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Food-Insecure from the Start

Economic, Social, and Political Conflicts of the 2022 Infant Milk Crisis

The 2022 infant formula crisis has brought a new meaning to food insecurity, generally understood as “a household-level economic and social condition of limited or uncertain access to adequate food” (USDA Economic Research Service, Definitions of Food Security). The problem has been affecting a specific social category: people caring for infants. As expected, it exacerbated food insecurity and food worries among low income and minority families, but also impacted families commonly perceived as the middle class. There are no easy solutions to the problem which combines post-pandemic supply disruptions with a decades-long market concentration in the domestic formula sector, with four companies controlling around 90% of the market supply and virtually none coming from other countries due to steep import tariffs on the most formula (Horsley). Throughout the spring and summer of 2022, the formula crisis served as a proxy for the interplay of economic, political, and social conflicts extant in the United States. Besides direct conflicts, like those between formula manufacturers, families in need of formula, and breastfeeding advocates, there are also post-2020 presidential election conflicts between those who accepted the results and those who rejected them. These conflicts will be examined here, as well as the responsibilities of government agencies such as the Food and Drug Administration to ensure that important food staples such as baby formula meet stringent safety criteria, which – given the current shape of the U.S. food system – could lead to depletion of these very supplies when problems arise. While the blame game continues and becomes political, with fingers being pointed at manufacturers, government agencies, the Biden administration and even the babies of migrants detained at the U.S. borders, no longterm policies preventing such a crisis in the future have been established. The measures implemented by the Biden administration to alleviate the problem, including 26 events of Operation Fly Formula to transport infant milk to the U.S. from various parts of the world, reduced the crisis only to a certain extent. Much bolder steps against market concentration in the milk formula sector and towards a smarter imports policy and better hygiene standards in production facilities must be taken to increase the food security of infants and young children in the United States.

Keywords: infant formula, supply shortage, supply chain, food security, food insecurity, market concentration, food system, post-pandemic market disruption, breastfeeding

Introductory Remarks: A Brief History of Infant Feeding in the United States

The year 2022 will be remembered in the United States as a year of a prolonged milk formula shortage, as well as one of painful awareness that infant food security in contemporary, developed societies cannot be achieved without availability of a product imitating mother's milk, but, as the crisis served to remind us, very much marketed by corporations. Infant milk formula is not like any other food. It is the only thing which can be consumed during the first six months of life, besides human milk. Although the World Health Organization "recommends mothers worldwide to exclusively breastfeed infants for the child's first six months to achieve optimal growth, development and health" (WHO, Exclusive Breastfeeding...), it should not be assumed that breastfeeding is possible for all infants and their mothers at all times. With categorical recognition of the superiority of breastmilk over formula and the desirability of high breastfeeding rates, it is nevertheless unrealistic – and even harmful – to maintain that all infants can or should be breastfed.

Historically, infants who failed to latch, or whose mothers died or were unable to produce enough milk, were at risk of starvation. Since ancient times the feeding of infants has not been stress-free and without casualties. Failure to latch and a high mortality rate in labor prompted parents to experiment with animal milk. More affluent families relied on wet nurses, a practice which was very popular in the United States well into the 19th century but quite controversial. Women who worked as wet nurses often carried the stigma of slavery or poverty. With time, wet nurses became more aware of their value to working families and society as a whole. They began to demand better pay and treatment.

The most obvious alternative – germ-laden animal milks – had evident pitfalls. But this became far less of an issue after health reformers launched clean-milk campaigns that made pasteurized cow's milk available to mothers in cities. By the end of the 19th century, such milk effectively supplanted wet nurses, paving the way for the adoption of formula (Mihm).

The invention of perfect infant milk that would be as close to mother's milk as possible was the next step. In the 1860s, the German chemist Justus von Liebig "constructed what he considered the perfect infant food. The product consisted of wheat flour, some cow's milk and malt flour with a little bicarbonate of potash to reduce the acidity of the flour" (Apple 9). Not long after that event, Henri Nestle, a German-born merchant who immigrated to Switzerland and was known for his passion for chemistry and Swiss milk, created his own 'Milk Food'. His version of the rudimentary formula that was to fight against infant mortality combined cow's milk, sugar, and wheat flour, which was cooked with malt "to convert the indigestible starch into more easy digested dextrin" (Apple 9). Liebig's version of formula, known as Liebig's Food, reached the U.S. market by 1869 and Nestlé's Milk Food was distributed throughout Europe, Americas, and Australia by 1870s. Both products were in many ways similar, but Henri Nestle never presented a theoretical basis or specific medical and chemical sources for his invention. Liebig's Food was more scientifically grounded, with legitimate research behind it, but it was difficult to prepare. To resolve the issue of practicality, some chemists attempted to elaborate a Liebig-type

baby milk for greater convenience of mothers. Nestle Milk Food was relatively easy to prepare, using water rather than milk, and thus, successfully stayed on the American market (Apple 10). By 1883, there were 27 patented brands of infant food available worldwide (Fomon 409S, Stevens et al. 36), including U.S. brands such as Chicago-based Horlick's Malted Milk which, in the late 19th century, was the most popular American product providing infant nutrition (Apple 10).

