays. The industry argued that the new regulations exceeded and differed from the Code and Codex Alimentarius Commission requirements, restricted the right of freedom of expression and mothers' rights to information, were unconstitutional, and exceeded the authority of the Minister and Department. During this time, Nestlé recruited a consulting firm to conduct a stakeholder mapping exercise, to identify key government officials, intergovernmental organisations, civil society leaders, and academics to target through its lobbying activities.[80,81]

The USA is one of the only two UN member state not to have ratified the Convention on the Rights of the Child. The USA is among the few countries without a national breastfeeding protection law, and the only high-income country without legislated paid maternity leave. Despite being among the largest contributors of overseas development assistance for breastfeeding, the US Government has been a remarkable force against worldwide implementation of the Code (panel 2). This dichotomy reflects the powerful influence of US dairy industry and CMF industry lobby groups. Between 2007 and 2018, the largest six US CMF manufacturers together spent US$184·2 million on lobbying the US Government, of which $55·1 million (30·0%) was declared as CMF-related, and of which $43·8 million (79·4%) was spent by Abbott alone.[34,82] Lobbying has targeted the House of Representatives, the Senate, the US Food and Drug Administration, the State Department, the US Trade Representative, the White House, and the US Department of Agriculture.[61,82] Dairy, food, and beverage industry groups, and the Infant Nutrition Council of America, also reported

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substantial CMF-related lobbying expenditures. Of Abbott's expenditure, $20·0 million (45·8%), was dedicated to trade-related concerns,[82] frequently targeting the State Department and US Trade Representative. The influence of this lobbying expenditure is most likely reflected in actions taken by the US Government on behalf of the industry to oppose marketing regulations in Hong Kong, Thailand, Malaysia, and Indonesia in the WTO, and through direct bilateral engagements with governments seeking to implement national breastfeeding protection laws.[83,84] Lobbying often targeted the US Department of Agriculture, most likely because it administers the Special Supplemental Nutrition Program for Women, Infants, and Children, through which the government purchases over half of all CMF sold in the country.[85–87] In 2014, Nestlé alone spent an estimated $160 000 on lobbying related to the Special Supplemental Nutrition Program for Women, Infants, and Children.[72]

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attribution of blame to women and families.[124–126] We highlight the need to recognise, reduce, and redistribute the unequal sharing of unpaid care work between men and women, and across society as a whole,[127,128] and describe how actions to integrate unpaid work into macroeconomic policies can improve breastfeeding and health.

Recognising and valuing breastfeeding as care work

Breastfeeding is archetypal of care work.[123] Women's unpaid care work in households is unmeasured, unrecognised, and unvalued by global economic institutions.[129] Not recognising this work in economic statistics generates gender inequity and distorts fiscal priorities, and has been condemned by feminist economists as applied patriarchy.[130,131]

Care work consists of activities and relations needed to fulfil the physical, psychological, and emotional needs of all humans including infants and young children, older people, people living with disabilities, and people who are sick or ill.[132] According to the International Labour Organization (ILO), "care work is at the heart of humanity, as all human beings are dependent on care to survive and thrive".[132] Caring activities can be direct (eg, infant and young child feeding or nursing a person who is sick) or indirect (eg, cleaning, cooking, or collecting water). Survey data from 64 countries show that women perform 76% of all unpaid care work, which is three times more than the unpaid care work performed by men, adding to women's work burdens, time poverty, stress levels, and opportunities for recreation.[132] The attributable economic value of this work is immense. In China, for example, the estimated value of care work in 2008 was equivalent to 25–32% of gross domestic product (GDP), with women's total work time averaging 7–11 hours more per week than men.[133,134]

Yet this productivity is excluded from key measures of countries' economic performance, largely because international rules on measuring GDP generally exclude non-monetarised forms of production and exchange, which means that although greater CMF production and sales increase GDP, more breastfeeding does not.[135,136] These rules shape perceptions about the economic value of women's work,[137,138] shifting policy priorities and resources away from unpaid care.[139] Increasing women's paid workforce participation in pursuit of higher GDP without accounting for their unpaid work burdens, risks exacerbating gender inequity while undermining breastfeeding. The methods used to measure national economic performance need to be reformed so that women's unpaid work burdens and the value of breastfeeding are factored into policy making (panel 5).

Reducing and redistributing women's work burdens to enable breastfeeding

To breastfeed or CMF feed is not a genuine choice if breastfeeding means that women and families must forego employment and secure livelihoods. Breastfeeding is time consuming for women, which takes away from time that could be spent on income-earning activities.[156] Work is one of the top reasons cited for not breastfeeding,[157] highlighting the importance of reducing and redistributing the unfair and heavy unpaid work burdens of women.[158–161]

Time pressures hinder or prevent optimal breastfeeding, with many women juggling multiple care and income-earning responsibilities.[162,163] Long-standing evidence from LMICs shows the importance of considering mothers' time in developing and implementing infant and young child health and nutrition policies.[164,165] This consideration is especially important in the context of labour market deregulation, which has worsened working conditions in many countries and especially in LMICs, where a high proportion of work is in the informal sector, or in sectors where even paid work is precarious, underpaid, and unprotected.[166,167] A disproportionate number of informal and insecurely employed workers are women.[168] Low wages and excessive work hours increase time pressures on families, and might affect how unpaid work burdens are distributed between men and women,[169,170] including by reinforcing patriarchal norms and customs that over-delegate domestic care work to women.

One key cause of time pressure is that governments have not enacted or funded maternity protection, and have not enabled family-friendly work environments and child-care environments. Maternity protection is crucial to reducing time stresses on women and families (panel 6).[163] Evidence shows a dose-dependent relationship between maternity

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Panel 4: A critical examination of the CMF industry's claimed social and economic benefits

Lobbyists often claim that the CMF industry contributes investment, jobs, and growth for national economies, whereas their corporate social responsibility strategies portray a positive image of its role in sustainable development. However, we provide a novel analysis showing how the CMF industry creates and perpetuates a double burden of maldistribution,[97,98] whereby disadvantaged populations and future generations are not only disproportionately negatively affected by the social, economic, and environmental harms associated with CMF, but also by how the industry distributes the wealth and income it generates.[99]

First, from a distributive perspective, negative externalities occur when corporations are not held financially accountable for the harms they create, representing value extracted from those who bear the burden of those externalities (ie, society, the environment, and future generations). Not breastfeeding increases the risk of infant and young child mortality, infections and malocclusion, and potentially obesity and diabetes; and for women, breast cancer and potentially ovarian cancer and type 2 diabetes.[1,7] Not breastfeeding contributes to estimated economic losses of US$341·3 billion (0·7% of world gross national income) annually, from increased health-care costs, reduced cognition of children who are not breastfed, and reduced workforce productivity associated with not breastfeeding.[100] By de-normalising breastfeeding and fostering dependency on commercial supply chains, CMF marketing undermines infant and young child food security in the context of major disruptions to supply chains (as in the US CMF supply shortage in 2022), affordability, and capacity to utilise, especially during economic crises and natural disasters.[101–103]

Second, the environmental harms associated with CMF are substantial, far exceeding those associated with moderate increases in the caloric and water needs of breastfeeding mothers. These harms include greenhouse gas emissions, water use and pollution, and packaging waste from CMF supply chains, resulting mainly from dairy production of milk powder and the manufacturing and disposal of CMF packaging, bottles, and teats.[104–108] In 2020, the baby food industry sold 2·0 million tonnes of powdered CMF worldwide (for infants and young children aged 0–36 months), equivalent to 2·4 billion 850 g packaged tins. Follow-up formulas and toddler milks are especially problematic because, according to WHO, they are unnecessary for a nutritious infant and young child diet,[109] and yet in 2020, follow-up formulas and toddler milks comprised 69% of the world's total powdered CMF sales by volume, equivalent to 1·4 million tonnes or 1·7 billion 850 g packaged tins.[104] Hence most CMF sales are superfluous to human need, unnecessarily use scarce natural resources, and cause otherwise avoidable environmental harm.[110]

Third, as with other ultra-processed food markets,[111,112] the brand power of dominant CMF firms plays a key role in extracting value from consumers. This brand power is reflected by the considerable gap between retail sales prices of branded CMF products and the costs of production;[44] resulting in high profit margins and the enormous brand values of major CMF manufacturers. These brand values are evident in pricing strategies, whereby the same CMF product can be up to four times more expensive in some markets than in others, and prices of premium brands with health claims can be more than four times more expensive than economy brands, despite the minimum nutritional composition of all CMF products being highly regulated.[44] This value extracted from families and households represents money that can no longer be used to purchase essential household items and services, such as food, medicines, and health care. In Indonesia, for example, the cost of purchasing an economy CMF brand equates to 15% of a working parent's average monthly salary,[44] excluding costs of bottles and teats, and energy used for cleaning and sterilisation.

Fourth, since the early 1990s, the CMF industry has increased profits by reducing its income tax payments to governments relative to its total pre-tax income.[113] This reduction in income tax payments contributes to the reduced fiscal capacities of governments to not only address CMF industry-related harms, but also to deliver essential public services, including paid maternity protection; breastfeeding protection, promotion, and support in health systems; and implementation and enforcement of the International Code of Marketing of Breast-milk Substitutes and subsequent resolutions. Major CMF manufacturers have most likely, to varying degrees, used tax minimisation and avoidance strategies to increase profits, including by reducing their effective tax rate (figure 2). For example, Mead Johnson stated in its 2016 annual report that it had markedly reduced its global effective tax rate, by taking advantage of foreign tax rulings, including tax credits from the repatriation of some foreign earnings.[114]

Finally, the CMF industry has increasingly distributed a greater share of income and wealth to shareholders located almost exclusively in high-income countries. Although 97% of the industry's traded share value is owned by high-income country shareholders, the harms associated with CMF concentrate in low-income and middle-income countries, representing a form of wealth extraction.[3,103] A smaller share of income and wealth has gone to long-term investments in capital expenditure for job creation and enhanced productivity.[115] These trends reflect the financialisation of the industry, both through increasing ownership across the industry by large financial institutions (ie, common ownership), and by the industry's increasing pursuit of maximising shareholder value. In the past 10 years, common ownership across the CMF industry by the world's largest financial institutions substantially increased. As of mid-2021, approximately US $176 billion of the industry's tradeable equity was held by the world's ten largest institutional investors, which is a near 250% increase since 2010. Concerns have been raised about how such common ownership drives the corporate pursuit of maximising shareholder value over other the interests of other stakeholders and society at large.[116–118]

CMF=commercial milk formula.