The success story of baby formula in the United States was not without hiccups. For example, in the late 19th century, there was a spate of summertime infant deaths that was later explained as related to spoiled milk residue left in reused milk bottles. This situation, as well as wider public understanding of germs, prompted the emphasis on cleanliness and improvement in the quality of the milk supply at the beginning of the 20th century (Stevens et al. 36). Formula products evolved and their popularity increased in the United States with more women entering the workforce. By the mid-20th century, physicians and consumers regarded formula as a popular, safe substitute for breastmilk. Hospitals had already used formulas to feed babies with health problems, but over time the use of formula in hospital became quite commonplace, even with healthy infants. Consequently, breastfeeding underwent a steady decline in the United States from the late 1950s until the 1970s (Fomon 414S). By 1971, breastfeeding reached its lowest level, with only 24% of mothers leaving hospitals having initiated breastfeeding. The ensuing years brought renewed interest in breastfeeding, partly due to activities of the breastfeeding support organization La Leche League (Martucci 3) as well as second-wave feminism empowering women to know their bodies and gain control over them. This trend included fostering a positive attitude toward breastfeeding, unlike the more ambivalent first wave (Drouin 326). Some scholars have noted an overlap between the natural motherhood ideology, feminism, and breastfeeding (Martucci 4).

Over the next thirty years, and not without some twists and turns, the breastfeeding initiation rate had more than doubled (by 2001), with close to 70% of mothers using this type of nutrition (Wolf 2004). Breastfeeding initiation applied to 75% of infants born in 2007 and almost one third (33%) of them were breastfed exclusively through their first 3 months of life. At that time, 13.3% of infants relied solely on mother's milk during the first 6 months of life (CDC, *Breastfeeding Report Card*). The breastfeeding initiation numbers for infants born in 2019 turned out to be even higher: 83.2% of children were breastfed at some point of their infancy. The numbers for longer, exclusive breastfeeding also increased in these 12 years: 45.3% of infants were breastfed exclusively through 3 months of life and almost 25% through 6 months (CDC, *Key Breastfeeding...*). Comparatively, in 2021, Oceania (without Australia and New Zealand) had the highest prevalence of longer reported exclusive breastfeeding with 61% of infants aged 0-5 months. For Eastern Africa and Southern Asia the rates were 59% and 57%, respectively (UNICEF, *Breastfeeding...*).¹

Interpretations of the most current data on breastfeeding in the United States vary. The data can be seen as indicative of positive change, in that a noticeably increasing trend in the span of a half century, or a failure to reach the ambitious goal of having more than a quarter of babies born in the United States breastfed exclusively

¹ The most recent data on breastfeeding in the United States, available in late October 2022, come from 2019.

in the first 6 months. Aside from the fact that breastfeeding should be encouraged and promoted, the infant formula is a food staple of critical value. Human history includes many harsh examples of the limitations of exclusive breastfeeding. Practices of breastfeeding and relactation (restarting breastfeeding after some time gap) cannot be treated as the only viable solutions to the problem of food insecurity caused by formula shortage. In a modern society, breastfeeding should be a conscious choice, not a mandate or necessity. Furthermore, the richest country in the world has a responsibility to provide nutrition to its most vulnerable and dependent.

Researching the Crisis: Methodological Challenges

The subject matter covered by this article concerns recent events and therefore requires critical analysis of information presented in the media. There are certain challenges related to researching a phenomenon that is so new, with its future consequences unknown. Thus far, there are very few academic papers devoted to the 2022 formula shortage in the United States, most of which are referenced and critically examined here. Before the recent formula crisis became a subject of academic reflection, primarily conducted from the breastfeeding advocacy perspective (Doherty et al. 83-84), it had received media attention from a socio-economic and business perspective. The Wall Street Journal reporters noted in January 2022 that parents in many parts of the U.S. had complained for months about difficulties with finding formula in stores (Maloney and Terlep). Some journalists saw the formula problems as part of a bigger picture wherein the post-pandemic food system was brought to the brink of disaster, with many interruptions in the supply chains leading to consumers' frequent dissatisfaction. At first, it was understood that post-pandemic America had run out of everything (Thompson, *America...*), including formula. However, the early 2022 reports on serious infections of four babies, two of whom died, leading to the shutdown of the Abbott Nutrition factory in Sturgis, Michigan, and the voluntary recall of large quantities of three powdered formulas highlighted the health aspects of the problems (Creswell and Corkery).

The recall of Abbott formula products aggravated the existing national shortages and exposed systemic problems in the formula sector, which had not been, up until that point, very different from the disadvantages typical of the entire food system. These included: concentration of production in just a few factories; insufficient efforts regarding food safety and hygiene, combined with inadequate oversight of the industry by federal authorities; misguided trade policy; and food assistance programs catering more to manufacturers than recipients. What was very different about this crisis was the impact on formula availability nationwide resulting from the shutdown of just one factory. Such a situation should be explained through an examination of Food and Drug Administration regulations on foreign formula products and food safety standards. Media analysis of the infant formula sector at the time of the crisis might also be particularly useful.

The social and political implications of the formula shortage, as well as its connection to the pitfalls of the post-pandemic food system, with an emphasis on food security problems, require a thorough analysis of the full range of sources. As the crisis is still present in the lives of many American families with infants, and not

easily resolvable, research articles pertaining to food security and infant health must be supported with government documents and statistics, as well as press accounts of the crisis. The paper will not avoid consideration of opinion articles, blog entries, and social media posts as they add to the comprehensive picture of the assortment of conflicts stemming from or being catalyzed by the formula shortage. These sources are actually essential in tracking the course of events and the arguments in American political discourse and serve to document the manifestations of larger phenomena discussed in this study.

Until the 2020 Covid-19 pandemic hit, the recent United States history did not include problems with the supply of any essential food product that would threaten the health or survival of any socio-demographic group. It needs to be stressed that the battle with SARS-CoV-2 in the U.S. re-defined food security in terms of product availability on the market and accessibility for particular categories of people. It also prompted the United States Census to assess social and economic effects of coronavirus on U.S. households through a new online tool called the Household Pulse Survey. From its launch in late April 2020 (Jastrzębiec-Witowska 42), this instrument tackled the issue of food insufficiency. However, it was only in September 2022 when the tool started to monitor formula availability for families with children under the age of 1 (U.S. Census Food Table 7, Week 49). While the survey yielded valuable self-reported data on the health, finances, education, and food situation of American households faced with the pandemic and its aftermath, it is quite difficult to see a connection between formula unavailability and food insecurity as the tables pertaining to food sufficiency lump all families with children under 18 together. More traditional analyses on childhood food insecurity in the United States usually include a separate category for children under six years of age (Colman-Jensen et al., "Household..." 2020, "Household..." 2021), but do not single out infant food insecurity, or consider formula availability. Nevertheless, these food security reports, annually sponsored and analyzed by the USDA's Economic Research Service (ERS), are quite compendious and deserve acknowledgement in contemporary academic reflections on various aspects of food insecurity in American households.

The data presented, examined, and interpreted in this paper come from reputable sources, including U.S. government agencies and institutions such as the Centers for Disease Control and Prevention, the United States Department of Agriculture, and the U.S. Census Bureau. They address the breastfeeding rates and food insecurity estimates for families with young children. This paper includes secondary analysis of existing data, understood as "re-analysis of previously collected and analysed data" (Punch 352).

The Timeline of the 2022 Milk Formula Crisis

Signs of market instability had already been noticeable two years before the shortage became acute in May 2022. In March and April of 2020, the novel virus SARS-CoV2 caused a lot of panic buying of essential products and infant formula was surely among them. At that time, *USA Today* reported: "As the nation braced for shortages of goods and shelter-in-place orders, parents and caregivers were advised to stock up on formula, enough to last 10 days to two weeks. Preparing for the possibility that

they could be quarantined for weeks or even months, some families loaded up their carts with far more than that, straining supplies at the worst possible time” (Guynn). This contributed to bottlenecks in the supply chains that retailers and government agencies took time addressing. When the shelves were finally replenished, sales actually fell as parents of young children still used the stockpiled formula. Lower demand then led suppliers to cut back production through 2021. Planning production volume became quite difficult. Later on, the demand increased and by early 2022 orders were surging faster than supply was recovering (Thompson *What's Behind...*). In January 2022, *Wall Street Journal* reported formula shortages in many parts of the United States, as the entire food sector was struggling with shortages in staffing, ingredients, and packaging materials. It should be noted that U.S. formula brands are largely produced domestically, but raw materials and packaging are imported from other countries and that is why international supply chains in early 2022 were not back at their pre-pandemic levels. While manufacturers downplayed the obstacles in production and shipping, they also assured “continued improvements over the coming months” (Maloney and Terlep).

The opposite occurred. On top of supply chain disruptions, problems with single production facility exacerbated the crisis. In September 2021, when the Food and Drug Administration (FDA) received a report from the Minnesota Health Department about the hospitalization of an infant with *Cronobacter sakazakii* after having consumed formula from the Abbott Nutrition plant in Sturgis, Michigan, the extent of shortage was not yet foreseen. During the standard four-day inspection conducted by the FDA, no *Cronobacter sakazakii* was detected, but problems with maintaining cleanliness, sanitary conditions, and personnel handwashing were revealed. A month later, the FDA received a 34-page whistleblower complaint addressing a lack of internal control, traceability problems, falsifying records, and releasing untested products for distribution. That complaint did not reach the FDA leadership until February 14, 2022. In the meantime, two more infants fed with formula produced at the Sturgis plant were hospitalized with *Cronobacter sakazakii*, and one of them died. On January 31, 2022, the FDA conducted a for-cause inspection of the plant. In mid-February, FDA inspectors confirmed the discovery of a sequence of six *Cronobacter* samples and the agency recommended a recall of the formula (Zimmerman). On February 17, 2022, the FDA first alerted consumers to avoid purchasing or using certain powdered infant formula products produced by Abbott Nutrition facility in Sturgis, Michigan (Food and Drug Administration, *FDA Warns...*). That same day the company announced its voluntary recall of the powdered formula produced at the facility, including brands like Similac, Alimentum, and EleCare, with expiration dates April 2022 or later, admitting finding evidence of *Cronobacter sakazakii* in the plant, in non-product contact areas.

On February 18, 2022, the fourth case of *Cronobacter sakazakii* - and subsequent death - of an Ohio infant fed with formula originating at the Sturgis plant - was reported (Zimmerman). Ten days later, one lot of Similac PM 60/40 manufactured in Sturgis was added to the recall. As noted on Abbott’s website: “The action comes after learning of the death of an infant who tested positive for *Cronobacter sakazakii* and who we were informed had consumed Similac PM 60/40 from this lot. This case is under investigation, and at this time the cause of the infant’s *Cronobacter sakazakii* infection has not been determined. We want to extend our heartfelt sympathies

to the family” (Mordowanec).² The Sturgis plant was consequently shut down for several months (Winter, Ketels).

This particular plant “was responsible for the production of a range of formula, notably formulas used for infants and children with severe allergies, renal failure, intestinal failure, and various metabolic disorders” (Abrams and Duggan). Thousands of infants had lost access to specialized formulas, their main or sometimes exclusive source of nutrition. The FDA advised parents and caregivers to directly contact their formula manufacturers or health providers if they were unable to obtain the specialized formulas (FDA, *Information...*), and discouraged any attempts to make homemade formula (FDA, *Infant Formula...*). Depletion of supplies after closure of one factory which, at the time, produced roughly one-fifth of the nation’s total volume of formula (Lee) was so significant that it affected the availability of regular formula in the following weeks and months. For the week of April 24, 2022, it was estimated that “the share of baby formula out of stock across the U.S. hit 40%” (Wile; Doherty et al. 83). In the same week, in six U.S. states, namely Texas, Tennessee, North Dakota, South Dakota, Iowa, and Missouri the supply fell below 50% (Oladipo). In mid-May 2022, *Time* reported that “many eBay listings for four cans of infant formula were priced at more than \$130” (Barry)³. Many parents had to travel across state lines hunting for essential nutrients for their children.