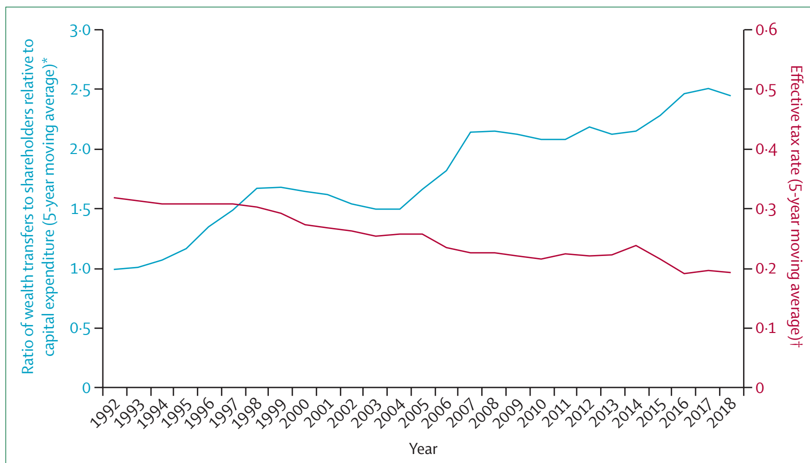

Figure 2: **Ratio of wealth transfers to shareholders relative to capital expenditure (blue line), and effective tax rates (red line), of the global CMF industry (excluding east Asian firms), 1990–2020**
CMF=commercial milk formula.*Calculated as total value of dividends and share repurchases relative to capital expenditure; data sourced from Compustat via Wharton Data Research Services; east Asian firms were excluded due to limited data, including those headquartered in China, Japan, Viet Nam, and South Korea. †The effective tax rate was calculated as total income tax divided by pre-tax income; domestic and foreign taxes were aggregated.

protection measures and breastfeeding prevalence and duration.[157,183,200] This means that mothers spending more time with their infants and young children results in more breastfeeding.[157,200] Conversely, reducing the amount of this time shortens the duration of breastfeeding, with the absence of paid maternity leave creating a reliance on, and expanding markets for, CMF.[183] The ILO's Maternity Protection Convention (MPC) establishes the right of women to a minimum of 14 weeks of maternity leave, paid at two-thirds of previous earnings and covered by compulsory social insurance or public funds, and the right to paid lactation breaks and appropriate nursing facilities upon return to work,[201] with a further recommendation to extend this to 18 weeks at full previous earnings.[202] Regrettably, just half of countries have enacted laws that meet the minimum MPC standard,[192] and the standard itself is currently below WHO's recommended 26-week duration of exclusive breastfeeding.

Resourcing investments in the unpaid economy: fiscal policy and gender responsive budgeting

There are widening calls for transformative investments in the care economy, in response to an escalating global crisis of care.[203] However, despite many calls to invest in breastfeeding,[1,204] governments rarely allocate necessary budgets.[156,205] Instead, superficial campaigns with slogans such as "breast is best" substitute for more difficult and costly measures addressing the sociocultural, economic, and commercial determinants of infant and young child feeding.[206] Without substantive societal investments to enable breastfeeding, women's choices are open to manipulation by exploitative CMF marketing.

Fiscal policies influence breastfeeding in three ways. First, through social security or insurance, or through tax-transfer systems that provide income security and ameliorate poverty. Although tax and welfare systems seem to treat men and women equally, this is not true because of their different situations in the economy.[207–210] Welfare regimes are invariably poorly designed for women because they have traditionally been designed to focus on men as paid workers. Instead, women's economic vulnerability lies particularly within family and care responsibilities. Social security financed by progressive taxation can directly address the resulting financial pressures that force some women to forego breastfeeding.[210,211] Suitable social protections are crucial to address the gender-specific pathways that force women into work circumstances that harm maternal and child health and undermine breastfeeding.[212] UN Women recently called for universal social protection systems to reduce poverty among women at a time in the lifecycle when families face increased expenses and loss of earnings.[121]

Second, fiscal policies affect breastfeeding by financing accessible public services such as child care and health care;[213,214] or infrastructure such as electricity, water, transport, and communications,[139,215] which help women balance multiple demands on their time. For example, expanding women's economic opportunities might require time-saving investments in water and electricity for households, and access to household technologies such as cooking stoves. Increased maternal labour force participation for this demographic implies large government expenditures on quality child-care services,[213,214] which provide environments that protect exclusive and continued breastfeeding.[216–218]

Third, fiscal policies also shape financial incentives, such as lowering the cost of goods or services that support or undermine breastfeeding.[219] For example, some countries tax lactation aids or breast pumps, or provide free or subsidised CMF.[220] Other countries subsidise CMF marketing, or welfare programmes that provision free CMF, and encourage women to return to work soon after childbirth.[43,221–223] In the USA, a policy of mandating health insurance coverage of breast pumps and lactation support has arguably cleared the US government of the responsibility to ensure that paid maternity leave is provided for all working women.[124,203–225] Such policies manipulate women's choices and undermine their autonomy on breastfeeding and child care. Health-care financing arrangements and budget constraints also incentivise health-care facilities against providing breastfeeding support and towards accepting gifts, donations, or sponsorship from CMF companies.[43]

Governments have obligations to use maximum available resources for progressively fulfilling rights. Fiscal retrenchment policies leave families, mainly women,[226–228] responsible for providing the investments required for infants and young children to grow and develop with little, if any, support.[195,229–233] Governments can expand available resources to progress the rights of women and infants and

Panel 5: **Recognising the economic value of breastfeeding as women's care work**

There is growing recognition that production in the non-market household sector, including breastfeeding and other forms of unpaid care work, is too important to ignore in economic policy making. In Organisation for Economic Co-operation and Development member countries, the economic value of such production ranges from 20% to 40% of GDP.[140] Economic GDP growth rates could be overstated, because market sector replacement of unpaid child care provided by households is not accounted for in GDP growth accounting.[141]

Breastfeeding epitomises the effects of public policy ignoring the productivity of women in care work.[123] International rules for measuring GDP exclude breastfeeding because it is defined as an unpaid service by the SNA, the UN's internationally agreed standard set of recommendations on how to measure economic activity. However, the SNA provides for breastmilk to be counted as a home-produced good, following 2003 revisions that defined such non-market food production as a core GDP activity.[136] In 2009, a Commission, led by Nobel prize winning economists Joseph Stiglitz and Amartya Sen, conducted a review of the SNA that cited breastfeeding as an example of how existing rules for measuring GDP biased measurement and distorted policy making. It stated that the value of breastmilk was "a serious omission in the valuation of home-produced goods" and that breastmilk is "clearly within the [SNA] production boundary" and "quantitatively non-trivial" with important implications for public policy and child and maternal health.[142]

Importantly for the SNA reform agenda on measuring human capital, breastfeeding also provides substantial but previously unmeasured contributions to human capital formation, including through the effects of maternal–infant bonding and early nutrition on cognition, and future labour market outcomes.[100,143–145] Despite renewed promises of SNA reforms, there has been little progress.[131,146] Likewise, no countries have implemented the practice of measuring breastmilk production in GDP. Arguments, such as disruption to statistical collections, or the priority focus of macroeconomic policy being the market sector,[147] have been made against doing so.[148] The scarcity of political priority given to documenting women's care work is further illustrated by the shortage of timely and accurate data on breastfeeding practices, especially in high-income countries, and of time-use surveys documenting the intense demands of infant and young child care.[149,150] Addressing such long-standing gender biases in statistical systems would make the economic gains from breastfeeding more visible, and the implications for women's wellbeing more evident to policy makers.[149]

Recognising and strengthening self-determination of women as food producers is also an important lever for achieving sustainable food systems and development.[122] Breastfeeding women represent a globally distributed food production, nurture, and care system, provisioning breastmilk as a basic food for infants and young children in all countries.[151] Using UNICEF data on livebirths and breastfeeding rates, and drawing on available evidence about breastmilk intake and the extra nutritional needs of lactating women, the annual volume of milk produced by women for infants and young children (aged 0–24 months) in low-income and middle-income countries was estimated at 23·3 billion litres in 2010.[152] If 95% of breastfeeding women with infants and young children were enabled to breastfeed, the total amount of breastmilk produced per year would be 40% higher. Estimates for high-income countries such as Australia and the USA show that where optimal breastfeeding is not well supported, more than half the potential production of this uniquely valuable food is lost.[153] The Mothers Milk Tool estimated the global monetary value of women's milk production for infants and young children (aged 0–36 months) was approximately $US 3·6 trillion in 2020.[154]

Breastfeeding is also an under-recognised element of food policy and planning. With the exception of Norway,[155] breastmilk production is excluded from international and national food monitoring systems. A study[155] of Norway showed the importance of breastmilk production as a food source, and as a contributor to national food security. Estimated total milk production by Norwegian women with infants and young children (aged 0–24 months) increased from 8·2 to 10·1 million L per year, or 69·0 to 91·0 L per capita, between 1993 and 2019.[101,155] Recognising breastfeeding as an economically valuable form of global food production could help raise the importance of breastfeeding protection as an issue in international trade decision-making fora including the Codex Alimentarius Commission and World Trade Organization, relative to global commercial milk formula trade promotion.[43]

GDP=gross domestic product. SNA=System of National Accounts.

young children by considering options such as expansionary monetary policy, gender-sensitive development assistance, or debt and deficit financing.[234,235] Gender-responsive budgeting is increasingly seen as a useful strategy for assessing how governments' fiscal policies contribute to achieving gender equity.[236,237] This approach scrutinises the divergent effects on men and women of budgets and the frequent non-recognition of unpaid work.[149,238,239] An international NGO coalition has proposed a Gender Budget for Breastfeeding centred on implementing WHO's Global Strategy on infant and young child feeding, and has called for a dialogue between gender budget analysts and breastfeeding advocates.[240]

The health sector

Health systems and health-care professionals play a major role in shaping infant and young child feeding practices through the provision of maternal and infant and young child care, scientific evidence, public information, and policy advocacy. However, health systems worldwide show

Panel 6: Maternity protection policies for reducing and redistributing care work burdens

Paid maternity leave improves a range of maternal and child health outcomes, including breastfeeding.[171] Every additional month of paid maternity leave entitlement reduces infant mortality by an estimated 8 per 1000 livebirths in LMICs,[172] and improves maternal mental and physical health, including by enabling women to breastfeed.[173–176]

A systematic review[177] of studies spanning the Americas, Asia, Africa, Europe, Oceania, and southeast Asia, found that women with 3 months' maternity leave, paid or unpaid, were at least 50% more likely to continue breastfeeding compared with women returning to work before this time, and those with 6 months or more were 30% more likely to maintain 6 months of breastfeeding. An analysis of data from 38 LMICs found a 1-month increase in legislated maternity leave associated with a 7·4% increase in breastfeeding initiation, a 5·9% increase in exclusive breastfeeding, and a 2·2 month increase in duration.[157] Among high-income countries, several studies indicate paid maternity leave increases breastfeeding prevalence, exclusivity, and duration. In Canada, expanding paid maternity leave from 6 months to 12 months increased the proportion of mothers exclusively breastfeeding to 6 months by almost 40%, and duration increased by 1 month from 5 months to 6 months.[178] The introduction of paid parental leave in California, USA, was found to increase exclusive and any breastfeeding at 3, 6, and 9 months,[179] and in Germany and Australia to increase breastfeeding duration but not initiation.[180,181]

Conversely, in China, from 1988 to 2008, fiscal and market-oriented economic reform policies widened gaps in men and women's work burdens and incomes.[182] These policies also reduced paid maternity leave, with the average length of paid leave decreasing by 23 days among least educated mothers, reducing their likelihood of breastfeeding for at least six months by 9%.[183] Similarly, welfare reforms in the USA encouraging new mothers' return to work within 12 weeks led to a 16–18% reduction in breastfeeding initiation, and a 4–6-week shorter breastfeeding duration.[184] In 2022, the Norwegian Labour Directorate found that increasing paternity leave alongside shortening the paid maternity leave available to mothers, saw an increased proportion of mothers taking unpaid leave to stay at home longer, and to breastfeed.[185]

Workplace policies and programmes such as breastfeeding breaks and flexi-time, convenient creches and facilities for breastfeeding and breastmilk expression and storage, and promoting support from work colleagues, can help mothers maintain breastfeeding if their employment separates them from their child.[171,186] An analysis of data from 182 countries found breastfeeding was approximately 9% higher in the 71% of countries guaranteeing rights to paid breastfeeding breaks.[187] Even simple measures, such as requiring the availability of a workplace refrigerator to store breastmilk, can support employees to continue breastfeeding.[188] Breastfeeding-friendly workplaces can enable mothers to practise exclusive breastfeeding for longer,[189] and reduce maternal absenteeism.[190]

Several global instruments provide minimum standards relevant to working women, children, and breastfeeding including the MPC, the Convention on the Rights of the Child, and the Convention on the Elimination of All Forms of Discrimination Against Women.[191] Governments ratifying such instruments accept responsibility for applying maximum available resources to progressively fulfil such rights. However, just 65% of potential mothers live in countries fully aligned with the MPC's minimum standard of 14 weeks' maternity leave, paid at two-thirds of previous earnings, covered by compulsory social insurance or public funds.[192] This coverage by the full MPC minimum standard ranges from 92% in Europe and central Asia, to 35% in the Americas, and none in Arab states. There are 82 countries that do not meet any MPC requirements, leaving 649 million potential mothers without adequate maternity protection.[192]

Worldwide in 2021, the average duration of maternity leave paid at two-thirds previous earnings was 18 weeks, but in 64 countries it was under 14 weeks, which means three in ten potential mothers do not have adequate entitlements to sufficient time off to rest, recover, and care for their infant following birth.[192] Even where legislated, maternity protection is often unavailable or unenforced particularly among the informal workforce, and especially in China, Latin America and sub-Saharan Africa, where almost half of all informal workers are women. Alongside the right to breastfeed at work, and availability of nursing facilities, the International Labour Organization also emphasises adequate frequency and duration of nursing breaks. Worldwide, 14% of potential mothers live in countries with no entitlement to nursing breaks; 52% live in countries where nursing breaks are 1 h or shorter; and 61% live in countries without mandated workplace nursing facilities.[192]

The International Labour Organization estimates that addressing these care policy gaps with comprehensive maternity protection measures that extend adequately paid maternity and parental leave, and provide breastfeeding breaks at minimum standards, would have a global cost in 2030 of US$269 billion or 0·25% of GDP.[193] Even in countries with the least generous or no paid maternity leave, or where the informal sector is large or wages relatively high, these measures would cost no more than 0·50% of GDP.[192] Collective financing of breastfeeding breaks at International Labour Organization minimum standards would cost $31 billion or 0·03% of GDP.[66] This cost estimate includes comprehensive measures covering the informal sector where detailed studies in diverse country settings, including Brazil, Ghana, the Philippines, Indonesia, and Mexico, show such measures to be both feasible and affordable.[170,194–199]

GDP=gross domestic product. LMICs=low-income and middle-income countries. MPC=Maternal Protection Convention.

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many shortcomings in their responsibilities to protect, promote, and support breastfeeding.[28] For example, national surveys from 32 countries show that under half of women giving birth receive breastfeeding counselling[241] and just 10% of births occur in facilities accredited by the Baby-friendly Hospital Initiative (BFHI), a worldwide effort launched by WHO and UNICEF in 1991.[242,243] We highlight three inter-connected sets of reasons for why health systems shortcomings are so prevalent.

The first set of reasons concern the dominance of patriarchal and biomedical cultures. Despite women constituting over 70% of the health workforce worldwide,[244] biases and prejudices against women are common and produce poor maternity care experiences, including women being subjected to incidences of obstetric violence and mistreatment.[245,246] Satisfaction with maternity care and breastfeeding outcomes improve when health systems enable woman-centred, culturally appropriate, and midwife-led models of care that actively empower women and enable skilled, knowledgeable, and experienced peers to support women during pregnancy, childbirth, and postnatally.[247–250] Attitudes, norms, and beliefs that privilege biomedical and curative care, and those that stress individual choice and responsibility, detract attention away from the sociocultural and economic factors undermining breastfeeding, especially among marginalised and disadvantaged groups.[251,252]

Globally, only 12% of estimated recurrent health-care spending is directed at preventive services, compared to 70% for curative care.[253] This curative bias not only contributes to the under-resourcing of breastfeeding support and counselling, but also to the over-medicalisation and overuse of harmful interventionist practices.[254] High rates of caesarean sections and the routine separation of newborn babies from mothers, for example, disrupt normal lactogenesis and undermine breastfeeding initiation. Women need substantive additional time and support to recover following birth by caesarean section, complicating both their physical and mental health, and capabilities to care for and breastfeed their infant.[255,256] Inadequate attention to quality maternal and infant and young child health care is further seen in the insufficient recognition of infant and young child feeding and breastfeeding support as key elements of good health professional education and training.[257–260] Even when health professionals agree that breastfeeding is optimal, these professionals often do not have the skills, knowledge, and experience to support women and families. Multi-country assessments report health professionals, and especially physicians, commonly have insufficient pre-service education and in-service training on breastfeeding and early-life nutrition.[242,243,261,262] This educational deficit affords CMF companies the opportunity to provide health professional education aligned to their marketing strategies.[34]

The second set of reasons relate to the tolerance and acceptance of the CMF industry's influence in health-care systems, especially in paediatric nutrition policy, practice, and research. Companies have continued to provide financial and other incentives to health professionals; fund academic research and the development of clinical guidelines; sponsor meetings, conferences, and scholarships for health-care professionals; and directly provide paediatric nutrition education.[50,80,263–265] Only five countries completely prohibit the donation of equipment or services by manufacturers or distributors of products within the scope of the Code.[266] Such practices create clear commercial conflicts of interest, while enhancing the legitimacy of the CMF industry with health professionals, administrators, and policy makers. These activities are enabled by incomplete implementation of the BFHI and its ten steps to successful breastfeeding, which requires health facilities to be fully compliant with the Code. Evaluations show that BFHI is effectively implemented when resourced and fully supported at the health-system level, rather than when costs and responsibilities are imposed upon individual facilities.[242,267–271]

The CMF industry's influence within health systems also reflects a broader shift in norms and attitudes about the acceptability of corporate actor involvement in public policy and service provision. A neoliberal policy paradigm, which has become increasingly dominant since the 1990s, has seen greater outsourcing of public services to corporate providers, fostered preferences for mixed public–private models of governance,[272–276] and emphasised market competition to improve the efficiency and quality of public services.[277] Deregulation of the financial sector has encouraged more aggressive modes of profit-seeking, generating pressures on policy makers to open up public spaces and services to private investors, including in the health sector.[278,279] The growing acceptance of commercial actors and market forces in health systems drives over-medicalisation, through the promotion of technological solutions conducive to profit. This overmedicalisation is illustrated by the industry-driven overdiagnosis of cow's-milk protein allergy, and high levels of unnecessary expenditure on specialised CMF.[48–50,280] In contrast, proven non-commercial interventions for improving neonatal survival and breastfeeding rates, such as kangaroo mother care (which involves infants being carried, usually by the mother, with skin-to-skin contact), have been neglected.[281]

The third set of reasons are the political and economic determinants of under-resourced public services. Many health systems require increased funding to adequately resource effective breastfeeding promotion, protection, and support, especially for vulnerable families and population groups. Moreover, in many places, health promotion and disease prevention services are precarious and vulnerable to disruptions arising from conflict, economic crises and environmental disasters, as evident during the COVID-19 pandemic.[282,283] There are many reasons why public finance and budgets for health promotion and disease prevention are inadequate.[284,285] An overall lack of public investment in preventive health care

was highlighted in 2021 by the WHO Council on the Economics of Health for All, established to understand why so many countries have not mitigated the direct and indirect health effects of COVID-19.[286,287] Health-care expenditure is also still frequently viewed as a cost by Ministries of Finance rather than an investment for social and economic development, thereby forfeiting the social and economic benefits that breastfeeding delivers and the health-care cost savings from improved breastfeeding practices, which numerous studies have shown.[1,100,288]

Crucially, the WHO Council argued that raising greater amounts of public revenue for public goods and services through prevention of tax avoidance and evasion, and the removal of unnecessary fiscal policy limitations to public budgets could be done without causing macroeconomic instability. According to one report, over $1 trillion of global public revenue is lost every year from tax competition, avoidance, and evasion.[289] The equivalent of 34 million nurse's salaries are estimated to be lost to tax havens each year, and lower-income countries are, on average, losing tax equivalent to approximately 52% of their health budgets.[289] The WHO Council also argued for improved governance and regulation of the financial sector so that private finance can be prevented from causing social harm, and instead be harnessed to better serve the common good.

Conclusions and recommendations

Less than half the world's infants and young children are breastfed as recommended, despite decades of effort to protect, promote, and support breastfeeding. The low rate of worldwide breastfeeding is deeply disturbing given improved scientific knowledge of breastfeeding's importance (as outlined in the first paper of this Series),[8] long-standing guidance on how to increase breastfeeding practices, and stated commitments for its promotion. Although calls for the universal adoption of evidence-based interventions to improve breastfeeding rates should be repeated, this Series paper aims to identify the actions required to remove political and economic barriers to their implementation.

Key among these barriers is the power of the CMF industry to grow CMF markets well beyond human need, enabled by processes of globalisation, financialisation, and the expanding commodification of infant and young child feeding. The industry's globally coordinated marketing and political activities create conflicts of interest and policy gaps, foster maternal vulnerabilities, and create new CMF markets that are harmful to human and planetary health. Interventions by dairy and CMF producing states in the WTO, Codex Alimentarius Commission, and other fora strongly impede worldwide implementation of the Code, and contradict their stated commitments on breastfeeding.

Our findings call into question the CMF industry's claims about playing a positive role in sustainable development. We show how the CMF industry extracts income and wealth, while externalising the health, environmental, and economic costs. These harms are borne by society at large, but especially by populations in LMICs, whereas the wealth generated by the industry flows almost exclusively to shareholders in high-income countries. When the environmental costs of excessive and unnecessary CMF production are fully considered, the promotion of CMF, and especially of follow-up milks and toddler milks, is clearly incompatible with the need to prevent the crises posed by global heating and ecological decline.

There is a pressing need to reverse unfair work burdens placed on women, to make visible the economic value of breastfeeding and other unpaid work within mainstream economics, and to recognise breastfeeding as a globally distributed form of food production within food surveillance systems. Data collection on breastfeeding is particularly poor in high-income countries, allowing governments to avoid their responsibilities for progressing the rights of women and infants and young children everywhere. Data to accurately account for women's work burdens is essential and should be accompanied by the adoption of an economic paradigm that views expenditure on breastfeeding protection, promotion, and support as an investment with positive social, economic, and environmental returns, and not as a cost. Job insecurity and limited maternity protection for women employed in both the informal and formal sectors also represents a social policy deficit and perversely creates an environment in which CMF is marketed as a means of empowering women.

Structural barriers also prevent health systems from adequately protecting, promoting, and supporting breastfeeding. Overcoming these barriers means tackling the reasons for the inadequate public funding of maternity and breastfeeding support services, the normalisation of corporate influence and conflicts of interest within health systems, and the existence of views and attitudes that privilege commercial technologies and biomedical interventions over women-centred and culturally appropriate care.