The milk formula crisis brought about enormous pressure on the Biden administration to solve the problem, as well as criticism for not acting sooner. Initially, White House officials thought the situation was under control after the closure of the Sturgis plant in Michigan. At the time, the matter was supervised by small teams of staff within the White House’s Domestic Policy Council and the National Economic Council. Not having complete data on retail stock rates for formula, and observing the rush by the country’s leading formula companies to push all their reserve stocks onto the market, the White House lapsed into a false sense of security (Lee). The President admitted he was only alerted about the severity of the crisis in April 2022, and his administration responded in the subsequent weeks by “lifting regulations on formula transport and convening retailers and manufacturers to discuss solutions” (Collins et al). Consequently, the Department of Agriculture and the FDA loosened their regulations on the domestic formula market. On May 16, 2022, the FDA released the following statement to that effect: “The U.S. normally produces 98% of the infant formula it consumes, with the primary source of imports coming from trading partners in Mexico, Ireland and the Netherlands. However, given the production and distribution issues that have led to reduced supplies of infant formula in some parts of the country, the FDA has outlined a process by which the agency would not object to the importation of certain infant formula products intended for a foreign market or distribution in the U.S. of products manufactured here for export to foreign countries. It also may provide flexibilities to those who

² While Abbott only mentioned one infant death related to *Cronobacter sakazakii* and consumption of milk from the Sturgis plant, two fatal cases were widely reported. No definitive link has been established between the infections and formula produced by Abbott.

³ It should be remembered that one can of powdered formula makes a limited number of milk servings (bottles), which last only a few days, depending on the age of the infant, as older ones need more powder per meal.

manufacture infant formula products domestically for export and may be able to increase further domestically produced product for the U.S. market” (FDA, *FDA Encourages...*). This was followed by Biden invoking wartime powers such as the Defense Production Act to “ensure that manufacturers have the necessary ingredients to make safe, healthy infant formula here at home” (White House, *President Biden Announces First...*). Still, officials acknowledged that full restoration of supplies could last through the summer (Lee). To speed up the imports of infant formula and its delivery to stores, the Biden administration launched Operation Fly Formula, organizing flights from various parts of the world to bring infant formula that would meet U.S. health and safety standards. Operation Fly Formula required the engagement and partnership of the Department of Health and Human Services (HHS), the U.S. Department of Agriculture (USDA), the General Services Administration (GSA), and the Department of Defense (DOD). By the end of September 2022, the White House reported completion of Operation Fly Formula, which consisted of 26 distinct actions transporting more than 97.9 million 8-ounce bottle equivalents to the U.S. (White House, *President Biden Announces Twenty Sixth...*). By early October, the situation started to improve with just 18% of powdered formula being out of stock compared to more than 31% of the shortage in mid-July (McPhillips), and the already mentioned 40% deficit in late April.

Political Milking of Formula Shortage

The formula crisis provided the Republican party with an opportunity and social media ammunition to attack Biden over his handling of economy. The divisions in American society lingering after the 2020 presidential election also played a significant part in the attacks on Biden. Former U.S. President Donald Trump, whose departure from the White House did not deprive him of guru status for the Make America Great Again (MAGA) movement, unsurprisingly blamed the shortage on Democrats and their leaders. In his May 2022 statements, Trump asserted that the issue was not getting enough attention: “There is a massive formula shortage, but no one is talking about it – it is a national disgrace” (Thomas). Also in May, Trump’s son Donald Jr. used Twitter to describe Biden’s America as a country with no formula to buy while Congress is prioritizing the help to Ukraine: “You can’t find baby formula in the United States right now but Congress is voting today to send \$40 billion to Ukraine. Let’s put America First for a change” (Trump). At that time, Congress was expected to vote on an emergency military and humanitarian aid package for Ukraine. Before it was approved on May 19, 2022, 57 Republicans in the House of Representatives and 11 in the Senate voted against it. In the same week, Congress passed a bill to provide \$28 million in funding to the FDA to address the formula shortage, but most Republicans opposed this solution (Edmondson and Cochrane). Within days of criticizing Biden for not doing enough to solve the formula shortage, 192 Republicans voted against the emergency assistance for the FDA to increase the supply of formula and ensure its safety. Some Republicans claimed that the bill was not bipartisan enough, others saw it as unnecessary, because they thought the FDA should make better use of existing funds. Several Republican congresswomen proposed a competing measure called the “Babies Need More Formula Now Act,”

aimed at making it easier for American parents to obtain formula from abroad. There were also 12 Republicans who joined Democrats in approving the money for the FDA (Scott and Sonmez).

Some Republicans used the formula shortage to fuel anti-immigration sentiments already mainstreamed by Trump's promotion of "a big, beautiful wall" (Glenza) at the US-Mexico border. Texas Governor Greg Abbott accused the Biden administration of making greater efforts to secure formula for immigrant babies brought across the southern border than for American babies. His joint statement made with Brandon Judd, the President of the National Border Patrol Council (NBPC) read: "Our children deserve a president who puts their needs and survival first – not one who gives critical supplies to illegal immigrants before the very people he took an oath to serve" (Abbott). Another Texan politician, Senator Ted Cruz, complained about "a large stockpile of formula for illegal immigrants at the southern border" (Cruz, Qiu) while mothers from his state were fruitlessly trying to find it in stores. In a similar manner, Florida Congresswoman Kat Cammack used Facebook to present photos of pallets of baby formula allegedly gathered at a migrant processing center in her state, contrasting with empty supermarket shelves that should be stocked with formula (Wallace).