Importantly, the analyses presented in this Series paper point to recommendations and actions that extend beyond the issue of breastfeeding and the health sector to include structural reforms that cut across society, and that are political and economic in nature. We propose a set of six high-level recommendations that complement those of the first and second papers of this Series.[8,9]

Recommendation one: curtail the power and political activities of the CMF industry

We affirm all recommendations aimed at curtailing the CMF industry's marketing activities, including the adoption of a framework convention on the commercial marketing of foods for infants and young children. Such a convention would obligate governments to fully legislate the Code provisions into national law, strengthen accountability systems for infant and young child nutrition, and act as a stronger reference standard in international trade and food standards fora. In addition, we call for

regulations to curtail the CMF industry's power and political activities.[290,291] These regulations include adopting public registries of corporate lobbying activities; obligations for senior public officials to disclose meetings with lobbyists and receipt of gifts or other inducements; requirements for research institutions, think tanks, professional organisations, and NGOs to disclose funding sources; and public disclosure of expert advisory groups. We call for the adoption of robust anti-trust policies to curtail the oligopolistic power of CMF corporations, and for legally binding instruments to regulate, in international human rights law, the activities of transnational corporations and other commercial actors.[292]

Recommendation two: end state practices that do not uphold, or that violate, the rights of women and children

Existing human rights treaties and conventions place duties and obligations upon society, and governments in particular, to achieve the progressive realisation of human rights.[293] These human rights include the right that every infant and young child has to the highest attainable standard of health and best possible nutrition; and the rights of women to appropriate maternity protection, care, and accurate information for informed decision making. We call on governments of dairy and CMF producing nations to end the practice of challenging legitimate measures by other governments to protect breastfeeding in the WTO, Codex Alimentarius Commission, and other multilateral and bilateral fora, and to regulate against the extra-territorial harms generated by corporations registered in their jurisdictions.[294] We ask the Committee on the Rights of the Child, the Commission on the Status of Women, and other relevant bodies to monitor and report on member state activities that violate children's and women's rights in the WTO and Codex Alimentarius Commission.

Recommendation three: recognise, resource, and redistribute women's care work burdens in support of breastfeeding

To address the care policy and resourcing deficits, and excessive work burdens for women that currently undermine breastfeeding, we call on governments to adopt gender-sensitive fiscal reforms and gender budgeting principles and practices, and to eliminate current biases and short-sighted perspectives in economic accounting systems. Such action would include adopting new or strengthened national data collections and analytical approaches such as time-use accounting for unpaid work, and incorporating breastfeeding and breastmilk production into national accounting systems. We also call on governments to fully resource comprehensive maternity rights protection, and to adopt and enforce legislation prohibiting discrimination against women during maternity. To support this, member states should call on the ILO to more frequently report country-level progress on adoption of the MPC and to extend the current standard on paid maternity leave duration to align with the WHO-recommended duration of 6 months of exclusive breastfeeding. We also call for breastfeeding and breastmilk production to be recognised in international and national food surveillance systems, and for greater attention to breastfeeding in sustainable food systems dialogue and action.

Recommendation four: address structural deficiencies and commercial conflicts of interest in health systems

To enable adequately resourced and effective models of maternity and infant and young child care, we call on governments, donor organisations, and health professionals to promote culturally appropriate and women-centred care, and reverse over-medicalised maternity care that undermines breastfeeding. We also call for rigorous protocols to prohibit inappropriate commercial conflicts of interest in health policy making, professional education, and research. We further call for a marked expansion in health professional training on breastfeeding and infant and young child nutrition, including curricula on ensuring compliance with the Code, and preventing commercial conflicts of interest.

Recommendation five: increase public finance and correct the misalignment between private and public interests

We call on governments and institutions with responsibility for financial and economic governance, including the International Monetary Fund and World Bank, to adopt sensible and feasible economic policies that will generate the public revenue required to fund the recommendations made in all three papers of this Series.[8,9] Increasing public financing is feasible and can be done in ways that are fiscally and economically responsible, which has been noted by many experts.[295,296] Recommendations for doing so include reversing the prevailing austerity approach to public administration and finance; using fiscal policy to channel larger volumes of investments into maternal, infant, and young child health and nutrition; and preventing public revenue losses from international tax competition, avoidance, and evasion. Public subsidies to the CMF industry and large-scale public procurement of CMF should also be questioned, so that these funds might instead be redirected towards maternity care and breastfeeding support services.

Recommendation six: mobilise and resource advocacy coalitions to generate political commitment for breastfeeding

Implementing the recommendations listed above will require the resourcing and mobilisation of broad-based advocacy coalitions working across a diverse agenda of society-wide political and economic reforms, and across focused interventions aimed at the marketing and political activities of the CMF industry. Specifically, we call for those working separately on breastfeeding, women's health, health systems strengthening, sustainable food

systems, and child nutrition—across civil society, academia, and health systems—to strengthen their links and campaign more effectively together on shared social, political, and economic goals. We also call for greater attention to the social, economic, and environmental harms of CMF production and consumption, and for those working on environmental protection, tax justice, and social inequality to incorporate the global breastfeeding advancement agenda into their work.

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References

1 Rollins NC, Bhandari N, Hajeebhoy N, et al. Why invest, and what it will take to improve breastfeeding practices? *Lancet* 2016; **387:** 491–504.
2 Baker P, Machado P, Santos T, et al. Ultra-processed foods and the nutrition transition: global, regional and national trends, food systems transformations and political economy drivers. *Obes Rev* 2020; **21:** e13126.
3 Baker P, Santos T, Neves PA, et al. First-food systems transformations and the ultra-processing of infant and young child diets: the determinants, dynamics and consequences of the global rise in commercial milk formula consumption. *Matern Child Nutr* 2021; **17:** e13097.
4 Neves PAR, Vaz JS, Maia FS, et al. Rates and time trends in the consumption of breastmilk, formula, and animal milk by children younger than 2 years from 2000 to 2019: analysis of 113 countries. *Lancet Child Adolesc Health* 2021; **5:** 619–30.
5 Food and Agricultural Organization of the United Nations. Ultra-processed foods, diet quality, and health using the NOVA classification system. 2019. https://www.fao.org/fsnforum/index.php/resources/trainings-tools-and-databases/ultra-processed-foods-diet-quality-and-health-using-nova (accessed Jan 18, 2022).
6 Jelliffe DB. Commerciogenic malnutrition? *Nutr Rev* 1972; **30:** 199–205.
7 Victora CG, Bahl R, Barros AJ, et al. Breastfeeding in the 21st century: epidemiology, mechanisms, and lifelong effect. *Lancet* 2016; **387:** 475–90.
8 Pérez-Escamilla R, Cecilia Tomori C, Sonia Hernández-Cordero S, et al. Breastfeeding: crucially important, but increasingly challenged in a market-driven world. *Lancet* 2023; published online Feb 7. https://doi.org/10.1016/S0140-6736(22)01932-8.
9 Rollins N, Piwoz E, Baker P, et al. Marketing of commercial milk formula: a system to capture parents, communities, science, and policy. *Lancet* 2023; published online Feb 7. https://doi.org/10.1016/S0140-6736(22)01931-6.
10 Van Esterik P. Right to food; right to feed; right to be fed. The intersection of women's rights and the right to food. *Agric Human Values* 1999; **16:** 225–32.
11 Nisbett N, Gillespie S, Haddad L, Harris J. Why worry about the politics of childhood undernutrition? *World Dev* 2014; **64:** 420–33.
12 Reich MR, Balarajan Y. Political economy analysis for food and nutrition security. 2012. https://openknowledge.worldbank.org/handle/10986/13569 (accessed Jan 3, 2022).
13 Walls H, Nisbett N, Laar A, Drimie S, Zaidi S, Harris J. Addressing malnutrition: the importance of political economy analysis of power. *Int J Health Policy Manag* 2021; **10:** 809–16.
14 Harris J, Nisbett N. The basic determinants of malnutrition: resources, structures, ideas and power. *Int J Health Policy Manag* 2020; **10:** 817–27.
15 UNICEF. Strategy for improved nutrition of children and women in developing countries. June, 1990. https://digitallibrary.un.org/record/227230?ln=en (accessed Nov 16, 2021).
16 Baker P, Lacy-Nichols J, Williams O, Labonté R. The political economy of healthy and sustainable food systems: an introduction to a special issue. *Int J Health Policy Manag* 2021; **10:** 734–44.
17 Foucault M. Power: the essential works of Michel Foucault 1954–1984. London: Penguin UK, 2019.
18 Gramsci A. Selections from the prison notebooks. Durham, NC: Duke University Press, 2007.
19 Béland D. Ideas, institutions, and policy change. *J Eur Public Policy* 2009; **16:** 701–18.
20 Stone DA. Causal stories and the formation of policy agendas. *Polit Sci Q* 1989; **104:** 281–300.
21 Menard C, Shirley MM. Handbook of new institutional economics. New York, NY: Springer, 2005.
22 Jütting J, Drechsler D, Bartsch S, de Soysa I. Informal institutions: how social norms help or hinder development. Paris: OECD Development Centre Studies, 2007.
23 Giddens A. The constitution of society: outline of the theory of structuration. Berkeley, CA: University of California Press, 1984.
24 Waring M, Steinem G. If women counted: a new feminist economics. New York, NY: Harper, 1988.
25 Lasswell HD. Politics: who gets what, when, how. Auckland: Pickle Partners Publishing, 2018.
26 Fuchs DA. Business power in global governance. Boulder, CO: Lynne Rienner, 2007.
27 Cox RW. Social forces, states and world orders: beyond international relations theory. *Millennium* 1981; **10:** 126–55.
28 Global Breastfeeding Collective, United Nations Children's Fund, WHO. Global breastfeeding scorecard 2021: protecting breastfeeding through bold national actions during the covid-19 pandemic and beyond. 2021. https://www.who.int/publications/i/item/WHO-HEP-NFS-21.45 (accessed Jan 27, 2022).
29 WHO. Global nutrition targets 2025: breastfeeding policy brief. 2014. https:// www.who.int/publications/i/item/WHO-NMH-NHD-14.7 (accessed Jan 27, 2022).
30 Office of the High Commissioner for Human Rights. Joint statement by the UN Special Rapporteurs on the Right to Food, Right to Health, the Working Group on Discrimination against Women in law and in practice, and the Committee on the Rights of the Child in support of increased efforts to promote, support and protect breast-feeding. Nov 17, 2016. https://www.ohchr.org/en/statements/2016/11/joint-statement-un-special-rapporteurs-right-food-right-health-working-group (accessed Jan 27, 2022).
31 Nussbaum MC. Capabilities as fundamental entitlements: Sen and social justice. *Fem Econ* 2007; **9:** 54–80.
32 Sen A. Development as freedom. New York, NY: Alfred A. Knopf, 1999.
33 Kent G. Child feeding and human rights. *Int Breastfeed J* 2006; **1:** 27.
34 Baker P, Russ K, Kang M, et al. Globalization, first-foods systems transformations and corporate power: a synthesis of literature and data on the market and political practices of the transnational baby food industry. *Global Health* 2021; **17:** 58.

35 Chetley A. The politics of baby foods. Successful challenges to an international marketing strategy. London: Pinter, 1986.
36 Van Esterik P. Food as cultural core: human milk, cultural commons and commodification. In: Vivero-Pol JL, Ferrando T, De Schutter O, Mattei U, eds. Routledge handbook of food as a commons. London: Routledge, 2018: 138–54.
37 Koese Y. Nestlé in the Ottoman Empire: global marketing with local flavor 1870–1927. *Enterprise Soc* 2008; **9:** 724–61.
38 Wilhelm L. 'One of the most urgent problems to solve': malnutrition, trans-Imperial nutrition science, and Nestlé's medical pursuits in late colonial Africa. *J Imp Commonw Hist* 2020; **48:** 914–33.
39 Sobel HL, Iellamo A, Raya RR, Padilla AA, Olivé J-M, Nyunt-U S. Is unimpeded marketing for breast milk substitutes responsible for the decline in breastfeeding in the Philippines? An exploratory survey and focus group analysis. *Soc Sci Med* 2011; **73:** 1445–48.
40 United Nations Conference on Trade and Development. Trade and development report 2018: power, platforms and the free trade delusion. Chapter II: the shifting contours of trade under hyperglobalization. https://unctad.org/system/files/official-document/tdr2018ch2_en.pdf (accessed Nov 23, 2021).
41 Burch D, Lawrence G. Towards a third food regime: behind the transformation. *Agric Human Values* 2009; **26:** 267–79.
42 Storm S. Financialization and economic development: a debate on the social efficiency of modern finance. *Dev Change* 2018; **49:** 302–29.
43 Smith JP. Markets, breastfeeding and trade in mothers' milk. *Int Breastfeed J* 2015; **10:** 9.
44 Changing Markets Foundation. Milking it—how milk formula companies are putting profits before science. 2017. https://epha.org/wp-content/uploads/2017/10/Final-report_CM.pdf (accessed Jan 3, 2022).
45 Nguyen TT, Cashin J, Ching C, et al. Beliefs and norms associated with the use of ultra-processed commercial milk formulas for pregnant women in Vietnam. *Nutrients* 2021; **13:** 4143.
46 Pereira C, Ford R, Feeley AB, Sweet L, Badham J, Zehner E. Cross-sectional survey shows that follow-up formula and growing-up milks are labelled similarly to infant formula in four low and middle income countries. *Matern Child Nutr* 2016; **12** (suppl 2)**:** 91–105.
47 Coriolis. Understanding the infant formula value chain. 2014. https://www.coriolisresearch.com/reports/coriolis-dairy-infant-formula-value-chain (accessed Nov 25, 2021).
48 van Tulleken C. Overdiagnosis and industry influence: how cow's milk protein allergy is extending the reach of infant formula manufacturers. *BMJ* 2018; **363:** k5056
49 Munblit D, Perkin MR, Palmer DJ, Allen KJ, Boyle RJ. Assessment of evidence about common infant symptoms and cow's milk allergy. *JAMA Pediatr* 2020; **174:** 599–608.
50 Smith TDH, Townsend R, Hussain HS, Santer M, Boyle RJ. Milk allergy guidelines for infants in England promote over-diagnosis: a cross-sectional survey. *Clin Exp Allergy* 2022; **52:** 188–91.
51 Moynihan R, Heath I, Henry D. Selling sickness: the pharmaceutical industry and disease mongering. *BMJ* 2002; **324:** 886–91.
52 WHO. Code and subsequent resolutions. 2020. https://www.who.int/teams/nutrition-and-food-safety/food-and-nutrition-actions-in-health-systems/code-and-subsequent-resolutions (accessed Dec 7, 2022).
53 Hastings G, Angus K, Eadie D, Hunt K. Selling second best: how infant formula marketing works. *Global Health* 2020; **16:** 77.
54 International Panel of Experts on Sustainable Food Systems. Too big to feed: exploring the impacts of mega-mergers, concentration, concentration of power in the agri-food sector. Brussels: International Panel of Experts on Sustainable Food Systems, 2017.
55 Clapp J. The problem with growing corporate concentration and power in the global food system. *Nat Food* 2021; **2:** 404–08.
56 Shoshana Z. Age of surveillance capitalism. London: Profile Books, 2019.
57 Russ K, Baker P, Byrd M, et al. What you don't know about the Codex can hurt you: how trade policy trumps global health governance in infant and young child nutrition. *Int J Health Policy Manag* 2021; **10:** 983–97.
58 Richter J. Holding corporations accountable: corporate conduct, international codes, and citizen action. London: Palgrave Macmillan, 2001.
59 Sokol EJ. The Code handbook: a guide to implementing the International Code of Marketing of Breastmilk Substitutes. Penang: International Baby Food Action Network, International Code Documentation Centre, 2005.
60 Wagner-Rizvi T. The fox building the henhouse: corporate influence on global health governance and the risks to the World Health Organization. Waterloo, ON: University of Waterloo, 2020.
61 Russ K, Baker P, Kang M, McCoy D. Corporate lobbying on US positions toward the World Health Organization: evidence of intensification and cross-industry coordination. *Glob Health Gov* 2022; **17:** 37–83.
62 Jacobs A. Opposition to breast-feeding resolution by U.S. stuns world health officials. 2018. https://www.nytimes.com/2018/07/08/health/world-health-breastfeeding-ecuador-trump.html (accessed Jan 25, 2022).
63 Khazan O. The epic battle between breast milk and infant-formula companies. 2018. https://www.theatlantic.com/health/archive/2018/07/the-epic-battle-between-breast-milk-and-infant-formula-companies/564782/ (accessed Jan 25, 2022).
64 Yamey G. Baby food industry lobbies WHO on breast feeding advice. *BMJ* 2000; **321:** 591.
65 Thow AM, Jones A, Schneider CH, Labonté R. Global governance of front-of-pack nutrition labelling: a qualitative analysis. *Nutrients* 2019; **11:** 268.
66 Boatwright M, Lawrence M, Russell C, Russ K, McCoy D, Baker P. The politics of regulating foods for infants and young children: a case study on the framing and contestation of Codex standard-setting processes on breast-milk substitutes. *Int J Health Policy Manag* 2021; published online Nov 20. https://doi.org/10.34172/ijhpm.2021.161.
67 WHO. International trade agreements and implementation of the International Code of Marketing of Breast-milk Substitutes: frequently asked questions. 2020. https://www.who.int/publications/i/item/9789240002722 (accessed Dec 4, 2021).
68 Milsom P, Smith R, Baker P, Walls H. International investment liberalization, transnational corporations and NCD prevention policy non-decisions: a realist review on the political economy of tobacco, alcohol and ultra-processed food. *Global Health* 2021; **17:** 134.
69 Milsom P, Smith R, Baker P, Walls H. Corporate power and the international trade regime preventing progressive policy action on non-communicable diseases: a realist review. *Health Policy Plan* 2021; **36:** 493–508.
70 Baker P, Zambrano P, Mathisen R, et al. Breastfeeding, first-food systems and corporate power: a case study on the market and political practices of the transnational baby food industry and public health resistance in the Philippines. *Global Health* 2021; **17:** 125.
71 Cossez E, Baker P, Mialon M. 'The second mother': how the baby food industry captures science, health professions and civil society in France. *Matern Child Nutr* 2022; **18:** e13301.
72 Tanrikulu H, Neri D, Robertson A, Mialon M. Corporate political activity of the baby food industry: the example of Nestlé in the United States of America. *Int Breastfeed J* 2020; **15:** 22.
73 Mialon M, Swinburn B, Sacks G. A proposed approach to systematically identify and monitor the corporate political activity of the food industry with respect to public health using publicly available information. *Obes Rev* 2015; **16:** 519–30.
74 Moodie R, Stuckler D, Monteiro C, et al. Profits and pandemics: prevention of harmful effects of tobacco, alcohol, and ultra-processed food and drink industries. *Lancet* 2013; **381:** 670–79.
75 Granheim SI, Engelhardt K, Rundall P, Bialous S, Iellamo A, Margetts B. Interference in public health policy: examples of how the baby food industry uses tobacco industry tactics. *World Nutrition* 2017; **8:** 288–310.
76 Hillman AJ, Keim GD, Schuler D. Corporate political activity: a review and research agenda. *J Manage* 2004; **30:** 837–57.
77 McKee M, Stuckler D. Revisiting the corporate and commercial determinants of health. *Am J Public Health* 2018; **108:** 1167–70.
78 Cetthakrikul N, Baker P, Banwell C, Kelly M, Smith J. Corporate political activity of baby food companies in Thailand. *Int Breastfeed J* 2021; **16:** 94.
79 Vitalis D, Vilar-Compte M, Nyhan K, Pérez-Escamilla R. Breastfeeding inequities in South Africa: can enforcement of the WHO Code help address them?—a systematic scoping review. *Int J Equity Health* 2021; **20:** 114.

80 Lake L, Kroon M, Sanders D, et al. Child health, infant formula funding and South African health professionals: eliminating conflict of interest. *S Afr Med J* 2019; **109:** 902–06.

81 Sahara Salt Consulting. Nestle nutriton South Africa stakeholder mapping. Johannesburg: Sahara Salt Consulting, 2012.

82 OpenSecrets. Lobbying data summary. https://www.OpenSecrets.org/federal-lobbying/ (accessed July 7, 2020).

83 Office of the United States Trade Representative. 2017 National trade estimate report on foreign trade barriers. 2017. https://ustr.gov/sites/default/files/files/reports/2017/NTE/2017%20NTE.pdf (accessed Aug 12, 2020).

84 Office of the United States Trade Representative. 2018 National trade estimate report on foreign trade barriers. 2018. https://ustr.gov/sites/default/files/files/Press/Reports/2018%20National%20Trade%20Estimate%20Report.pdf (accessed Aug 12, 2020).

85 Kent G. WIC's promotion of infant formula in the United States. *Int Breastfeed J* 2006; **1:** 8.

86 Kent G. Conflicts of interest in the WIC Program. *World Nutrition* 2017; **8:** 128–43.

87 Palmer G. The politics of breastfeeding: when breasts are bad for business. London: Pinter & Martin Publishers, 2009.

88 Sikkink K. Codes of conduct for transnational corporations: the case of the WHO/UNICEF code. *Int Organ* 1986; **40:** 815–40.

89 Access to Nutrition Initiative. BMS/CF Marketing Index 2021. https://accesstonutrition.org/the-indexes/bms-cf-marketing-index-2021/ (accessed Jan 3, 2022).

90 Ching C, Zambrano P, Nguyen TT, Tharaney M, Zafimanjaka MG, Mathisen R. Old tricks, new opportunities: how companies violate the International Code of Marketing of Breast-milk Substitutes and undermine maternal and child health during the COVID-19 pandemic. *Int J Environ Res Public Health* 2021; **18:** 2381.

91 Becker GE, Zambrano P, Ching C, et al. Global evidence of persistent violations of the International Code of Marketing of Breast-milk Substitutes: a systematic scoping review. *Matern Child Nutr* 2022; **18** (suppl 3)**:** e13335.

92 WHO. UNICEF, 1000 Days, et al. Breastmilk substitutes call to action—company response table. 2021. https://www.bmscalltoaction.info/response-table (accessed Aug 18, 2022).

93 Nestlé Nutrition Institute. Welcome to the research center. 2022. https://www.nestlenutrition-institute.org/research-center (accessed Jan 19, 2022).

94 Nestlé Nutrition Institute. Why join 300,000+ healthcare professionals? 2022. https://www.nestlenutrition-institute.org/discover (accessed Jan 19, 2022).

95 Clapp J, Scrinis G. Big food, nutritionism, and corporate power. *Globalizations* 2017; **14:** 578–95.

96 Scrinis G. Reformulation, fortification and functionalization: big food corporations' nutritional engineering and marketing strategies. *J Peasant Stud* 2016; **43:** 17–37.

97 Wood B, Baker P, Scrinis G, McCoy D, Williams O, Sacks G. Maximising the wealth of few at the expense of the health of many: a public health analysis of market power and corporate wealth and income distribution in the global soft drink market. *Global Health* 2021; **17:** 138.

98 Wood B, McCoy D, Baker P, Williams O, Sacks G. The double burden of maldistribution: a descriptive analysis of corporate wealth and income distribution in four unhealthy commodity industries. *Crit Public Health* 2021; published online Dec 30. https://doi.org/10.1080/09581596.2021.2019681.

99 Mazzucato M. The value of everything: making and taking in the global economy. London: Allen Lane, 2018.

100 Walters DD, Phan LTH, Mathisen R. The cost of not breastfeeding: global results from a new tool. *Health Policy Plan* 2019; **34:** 407–17.

101 Salmon L. Food security for infants and young children: an opportunity for breastfeeding policy? *Int Breastfeed J* 2015; **10:** 7.

102 Doherty T, Coutsoudis A, McCoy D, et al. Is the US infant formula shortage an avoidable crisis? *Lancet* 2022; **400:** 83–84.

103 Baker P, Smith J, Salmon L, et al. Global trends and patterns of commercial milk-based formula sales: is an unprecedented infant and young child feeding transition underway? *Public Health Nutr* 2016; **19:** 2540–50.