Aside from being morally dubious, the arguments against feeding immigrant babies with formula allegedly intended for supermarkets and grocery stores are misleading. The Biden administration did not have to make a harsh choice between feeding immigrant babies and those legally residing in the United States. The U.S. government is legally obliged to provide food – including formula – and water to migrant children detained at the border. This is a result of the Flores settlement (from the U.S. Supreme Court case *Reno v. Flores*), which started with a class-action lawsuit brought against the Reagan administration in the 1980s. The matter took a long time to settle, which finally happened in 1997 under the Clinton administration. All administrations thereafter had to – and did – respect this settlement (i.e. to provide migrant children with food and water), including President Trump, who was very critical of such law. During his term, lawmakers granted the U.S. Customs and Border Protection \$40 million for "commodities such as food, infant formula and diapers" (Qiu). The government website tracking U.S. spending data shows multimillion-dollar contracts that the Department of Homeland Security awarded to third parties to provide meals and food services for detainees at southwestern border stations. Most contracts are long-term, sometimes covering 5 years, e.g., the \$18.3 million award given to Deployed Resources, LLC for detainee meals (www.usaspending.gov). This would indicate that the U.S. Customs and Border Protection generally makes purchases for processing centers months or even years in advance (Qiu), and thus could not have been a significant contributing factor to the 2022 formula crisis.

Some media duly noted that the outrage over the allegedly easier formula access for immigrant babies over U.S. born infants mostly came from Republican politicians with well-known antiabortion stances, self-declared pro-lifers. The irony of the term "pro-life" was highlighted in various opinion articles (Levin), especially in reference to the overturning of *Roe v. Wade*. The Supreme Court ruling of June 24, 2022, which gave states a green light to ban abortions, activated pro-choice circles in their criticism of Republicans' handling of the formula shortage crisis, indicating that it meant nothing more than social media outrage.

Journalists and publicists connected with liberal media refer to estimates showing that about 150,000 more infants could be born in the United States as a result of limited access to abortion due to state bans. Logically, this could lead to a quite significant increase in formula demand. It is also expected that the vast bulk of needed formula will be specialized kinds for infants with health problems (Kekatos). While this article is not meant to analyze the abortion debate in the United States, acknowledgement of potential implications regarding more births in the nearest future is needed, namely the necessity to allot more funds to infant health care and food security, including the safety of formula. Breastfeeding should not automatically be assumed as the default manner of feeding these infants. It is likely that many children in this group – born with serious medical conditions, no longer permissible for abortion – would be even more dependent on specialized formula than babies born in the first half of 2022 and earlier. Yet, the states that banned abortions are the ones with severe formula shortages. The earlier mentioned Republican vote against increased funding for the FDA to solve the formula crisis fits neatly with the argument which liberals have been using against conservatives for years – that their concerns and advocacy for life end at birth. After all, it is strictly the parents' job, quite often the mothers' specific duty, to feed the infants, according to the conservative and authoritarian mindset which usually promotes traditional sex-gender roles.

When So Many Depend on So Few: Unclaimed Responsibilities and a Fragile Supply Chain

Fulfilling infant formula needs during the time of shortages fell indeed on parents while various actors of this economic and political spectacle began to minimize their responsibilities. The Biden administration tried to convince the dismayed public that it acted without delay. Pete Buttigieg, the U.S. Secretary of Transportation, attempted to diminish the responsibility of the U.S. government as a regulator during his *Face the Nation* TV appearance in mid-May 2022: "This is a capitalist country. The government does not make baby formula, nor should it. Companies make formula (...)" (Beals). Concurrently, the Republicans' reaction on the crisis was more of an anti-Biden performance than a call for bigger corporate and government responsibility in search of operable solutions to the nationwide crisis. This all played well for Abbott Nutrition, the representatives of which emphasized that there was no definitive evidence linking its formula to the deaths and illnesses of infants. Even though the company lost some of its market value in the months following the February 2022 recall, its public image was already improving towards the end of summer. In August 2022, MSCI INC, one of the most influential rating agencies in the world, raised Abbott's rating for environmental, social, and governance practices by two increments, from BB to A (Kishan and Edney).

The shirking of responsibilities is not conducive to solving any of the problems in the formula sector, and they are plentiful. Closure of one factory in most of food sectors would normally impact only a local community, in terms of its unemployment rate and its wealth, and perhaps a regional supply chain to some degree, but it should not disrupt the entire market. This was, however, exactly the case after

production was halted at Abbott's plant in Sturgis. Its huge impact on the nation's formula supply was, to a large extent, the result of consolidation: four companies control about 90% of the US formula market, with nearly 50% under Abbott's control. The three others are: Mead Johnson Nutrition, Nestle USA, and Perrigo. The FDA rules make it hard for new companies to enter the market (Berger), yet big players like Abbott can infringe on these rules for months without being detected.

The February 2022 recall and subsequent factory closure were not the first *Cronobacter sakazakii* contamination incidents for Abbott Nutrition or the other three major formula producers and some of their subsidiaries. In the last decade, serious illnesses in infants were also diagnosed after consumption of Abbott and Mead Johnson formula, but this has never been conclusively determined as the cause of the illnesses. Nevertheless, it was also impossible to rule it out as the cause. In most contamination situations the FDA work followed a certain pattern. At first, the agency followed consumers' complaints and its investigators were able to find some unsanitary conditions, cleanliness and/or product sterility problems, and even bacterial contamination of controlled samples. Such findings were generally met with the manufacturer's mobilization to enhance the protective measures, self-monitor and conduct more frequent, in-depth internal quality and safety checks. Unfortunately, in many instances it took a serious outbreak to make formula companies more compliant with existing FDA regulations (Pezenik and Salzman).