104 Euromonitor International. Passport. www.euromonitor.com/our-expertise/passport (accessed Jan 27, 2022).

105 Pope DH, Karlsson JO, Baker P, McCoy D. Examining the environmental impacts of the dairy and baby food industries: are first-food systems a crucial missing part of the healthy and sustainable food systems agenda now underway? *Int J Environ Res Public Health* 2021; **18:** 12678.

106 Karlsson JO, Garnett T, Rollins NC, Röös E. The carbon footprint of breastmilk substitutes in comparison with breastfeeding. *J Clean Prod* 2019; **222:** 436–45.

107 Joffe N, Webster F, Shenker N. Support for breastfeeding is an environmental imperative. *BMJ* 2019; **367:** l5646.

108 Becker GE, Ryan-Fogarty Y. Environmental impact of bottles, teats, and packaging in maternity units. *BMJ* 2019; **367:** l6331.

109 WHO. Information concerning the use and marketing of follow-up formula. Geneva: World Health Organization, 2013.

110 Fuchs D, Di Giulio A, Glaab K, et al. Power: the missing element in sustainable consumption and absolute reductions research and action. *J Clean Prod* 2016; **132:** 298–307.

111 Sexton RJ. Market power, misconceptions, and modern agricultural markets. *Am J Agric Econ* 2013; **95:** 209–19.

112 Wood B, Williams O, Nagarajan V, Sacks G. Market strategies used by processed food manufacturers to increase and consolidate their power: a systematic review and document analysis. *Global Health* 2021; **17:** 17.

113 Wood B, O'Sullivan D, Baker P, Nguyen T, Ulep V, McCoy D. Who benefits from undermining breastfeeding? Exploring the global commercial milk formula industry's generation and distribution of wealth and income. Penang, Melbourne, Kuala Lumpar: Third World Network, Deakin University, United Nations University International Institute for Global Health, 2022.

114 Mead Johnson Nutrition Company. Form 10-K Mead Johnson nutrition co: 10-K—annual report. 2017. https://sec.report/Document/0001452575-17-000007/ (accessed Dec 13, 2021).

115 Hager SB, Baines J. The tax advantage of big business: how the structure of corporate taxation fuels concentration and inequality. *Polit Soc* 2020; **48:** 275–305.

116 Lianos I, Velias A, Katalevsky D, Ovchinnikov G. Financialization of the food value chain, common ownership and competition law. *Eur Compet* 2020; **16:** 149–220.

117 Clapp J. The rise of financial investment and common ownership in global agrifood firms. *Rev Int Polit Econ* 2019; **26:** 604–29.

118 Clarke T. The contest on corporate purpose: why Lynn Stout was right and Milton Friedman was wrong. *Account Econ Law: Conviv* 2020; **10:** 3.

119 United Nations Conference on Trade and Development. World Investment Report 2015: chapter 5—international tax and investment policy coherence. 2015. https:// worldinvestmentreport.unctad.org/wir2015/wir2015-ch5-international-tax-and-investment-policy-coherence/ (accessed Dec 29, 2021).

120 Cobham A, Janský P. Global distribution of revenue loss from tax avoidance: re-estimation and country results. *J Int Dev* 2018; **30:** 206–32.

121 UN Women. World survey on the role of women in development: Report of the Secretary-General (2019): why addressing women's income and time poverty matters for sustainable development. 2019. https://www.unwomen.org/en/digital-library/publications/2019/06/world-survey-on-the-role-of-women-in-development-2019 (accessed Feb 2, 2022).

122 UN Women. Beyond COVID-19: a feminist plan for sustainability and social justice. 2021. https://www.unwomen.org/en/digital-library/publications/2021/09/beyond-covid-19-a-feminist-plan-for-sustainability-and-social-justice (accessed Feb 2, 2022).

123 Mulford C. Are we there yet? Breastfeeding as a gauge of carework by mothers. In: Hall Smith P, Hausman B, Labbok M, eds. Beyond health, beyond choice: breastfeeding constraints and realities. New Brunswick: Rutgers University Press, 2012: 123–32.

124 Rippeyoung PL. Feeding the state: breastfeeding and women's well-being in context. *MIRCI* 2009; **11:** 36–48.

125 Wolf JB. Is breast really best? Risk and total motherhood in the National Breastfeeding Awareness Campaign. *J Health Polit Policy Law* 2007; **32:** 595–636.

126 Alburo-Caeñte KZK. Breast is best? A feminist re-reading of breastfeeding policies and practices in the Philippines. *Philipp Q Cult Soc* 2014; **42:** 115–37.

127 Fälth A, Blackden M. Unpaid care work. Policy brief: gender equality and poverty reduction. New York, NY: UN Development Programme, 2009.
128 Elson D. The three R's of unpaid work: recognition, reduction and redistribution. Expert group meeting on unpaid work, economic development and human well-being. New York, NY: United Nations Development Programme, 2008.
129 Beneria L, Sen G. Accumulation, reproduction, and "women's role in economic development": Boserup revisited. *Signs (Chic Ill)* 1981; **7:** 279–98.
130 Waring M. Counting for nothing. Wellington. New Zealand: Allen & Unwin, 1988.
131 Saunders C, Dalziel P. Twenty-five years of counting for nothing: Waring's critique of national accounts. *Fem Econ* 2017; **23:** 200–18.
132 International Labour Organization. Care work and care jobs for the future of decent work. 2018. https://www.ilo.org/global/publications/books/WCMS_633135/lang--en/index.htm (accessed Feb 4, 2022).
133 Dong X, An X. Gender patterns and value of unpaid care work: findings from China's first large-scale time use survey. *Rev Income Wealth* 2015; **61:** 540–60.
134 Qi L, Dong X-y. Unpaid care work's interference with paid work and the gender earnings gap in China. *Fem Econ* 2016; **22:** 143–67.
135 Smith JP, Ingham LH. Breastfeeding and the measurement of economic progress. *JAPE* 2001; **47:** 51–72.
136 Smith JP, Ingham LH. Mothers' milk and measures of economic output. *Fem Econ* 2005; **11:** 41–62.
137 Messac L. Outside the economy: women's work and feminist economics in the construction and critique of national income accounting. *J Imp Commonw Hist* 2018; **46:** 552–78.
138 Figart DM. Accounting for household production: toward an improved measure of macroeconomic well-being. In: Figart DM, ed. Stories of progressive institutional change. London: Springer International Publishing, 2017: 15–26.
139 Hirway I. Unpaid work and the economy: linkages and their implications. *Indian J Labour Econ* 2015; **58:** 1–21.
140 Smith J, Folbre N. New ways to measure economic activity: breastfeeding as an economic indicator. In: Sawer M, Jenkins F, Downey K, eds. How gender can transform the social sciences. London: Palgrave Macmillan, 2020: 105–16.
141 van de Ven P, Zwijnenburg J, Queljoe MD. Including unpaid household activities: an estimate of its impact on macro-economic indicators in the G7 economies and the way forward. OECD Statistics Working Papers 2018/04. Paris: Organisation for Economic Co-operation and Development, 2018.
142 Stiglitz J, Sen A, Fitoussi J. The measurement of economic performance and social progress revisited: reflections and overview. Paris: French Observatory of Economic Conditions—Economics Research Center, 2009.
143 Lutter CK, Lutter R. Fetal and early childhood undernutrition, mortality, and lifelong health. *Science* 2012; **337:** 1495–99.
144 Hafstead M, Lutter R. What Is the economic value of improved labor market outcomes from infant nutrition? The case of breastfeeding in the United States. Washington, DC: Resources for the Future, 2016.
145 Kakietek J, Eberwein J, Walters D, Shekar M. Unleashing gains in economic productivity with investments in nutrition. 2017. Washington, DC: World Bank Group, 2020.
146 Waring M. Still counting: wellbeing, women's work and policy-making. Wellington: Bridget Williams Books, 2018.
147 Smith J. Markets in mothers' milk: virtue or vice, promise or problem? In: Cohen M, ed. Making milk. London: Bloomsbury, 2017: 117–37.
148 Smith JP. Making mothers' milk count. In: Bjørnholt M, McKay A, eds. Counting on Marilyn Waring: new advances of feminist economics. Bradford, ON: Demeter Press, 2014: 267–86.
149 Smith JP. Counting the cost of not breastfeeding is now easier, but women's unpaid health care work remains invisible. *Health Policy Plan* 2019; **34:** 479–81.
150 Vaz JS, Maia MFS, Neves PAR, Santos TM, Vidaletti LP, Victora C. Monitoring breastfeeding indicators in high-income countries: levels, trends and challenges. *Matern Child Nutr* 2021; **17:** e13137.
151 Oshaug A, Botten G. Human milk in food supply statistics. *Food Policy* 1994; **19:** 479–82.
152 Smith J. Including household production in the System of National Accounts (SNA)—exploring the implications of breastfeeding and human milk provision. Boston, MA: International Association for Research on Income and Wealth General Conference, 2012.
153 Smith JP. "Lost milk?": counting the economic value of breast milk in gross domestic product. *J Hum Lact* 2013; **29:** 537–46.
154 Smith J, Iellamo A, Nguyen T, Nguyen L, Mathiesen R. The Mothers Milk Tool. The value of nourishing newborns and nations. 2022. https://www.aliveandthrive.org/en/news/mothers-milk-contributes-almost-4-trillion-to-the-global-economy-but-its-value-has-never-been (accessed June 15, 2022).
155 Smith JP, Lande B, Johansson L, Baker P, Bærug A. The contribution of breastfeeding to a healthy, secure and sustainable food system for infants and young children: monitoring mothers' milk production in the food surveillance system of Norway. *Public Health Nutr* 2022; **25:** 1–9.
156 Smith J. Mothers' milk and markets. *Aust Fem Stud* 2004; **19:** 369–79.
157 Chai Y, Nandi A, Heymann J. Does extending the duration of legislated paid maternity leave improve breastfeeding practices? Evidence from 38 low-income and middle-income countries. *BMJ Glob Health* 2018; **3:** e001032.
158 Folbre N. Of patriarchy born: the political economy of fertility decisions. *Fem Stud* 1983; **9:** 261–84.
159 Folbre N. Children as public goods. *Am Econ Rev* 1994; **84:** 86–90.
160 England P, Folbre N. Who should pay for the kids? *Ann Am Acad Pol Soc Sci* 1999; **563:** 194–207.
161 Smith JP, Forrester R. Who pays for the health benefits of exclusive breastfeeding? An analysis of maternal time costs. *J Hum Lact* 2013; **29:** 547–55.
162 Dinour LM, Szaro JM. Employer-based programs to support breastfeeding among working mothers: a systematic review. *Breastfeed Med* 2017; **12:** 131–41.
163 Atabay E, Moreno G, Nandi A, et al. Facilitating working mothers' ability to breastfeed: global trends in guaranteeing breastfeeding breaks at work, 1995-2014. *J Hum Lact* 2015; **31:** 81–88.
164 Leslie J. Women's time: a factor in the use of child survival technologies? *Health Policy Plan* 1989; **4:** 1–16.
165 Popkin BM. Time allocation of the mother and child nutrition. *Ecol Food Nutr* 1980; **9:** 1–14.
166 International Labour Organization. Care work and care jobs for the future of decent work. Geneva: International Labour Organization, 2018.
167 International Labour Organization. Non-standard employment around the world: understanding challenges, shaping prospects. Geneva: International Labour Organization, 2016.
168 Bhan G, Surie A, Horwood C, et al. Informal work and maternal and child health: a blind spot in public health and research. *Bull World Health Organ* 2020; **98:** 219–21.
169 Craig L, Brown JE, Jun J. Fatherhood, motherhood and time pressure in Australia, Korea, and Finland. *Soc Polit* 2020; **27:** 312–36.
170 Vilar-Compte M, Teruel G, Flores D, Carroll GJ, Buccini GS, Pérez-Escamilla R. Costing a maternity leave cash transfer to support breastfeeding among informally employed Mexican women. *Food Nutr Bull* 2019; **40:** 171–81.
171 United Nations Children's Fund. Breastfeeding and family-friendly policies. New York, NY: United Nations Children's Fund, 2019.
172 Nandi A, Hajizadeh M, Harper S, Koski A, Strumpf EC, Heymann J. Increased duration of paid maternity leave lowers infant mortality in low-and middle-income countries: a quasi-experimental study. *PLoS Med* 2016; **13:** e1001985.
173 Aitken Z, Garrett CC, Hewitt B, Keogh L, Hocking JS, Kavanagh AM. The maternal health outcomes of paid maternity leave: a systematic review. *Soc Sci Med* 2015; **130:** 32–41.
174 Borrell C, Palència L, Muntaner C, Urquía M, Malmusi D, O'Campo P. Influence of macrosocial policies on women's health and gender inequalities in health. *Epidemiol Rev* 2014; **36:** 31–48.
175 Andres E, Baird S, Bingenheimer JB, Markus AR. Maternity leave access and health: a systematic narrative review and conceptual framework development. *Matern Child Health J* 2016; **20:** 1178–92.
176 Hewitt B, Strazdins L, Martin B. The benefits of paid maternity leave for mothers' post-partum health and wellbeing: evidence from an Australian evaluation. *Soc Sci Med* 2017; **182:** 97–105.