Misguided priorities could also be the culprit why formula companies view their signature products as just another commodity instead of an item of vital importance to the youngest human lives. *The Guardian* reported that Abbott's net profits soared 94% between 2019 and 2021, and during that time dangerous bacteria was detected 8 times in the company's facility. Before the end of 2021, when *Cronobacter sakazakii* infections in newborn babies were already reported, Abbott increased shareholder dividends by over 25%. Progressive economic advocacy groups pointed out that formula companies prioritize shareholders by spending billions of dollars in stock buybacks instead of making productive investments. These groups were highly critical of such dividends, calling for limiting them, banning buybacks and introducing stricter anti-trust regulations (Perkins). Unfortunately, it would appear that dangerous contamination, inadequate production facilities, and massive profits can happily coexist for baby formula producers, so any incentive to push them towards perfection in food safety and security appears to be lacking.

Normally, market resiliency is associated with robust domestic production of a certain product that is close to self-sufficiency. That turned out not to be the case with infant formula in the United States, of which less than 2% was imported. The supply chain was by no means resilient, as the collective market strength of each of the very few manufacturers constituted its main feature. Stringent rules and regulations in the industry worth over \$2.1 billion did not ensure safety. They just discouraged competition. The four major players of the industry were also well protected by trade rules, with tariffs as high as 17.5% on foreign formula (Creswell and Ngo). Many reputable formula brands from the European Union could not be sold in the United States, as they did not comply with FDA labeling standards. At the height of the crisis, the American libertarian think tank Cato Institute pointed out that "the differences between American and European formula are minor and are not worth

the expense imposed by these regulations” (Beaumont-Smith). This opinion could be interpreted as a twist on the reasonable instinct to protect infants from inferior quality baby milk from abroad “metastasized into an unreasonably protectionist trade policy that makes the U.S. formula market exquisitely sensitive to existential shocks (like a pandemic) and domestic shocks (like a major recall)” (Thompson). *Fortune* magazine (online version) went as far as naming the FDA the biggest contributor to the formula shortage as its restrictive requirements for imported formula stood in the way (March and Furton). Such criticism could be interpreted as overkill, considering that the FDA’s role is to ensure safety of food and medicine products and not to organize international trade.

The shortage of supplies nevertheless prompted the FDA to temporarily ease the infant formula import rules. On May 16, 2022, the agency website announced the “intention to temporarily exercise enforcement discretion, on a case-by-case basis, for certain requirements that apply to infant formula. This action is designed to increase infant formula supplies in the United States while protecting the health of infants, for whom infant formula is often the sole source of nutrition during a critical period of growth and development” (FDA, *Regulations and Information*). Import flexibility allowed for the market presence of various formula brands from Ireland, Australia, New Zealand, Mexico, Singapore, Germany, the United Kingdom, and the Netherlands after providing required information for case-by-case evaluations determining that the appropriate criteria had been met (FDA, *Enforcement...*).

There are two reasons why there are no Canadian brands on the list of foreign formulas sold currently in the United States. Firstly, Canada is also experiencing a shortage of specialized formula for infants with various health conditions related to the closure of the Abbott facility in Sturgis. Secondly, the Trump administration renegotiated the North American Free Trade Agreement (NAFTA), replacing it with the United States-Mexico-Canada Agreement (USMCA). One of its provisions meant limiting Canada to a certain amount of formula it could export “not just to the United States, but anywhere else in the world too” (Boehm). To put it simply, if Canadian formula exports amounted to more than 40,480 metric tons anywhere in the world in a year, surcharges would be added, thus making all of its formula exports more expensive (Weber). USMCA served former US president Donald Trump “to win wider access to Canada’s dairy market while also keeping supply-managed Canadian rivals at bay” (McCarten). Canada’s dependency on the United States for its formula supply, especially the kind intended for infants with allergies and other health issues, might have also increased under USMCA, as export of this staple product became unprofitable for Canada.

The Food and Drug Administration (FDA) regulations have undoubtedly played some role in the phenomenon of formula shortages, but it would be foolish to expect that the agency should compromise its food safety regulations to increase the supply of formula, domestic or imported. Of course, there were certain faults and errors on the agency’s part in response to the crisis at the Sturgis plant. These issues were discussed in the internal review that became available in September 2022. It addressed the problems such as outdated technology, insufficient formula training of FDA investigators and undoubtedly funding limitations. In short, the FDA, like any other government agency, was lacking “authority, resources, and expertise to deal with supply-chain problems and shortages of crucial food products” (Newman).

Formula of Social Disparities?

Supply chains and their “tangles” might not be well-understood by parents of infants. Anxiety was their prevailing experience when they confronted depleted supermarket shelves in the formula and baby food sections. Although the problem universally affected parents of bottle-fed babies, regardless of their social and economic status, the less affluent people had fewer options. Low-income parents usually lacked the resources to buy overpriced formula online and their travelling to multiple stores in search of formula was limited by gas prices, which noticeably increased in the first half of 2022. Parents considered middle class might actually be surprised by the concept of “different social levels of hunger among babies when there is a formula shortage” (Curter). This situation could be the effect of little awareness on the part of the American general public regarding the food insecurity plaguing low-income families and the lengths they go to in order to fulfill family food needs.

Women and children under the age of five, whose family incomes are modest, might be eligible for the Special Supplemental Nutrition Program for Women, Infants, and Children — popularly known as WIC (for the last three components of the official name). The program has been in operation for half a century. According to the USDA: “The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) serves to safeguard the health of low-income pregnant and postpartum women, infants, and children younger than 5 years who are at nutritional risk” (USDA Economic Research Service, WIC Program). The United States Department of Agriculture (USDA) estimated that 43% of all infants were enrolled in the WIC program in fiscal year 2021.⁴ Within this initiative, significant formula rebates are available through WIC state agencies and the program participants get their benefits through smart cards they can use in retail stores to buy certain products in specific quantities. About half of the formula products purchased in the United States is connected to the WIC program (Goodman). In fiscal year 2021, infant formula rebates totaled about \$1.6 billion (USDA Economic Research Service, WIC Program). This sum shows how essential the WIC program is to the food security of the youngest U.S. citizens.