177 Navarro-Rosenblatt D, Garmendia ML. Maternity leave and its impact on breastfeeding: a review of the literature. *Breastfeed Med* 2018; **13:** 589–97.

178 Baker M, Milligan K. Maternal employment, breastfeeding, and health: evidence from maternity leave mandates. *J Health Econ* 2008; **27:** 871–87.

179 Huang R, Yang M. Paid maternity leave and breastfeeding practice before and after California's implementation of the nation's first paid family leave program. *Econ Hum Biol* 2015; **16:** 45–59.

180 Martin B, Baird M, Brady M, et al. PPL Evaluation: Final Report. Brisbane: Institute for Social Science Research; 2014.

181 Kottwitz A, Oppermann A, Spiess CK. Parental leave benefits and breastfeeding in Germany: effects of the 2007 reform. *Rev Econ Househ* 2016; **14:** 859–90.

182 Cook S, Dong XY. Harsh choices: Chinese women's paid work and unpaid care responsibilities under economic reform. *Dev Change* 2011; **42:** 947–65.

183 Jia N, Dong X-y, Song Y. Paid maternity leave and breastfeeding in urban China. *Fem Econ* 2018; **24:** 31–53.

184 Chatterji P, Frick KD. Does returning to work after childbirth affect breastfeeding practices? *Rev Econ Househ* 2005; **3:** 315–35.

185 Bakken F. Unpaid and paid parental leave—mothers' and fathers' use and assessments. *Arbeid og velferd* 2022; **1:** 59–76 (in German).

186 United Nations Children's Fund. Breastfeeding support in the workplace: a global guide for employers. New York, NY: United Nations Children's Fund, 2020.

187 Heymann J, Raub A, Earle A. Breastfeeding policy: a globally comparative analysis. *Bull World Health Organ* 2013; **91:** 398–406.

188 Li J, Nguyen TT, Wang X, Mathisen R, Fang J. Breastfeeding practices and associated factors at the individual, family, health facility and environmental levels in China. *Matern Child Nutr* 2020; **16** (suppl 2): e13002.

189 Kimani-Murage EW, Wilunda C, Macharia TN, et al. Effect of a baby-friendly workplace support intervention on exclusive breastfeeding in Kenya. *Matern Child Nutr* 2021; **17:** e13191.

190 Smith JP, McIntyre E, Craig L, Javanparast S, Mortensen K. Workplace support, breastfeeding, and health. *Fam Matters* 2013; **93:** 58–73.

191 Stone C, Smith JP. The visibility of breastfeeding as a sexual and reproductive health right: a review of the relevant literature. *Int Breastfeed J* 2022; **17:** 18.

192 International Labour Organization. Care at work: investing in care leave and services for a more gender equal world of work. Geneva: International Labour Organization, 2022.

193 Henau J. Costs and benefits of investing in transformative care policy packages: a macrosimulation study in 82 countries. Geneva: International Labour Organization, 2022.

194 Siregar AYM, Pitriyan P, Hardiawan D, et al. The yearly financing need of providing paid maternity leave in the informal sector in Indonesia. *Int Breastfeed J* 2021; **16:** 17.

195 Ulep VG, Zambrano P, Datu-Sanguyo J, et al. The financing need for expanding paid maternity leave to support breastfeeding in the informal sector in the Philippines. *Matern Child Nutr* 2021; **17:** e13098.

196 Vilar-Compte M, Teruel GM, Flores-Peregrina D, Carroll GJ, Buccini GS, Perez-Escamilla R. Costs of maternity leave to support breastfeeding; Brazil, Ghana and Mexico. *Bull World Health Organ* 2020; **98:** 382–93.

197 Carroll G, Vilar-Compte M, Teruel G, et al. Estimating the costs for implementing a maternity leave cash transfer program for women employed in the informal sector in Brazil and Ghana. *Int J Equity Health* 2022; **21:** 20.

198 Vilar-Compte M, Teruel G, Flores D, Carroll GJ, Buccini GS, Pérez-Escamilla R. Costing a maternity leave cash transfer to support breastfeeding among informally employed Mexican women. *Food Nutr Bull* 2019; **40:** 171–81.

199 Siregar AYM, Pitriyan P, Walters D, Brown M, Phan LTH, Mathisen R. The financing need for expanded maternity protection in Indonesia. *Int Breastfeed J* 2019; **14:** 27.

200 Navarro-Rosenblatt D, Garmendia M-L. Maternity leave and its impact on breastfeeding: a review of the literature. *Breastfeed Med* 2018; **13:** 589–97.

201 International Labour Organization. C183-Maternity Protection Convention. Geneva: International Labour Organization, 2000.

202 International Labour Organization. R191-Maternity Protection Convention. Geneva: International Labour Organization, 2000.

203 Fraser N. Contradictions of capital and care. *New Left Rev* 2016; **10:** 99–117.

204 Hansen K. Breastfeeding: a smart investment in people and in economies. *Lancet* 2016; **387:** 416.

205 Gupta A, Suri S, Dadhich JP, Trejos M, Nalubanga B. The world breastfeeding trends initiative: implementation of the global strategy for infant and young child feeding in 84 countries. *J Public Health Policy* 2019; **40:** 35–65.

206 Rippeyoung P. Governing motherhood. Who pays and who profits? Canadian centre for policy alternatives. 2013. https://policyalternatives.ca/publications/reports/governing-motherhood (accessed Nov 19, 2021).

207 Orloff AS. Gender and the social rights of citizenship: the comparative analysis of gender relations and welfare states. *Am Sociol Rev* 1993; **58:** 303–28.

208 Orloff A. Gender in the welfare state. *Annu Rev Sociol* 1996; **22:** 51–78.

209 O'Connor JS. Gender, class and citizenship in the comparative analysis of welfare state regimes: theoretical and methodological issues. *Br J Sociol* 1993; **44:** 501–18.

210 Smith J. Time use among new mothers, the economic value of unpaid care work and gender aspects of superannuation tax concessions. *Aust J Labour Econ* 2007; **10:** 99.

211 Smith JP. Paying for care in Australia's 'wage earners welfare state': the case of child endowment. In: Stewart M, ed. Gender, tax and social policy in Australia: rethinking equality and efficiency. Canberra, ACT: ANU Press, 2017.

212 Ravindranath D, Chowdhury AR, Surie A, Bhan G. Effects of social protection for women in informal work on maternal and child health outcomes. 2021. https://iihs.co.in/knowledge-gateway/wp-content/uploads/2022/01/final-paper_SR-01.03.2022.pdf (accessed Feb 08, 2022).

213 Yoon J. Counting care work in social policy: valuing unpaid child- and eldercare in Korea. *Fem Econ* 2013; **20:** 65–89.

214 Australian Bureau of Statistics. Spotlight on the national accounts: unpaid work and the Australian economy. 2014. https://www.abs.gov.au/ausstats/abs@.nsf/mf/5202.0 (accessed July 8, 2017).

215 Smith P-R, Agénor M. Infrastructure, women's time allocation, and economic development. *J Econ* 2014; **113:** 1–30.

216 Smith JP, Javanparast S, McIntyre E, Craig L, Mortensen K, Koh C. Discrimination against breastfeeding mothers in childcare. *Aust J Labour Econ* 2013; **16:** 65.

217 Mohd Suan MA, Ayob A, Rodzali M. Childcare workers' experiences of supporting exclusive breastfeeding in Kuala Muda District, Malaysia: a qualitative study. *Int Breastfeed J* 2017; **12:** 2.

218 Cameron B, Javanparast S, Labbok M, Scheckter R, McIntyre E. Breastfeeding support in child care: an international comparison of findings from Australia and the United States. *Breastfeed Med* 2012; **7:** 163–66.

219 Kapinos KA, Bullinger L, Gurley-Calvez T. Lactation support services and breastfeeding initiation: evidence from the Affordable Care Act. *Health Serv Res* 2017; **52:** 2175–96.

220 Kent G. Governments push infant formula. Nössemark: Irene Publishing, 2017.

221 Choi YY, Ludwig A, Andreyeva T, Harris JL. Effects of United States WIC infant formula contracts on brand sales of infant formula and toddler milks. *J Public Health Policy* 2020; **41:** 303–20.

222 Chatterji P, Frick K. Does returning to work after childbirth affect breastfeeding practices? *Rev Econ Househ* 2005; **3:** 315–35.

223 Bullinger LR, Gurley-Calvez T. WIC participation and maternal behavior: breastfeeding and work leave. *Contemp Econ Policy* 2016; **34:** 158–72.

224 Balint P, Eriksson L, Torresi T. State power and breastfeeding promotion: a critique. *Contemp Polit Theory* 2017; **17:** 306–30.

225 Jung C. Lactivism: how feminists and fundamentalists, hippies and yuppies, and physicians and politicians made breastfeeding big business and bad policy. New York, NY: Basic Books, 2015.

226 Smith JP, Forrester R. Who pays for the health benefits of exclusive breastfeeding? An analysis of maternal time costs. *J Hum Lact* 2013; **29:** 547–55.