WIC eligibility is determined by family income being at or below 185 percent of the U.S. poverty level, which means annual income of \$25,000 for a single parent and \$50,000 for a family of four. Another way to enter the program is through participation in assistance programs (Cusaac-Smith), i.e. Supplemental Nutrition Assistance Program (SNAP), Medicaid (coverage of medical expenses of low-income patients), Temporary Assistance for Needy Families (TANF). Applicants must also be at nutritional risk, determined by WIC professionals, who assess the nutritional value of the family diet and maternal ability to breastfeed — among other factors. WIC state agencies are required to be cost-conscious and legally obliged to competitively bid for infant formula rebate contracts. These contracts that usually last

⁴ This might not necessarily mean that all these infants are formula fed. The WIC program also includes promotion of breastfeeding and lactation support, as well as referrals to healthcare and social services. However, the infants who are not fully breastfed are provided with the formula through the program.

4 years are “awarded to the manufacturer offering the lowest net price (wholesale price minus the rebate). Some state agencies have formed multi-State alliances to jointly request net price bids” (Davis and Oliveira, iii). The manufacturer offering the lowest price becomes a sole supplier of infant formula for a state agency, which essentially means the entire state or alliance of states. Under normal circumstances this routine should not be a problem for consumers, and is quite convenient and cost-effective for the government (Abrams and Duggan 291). Unfortunately, in the case of the Abbott formula shortage, states where Abbott won the bidding became more prone to shortages. If families in the WIC program were to choose formula made by a different producer, the WIC benefits could not be used and out-of-pocket payment would be required, additionally straining the modest financial resources of the families. This matter, however, was addressed by the USDA, which provided waivers to the states, giving WIC beneficiaries more purchasing options. After the closure of the Sturgis plant, they were allowed to buy alternate formula brands without doctors’ notes, or could even exceed typically allowed maximum quantities and container sizes (Luhby).

Waivers and exemptions did not apply to online purchases; trips to stores and physical usage of smart cards were still necessary. The same applied to international formula brought to the U.S. through Operation Fly Formula: the WIC benefits only covered formula that was delivered to stores, and not batches designated for online sales. Some states may develop online ordering programs for WIC benefits in the future but probably no sooner than early 2023 (Goodman).

A significant number of parents, estimated by WIC-related sources to be around 6 million, could be eligible for WIC benefits, but have chosen not to participate in the program. Outdated technology of the WIC program is quoted to be among the top reasons of this refusal, along with stigma, difficulties in getting to required health care checks, as well as customer service issues (Cusaac-Smith). Parents who do not meet eligibility criteria for WIC benefits should not be assumed to have much easier access to formula. As indicated earlier, the major difference lies in parental ability to devote a certain portion of family income to formula, with prices likely to be inflated on Internet outlets, and through time spent traveling to multiple stores, possibly crossing state lines.

Low-income families might structurally have less self-agency during the formula shortages in comparison to parents in higher income brackets, yet worries about feeding babies during a time of shortage are rather universal among parents of all social backgrounds (Cutrer). This is confirmed – to some extent – by the Household Pulse Survey launched in 2020 by the U.S. Census to assess how the Covid-19 pandemic had affected people’s lives and livelihoods. In September 2022, the survey started to include questions about formula access. Between September 14 and September 26, over half of 7,042,917 respondents with children under the age of one self-reported their households as being affected by the formula shortage. Among households with income of under \$25,000 per annum, the self-reported impact of the formula shortage was 59%. In the next income bracket, \$25,000-\$34,999 per annum, the percentage was somewhat lower – 52%. For households with incomes of \$35,000-\$49,999 the impact level was 59% and slightly lower for those with incomes of \$50,000-\$74,999, of whom 50% reported negative consequences of formula shortage on their households. Interestingly, self-reporting included 62% of households

with incomes between \$75,000 and \$99,000. As many as 48% of households with incomes of \$100,000-\$149,999 and close to 32% of households with incomes between \$150,000 and \$199,999 claimed that the shortage affected them. The percentage was also high for those families with over \$200,000 in annual income – it was 33% (U.S. Census Food Table 7, Week 49). All these data could support the thesis that the WIC program might be helping with the vulnerability of low-income families to the extent that the differences of self-reported impact of the formula shortage on households in all categories of income under \$150,000 are not greater than 14%. Nevertheless, it should be remembered that the Household Pulse Survey is a relatively new tool and its reliability might be debated. The only families relatively free from formula anxieties are the ones with infants who are exclusively breastfed. But even breastfeeding cannot be taken for granted, due to unexpected circumstances or problems with maternal or infantile health.

Breastfeeding and Infant Food Security

The unquestionable value of breastfeeding has already been discussed in this article – with the acknowledgement that it is not always possible to use this method for every mother and every child in every situation. There are obvious social and racial disparities in breastfeeding. The most recent data on these disparities collected by the Centers for Disease Control and Prevention are from 2019. They indicate that non-Hispanic Black mothers have the lowest breastfeeding initiation rate among all ethnic groups. It is 73.6% when the national average is 84.1%. Mothers self-identifying as American Indians/Alaska Natives have the second lowest breastfeeding initiation rate of 76.6%. Multiracial mothers (83.1%) and Native Hawaiian/Other Pacific Islanders (80.2%) are slightly below the national average. The reasons for such divergence vary, and include the historical exploitation of women of color as wet nurses and the lingering legacy of stigma and lack of choice, which might be prompting Black women to opt for formula.

Lack of lactation support is another culprit. Hospitals that encourage breastfeeding and overall lactation support are less prevalent in Black neighborhoods. Health providers might hold biased assumptions that non-Hispanic Black mothers would not breastfeed leading to a decrease in the support offered. Furthermore, fewer referrals and lower-quality lactation support (if any) are known to be provided for non-Hispanic Black mothers compared to mothers in other racial/ethnic groups. Lactation specialists are rarely non-Hispanic Black or Hispanic (Standish and Parker 190).