227 Folbre N. Should women care less? Intrinsic motivation and gender inequality. *Br J Ind Relat* 2012; **50:** 597–619.
228 Rippeyoung PLF, Noonan MC. Is breastfeeding truly cost free? Income consequences of breastfeeding for women. *Am Sociol Rev* 2012; **77:** 244–67.
229 Figart DM. Accounting for household production: toward an improved measure of macroeconomic well-being. In: Figard DM, ed. Stories of progressive institutional change: challenges to the neoliberal economy. New York, NY: Springer, 2017: 15–26.
230 Nelson JA. Economics for humans. Chicago, IL: University of Chicago Press, 2018.
231 Folbre N. Children as public goods. *Am Econ Rev* 1994; **84:** 86–90.
232 Folbre N. The rise and decline of patriarchal systems: an intersectional political economy. London: Verso Books, 2021.
233 Folbre N. Who cares? A feminist critique of the care economy. New York, NY: Rosa Luxemburg Stiftung, 2014.
234 Balakrishnan R, Elson D, Heintz J, Lusiani N. Maximum available resources and human rights Center for Women's Global Leadership, Rutgers. New Brunswick, NJ: The State University of New Jersey, 2011.
235 Women's Budget Group. Creating a caring economy: a call to action. 2020. https:// wbg.org.uk/analysis/creating-a-caring-economy-a-call-to-action-2/ (accessed Jan 3, 2022).
236 Quinn S. Europe: a survey of gender budgeting efforts. 2016. https://www.imf.org/en/Publications/WP/Issues/2016/12/31/Europe-A-Survey-of-Gender-Budgeting-Efforts-44148 (accessed Nov 3, 2021).
237 Bjørnholt, M. How to make what really matters count in economic decision-making: care, domestic violence, gender-responsive budgeting, macroeconomic policies and human rights. In: Giorgino V, Walsh Z, eds. Co-designing economies in transition. London: Palgrave Macmillan, 2020: 117–26.
238 Sawer M, Stewart M. Gender budgeting. In: Sawer M, Jenkins F, Downey K, eds. How gender can transform the social sciences. London: Palgrave Macmillan; 2020: 117–26.
239 Celis K, Childs S, Kantola J, Krook ML. Constituting women's interests through representative claims. *Polit Gend* 2014; **10:** 149–74.
240 The United Nations Breastfeeding Advocacy Team. Financing for gender equality and the empowerment of women: where does breastfeeding fit in? Submission to 53rd meeting of the Commission on the Status of Women, February 2008. New York, NY: WABA; 2008.
241 United States Agency for International Development. Demographic and health surveys, StatCompiler. 2022. https://www.statcompiler.com/en/ (accessed Jan 12, 2022).
242 WHO. National implementation of the Baby-friendly Hospital Initiative 2017. Geneva: World Health Organization, 2017.
243 UNICEF, WHO. Country experiences with the baby-friendly hospital initiative: compendium of case studies from around the world. New York, Geneva: United Nations Children's Fund, World Health Organization, 2017.
244 Boniol M, McIsaac M, Xu L, Wuliji T, Diallo K, Campbell J. Gender equity in the health workforce: analysis of 104 countries. Working paper 1. WHO/HIS/HWF/Gender/WP1/20191. Geneva: World Health Organization, 2019.
245 Sadler M, Leiva G, Olza I. COVID-19 as a risk factor for obstetric violence. *Sex Reprod Health Matters* 2020; **28:** 1785379.
246 Sadler M, Santos MJ, Ruiz-Berdún D, et al. Moving beyond disrespect and abuse: addressing the structural dimensions of obstetric violence. *Reprod Health Matters* 2016; **24:** 47–55.
247 Pérez-Escamilla R, Martinez JL, Segura-Pérez S. Impact of the Baby-friendly Hospital Initiative on breastfeeding and child health outcomes: a systematic review. *Matern Child Nutr* 2016; **12:** 402–17.
248 Sandall J, Soltani H, Gates S, Shennan A, Devane D. Midwife-led continuity models versus other models of care for childbearing women. *Cochrane Database Syst Rev* 2015; **9:** CD004667.
249 Smith J, Cattaneo A, Iellamo A, et al. Evidence check: review of effective strategies to promote breastfeeding. Canberra, ACT: Australian Department of Health, 2018.
250 Shakya P, Kunieda MK, Koyama M, et al. Effectiveness of community-based peer support for mothers to improve their breastfeeding practices: a systematic review and meta-analysis. *PLoS One* 2017; **12:** e0177434.
251 Clark J. Medicalization of global health 1: has the global health agenda become too medicalized? *Glob Health Action* 2014; **7:** 23998.
252 Fineberg HV. The paradox of disease prevention: celebrated in principle, resisted in practice. *JAMA* 2013; **310:** 85–90.
253 WHO. Public spending on health: a closer look at global trends. WHO/HIS/HGF/HFWorkingPaper/183. Geneva: World Health Organization, 2018.
254 Johanson R, Newburn M, Macfarlane A. Has the medicalisation of childbirth gone too far? *BMJ* 2002; **324:** 892–95.
255 Villar J, Valladares E, Wojdyla D, et al. Caesarean delivery rates and pregnancy outcomes: the 2005 WHO global survey on maternal and perinatal health in Latin America. *Lancet* 2006; **367:** 1819–29.
256 Prior E, Santhakumaran S, Gale C, Philipps LH, Modi N, Hyde MJ. Breastfeeding after cesarean delivery: a systematic review and meta-analysis of world literature. *Am J Clin Nutr* 2012; **95:** 1113–35.
257 Renfrew MJ, McFadden A, Dykes F, et al. Addressing the learning deficit in breastfeeding: strategies for change. *Matern Child Nutr* 2006; **2:** 239–44.
258 Gavine A, MacGillivray S, Renfrew MJ, Siebelt L, Haggi H, McFadden A. Education and training of healthcare staff in the knowledge, attitudes and skills needed to work effectively with breastfeeding women: a systematic review. *Int Breastfeed J* 2017; **12:** 6.
259 Kim YJ. Important role of medical training curriculum to promote the rate of human milk feeding. *Pediatr Gastroenterol Hepatol Nutr* 2017; **20:** 147–52.
260 Yang S-F, Salamonson Y, Burns E, Schmied V. Breastfeeding knowledge and attitudes of health professional students: a systematic review. *Int Breastfeed J* 2018; **13:** 8.
261 Gupta A, Suri S, Dadhich JP, Trejos M, Nalubanga B. The world breastfeeding trends initiative: implementation of the global strategy for infant and young child feeding in 84 countries. *J Public Health Policy* 2019; **40:** 35–65.
262 UNICEF. Infant and young child feeding programming status. New York, NY: United Nations Children's Fund, 2012.
263 Mialon M, Jaramillo Á, Caro P, et al. Involvement of the food industry in nutrition conferences in Latin America and the Caribbean. *Public Health Nutr* 2021; **24:** 1559–65.
264 Becker GE, Ching C, Nguyen TT, Cashin J, Zambrano P, Mathisen R. Babies before business: protecting the integrity of health professionals from institutional conflict of interest. *BMJ Glob Health* 2022; **7:** e009640.
265 Grummer-Strawn LM, Holliday F, Jungo KT, Rollins N. Sponsorship of national and regional professional paediatrics associations by companies that make breast-milk substitutes: evidence from a review of official websites. *BMJ Open* 2019; **9:** e029035.
266 WHO. Marketing of breast-milk substitutes: national implementation of the international code, status report 2020. Geneva: World Health Organization, 2020.
267 WHO. Standards for improving quality of maternal and newborn care in health facilities. Geneva: World Health Organization, 2016.
268 WHO. Implementation guidance. Protecting, promoting and supporting breastfeeding in facilities providing maternity and newborn services: the revised Baby-friendly Hospital Initiative. Geneva: World Health Organization, 2018.
269 WHO. Ten steps to successful breastfeeding 2018. Geneva: World Health Organization, 2018.
270 WHO. Country experiences with the Baby-friendly Hospital Initiative: compendium of case studies from around the world. Geneva: World Health Organization, 2016.
271 WHO. Guideline: protecting, promoting and supporting breastfeeding in facilities providing maternity and newborn services. Geneva: World Health Organization, 2017.
272 Plamondon KM, Brisbois B, Dubent L, Larson CP. Assessing how global health partnerships function: an equity-informed critical interpretive synthesis. *Global Health* 2021; **17:** 73.
273 Thiessen J, Bagoi A, Homer C, Rumsey M. Qualitative evaluation of a public-private partnership for reproductive health training in Papua New Guinea. *Rural Remote Health* 2018; **18:** 4608.

274 Ruckert A, Labonté R. Public–private partnerships (PPPs) in global health: the good, the bad and the ugly. *Third World Q* 2014; **35:** 1598–614.

275 Peck J, Tickell A. Neoliberalizing space. *Antipode* 2002; **34:** 380–404.

276 Bayliss K, Van Waeyenberge E. Unpacking the public private partnership revival. *J Dev Stud* 2018; **54:** 577–93.

277 Dunleavy P, Hood C. From old public administration to new public management. *Public Money Manag* 1994; **14:** 9–16.

278 Epstein G. Financialization and the world economy. Cheltenham: Edward Elgar Publishing, 2005.

279 Hunter BM, Murray SF. Deconstructing the financialization of healthcare. *Dev Change* 2019; **50:** 1263–87.

280 Conrad P. The shifting engines of medicalization. *J Health Soc Behav* 2005; **46:** 3–14.

281 Stefani G, Skopec M, Battersby C, Harris M. Why is kangaroo mother care not yet scaled in the UK? A systematic review and realist synthesis of a frugal innovation for newborn care. *BMJ Innov* 2022; **8:** 9–20.

282 Latorre G, Martinelli D, Guida P, Masi E, De Benedictis R, Maggio L. Impact of COVID-19 pandemic lockdown on exclusive breastfeeding in non-infected mothers. *Int Breastfeed J* 2021; **16:** 36.

283 Piankusol C, Sirikul W, Ongprasert K, Siviroj P. Factors affecting breastfeeding practices under lockdown during the COVID-19 pandemic in Thailand: a cross-sectional survey. *Int J Environ Res Public Health* 2021; **18:** 8729.

284 Schäferhoff M, Martinez S, Ogbuoji O, Sabin ML, Yamey G. Trends in global health financing. *BMJ* 2019; **365:** l2185.

285 Holla-Bhar R, Iellamo A, Gupta A, Smith JP, Dadhich JP. Investing in breastfeeding—the world breastfeeding costing initiative. *Int Breastfeed J* 2015; **10**: 8.

286 WHO. The WHO Council on the Economics of Health for All Manifesto. Geneva: World Health Organization, 2021.

287 WHO. Financing health for all: increase, transform and redirect. Geneva: World Health Organization, 2021.

288 Walters D, Horton S, Siregar AYM, et al. The cost of not breastfeeding in southeast Asia. *Health Policy Plan* 2016; **31:** 1107–16.

289 Tax Justice Network. The State of Tax Justice 2021. 2021. https://taxjustice.net/reports/the-state-of-tax-justice-2021/ (accessed Dec 3, 2021).

290 Organisation for Economic Co-operation and Development. Lobbying in the 21st century: transparency. Paris: Integrity and Access, 2021.

291 Mialon M, Vandevijvere S, Carriedo-Lutzenkirchen A, et al. Mechanisms for addressing and managing the influence of corporations on public health policy, research and practice: a scoping review. *BMJ Open* 2020; **10:** e034082.

292 United Nations Human Rights Council. Legally binding instrument to regulate in international law the activities of transnational corporations and other business enterprises. 2021. https:// www.ohchr.org/sites/default/files/LBI3rdDRAFT.pdf (accessed Dec 3, 2021).

293 United Nations Human Rights Office of the High Commissioner. Joint statement by the UN Special Rapporteurs on the Right to Food, Right to Health, the Working Group on Discrimination against Women in law and in practice, and the Committee on the Rights of the Child in support of increased efforts to promote, support and protect breast-feeding. Nov 17, 2016. https:// www.ohchr.org/en/statements/2016/11/joint-statement-un-special-rapporteurs-right-food-right-health-working-group (accessed June 23, 2021).

294 Curtis J. Bridging governance gaps with extraterritorial human rights obligations: accessing home State courts to end childhood obesity. In: Garde A, De Schutter O, Curtis J, eds. Ending childhood obesity: a legal challenge at the crossroads of international economic and human rights law. Cheltenham: Edward Elgar, 2020.

295 Heimberger P, Gechert S. Corporate tax cuts do not boost growth. Luxembourg: Social Europe, 2021.

296 Zucman G. The missing wealth of nations: are Europe and the US net debtors or net creditors? *Q J Econ* 2013; **128:** 1321–64.

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