Workplace policy on maternal leave is also known to affect breastfeeding. The jobs held by minority and low-income women often compel them to get back to work shortly after the child's birth and might not provide lactation support in terms of accommodating time and space needed for expressing milk (Martin et al.), a sanitary storage place (Standish and Parker 187), as well as understanding and empathy manifested in ways both practical and attitudinal.

Numerous analyses have pointed to the United States as being the only high income country with no statutory paid maternity leave. Mothers who anticipate very short maternity leave may not even attempt breastfeeding (Standish and Parker 187-188) or discontinue it upon returning to work. Breastfeeding advocates call for

greater collective societal responsibility to promote breastfeeding and not just the engagement of individual mothers (Doherty et al. 83). Higher rates of breastfeeding generally stem from high quality maternal and infant health care as well as child-friendly social policies and environments. The role of a neighborhood and the support it can provide are also important factors, as well as being part of the culture or social circle encouraging breastfeeding (Safon et al. 147-148).

Katherine Standish R. and Margaret G. Parker (188), two medical doctors from the Boston Medical Center, stated in their 2022 article that food security or its absence might be one of the important social determinants of breastfeeding. Food insecurity is a well-recognized marker of poverty, a stress factor, and a negative determinant of health, which could be contributing to decreased breastfeeding. Food-insecure mothers might have concerns about the quantity and quality of their milk and therefore decide to supplement breastfeeding with formula or switch completely to commercial milk products. The authors also reflected on the possibility that poor food access might have a direct physiological link to breastfeeding, especially in connection to the decreased quantity and quality of maternal energy intake. This particular issue deserves more academic attention, but general studies of food insecurity impairing breastfeeding have been conducted in recent years in the United States (Dinour et al. 6) and Canada (Orr et al. E 312).

The notion of food insecurity influencing the mother's ability to breastfeed should not be ignored. However, finding data on food security and insecurity pertinent to families with infants is not easy. The U.S. Census Household Pulse Survey, mentioned earlier as a way to collect data on various pandemic and post-pandemic aspects of life, including formula shortages, might be too novel to provide an comprehensive picture. More established research should be quoted here, such as the annual Household Food Security in the United States report, conducted by the United States Department of Agriculture (USDA). It concerns food security of families residing in the United States, studying families with children, particularly those under the age of six. Alisha Coleman-Jensen ("Household..." 2020, 16; "Household..." 2021) and her team of researchers estimated that the food insecurity rate in the United States was the same in 2019 and 2020, at the level of 10.5%. This overall number of 13.8 million people living in uncertainty about their next meal was not affected by the SARS-CoV-2 pandemic. However, for families with children, the pandemic led to further food security deterioration. Before the pandemic, food insecurity rates for households with children were higher (13.6%) than in the general population, and even worse for households with children under the age of six (14.5%). The pandemic exacerbated the precarious situation of such families even further. In 2020, all households with children were characterised by a food insecurity rate of 14.8% and for households with children under the age of six it was 15.3% (Colman-Jensen et al., "Household..." 2021, 17). There is no way to infer from these reports how many of these households included infants and how their parents fed them.

The relationships between breastfeeding and food security appear to be more complex than the simple perception of breastfeeding as the perfect remedy for food insecurity in kids under the age of one. On an individual level, a mother breastfeeding exclusively does indeed protect the child from food insecurity, but no society is ever going to have a perfect breastfeeding rate of 100%. Some researchers note that breastfeeding

affects maternal employment and income, and thus, sometimes could itself be an indirect factor in making a family more food insecure (Dinour et al., 1). Therefore, any breastfeeding advocacy should be combined with efforts to improve overall food security in families with young kids. In the United States, enhanced food security in this social category would likely have positive effects on breastfeeding rates.

National policies should promote the culture of breastfeeding but not in opposition to formula feeding. Developing solid ground for such a culture would mean expanding the breastfeeding opportunities for mothers of all walks of life. It should start with efforts to eradicate household food insecurity, and be followed by lactation support in maternity wards and paid maternity leave of no less than 12 weeks, as well as breastfeeding-friendly workplaces. Promotion of breastfeeding should never involve shaming mothers who do not breastfeed or treating breastfeeding as a perfect, infallible solution to the formula shortage. The 2022 formula should be seen as a serious infringement on food security of children under the age of one and not as an opportunity for reducing formula demand. Decreasing formula dependency is undoubtedly a noble cause, but it cannot be achieved in a situation of shortage, when desperation and stress are already taking their toll on parents with infants.

Conclusions

The 2022 formula shortage has exposed the weaknesses of the industrial food system in the United States, where a food staple, crucial to the survival of the youngest population, is produced by just four manufacturers. The closure of one factory due to bacterial contamination put the entire formula market of the most powerful nation out of balance in an unprecedented way. The problem did not appear overnight and some of its signs had been marking their presence for years. Extreme market concentration had been going on for at least three decades, benefitting the producers, especially in the absence of foreign competitors, discouraged by steep tariffs. Such long-term unsustainability was bound to result, sooner or later, in a great crisis, especially in a fragile post-pandemic economy, where supply channels remain disrupted.

The magnitude of the crisis seriously threatened the food security of families with children under the age of one. It also revealed social disparities in formula access, as well as in the infant feeding culture. The shortage should not be used to pit breastfeeding families against those using formula. While undoubtedly there is a strong need for better national policies promoting breastfeeding, mother's milk should not be treated as a magical solution for all problems with infant food security. As they are manifold, they require a tremendous amount of work in terms of social justice, anti-poverty measures, changes in mentality, or even eradicating lingering racial resentments and healing historical traumas. Political rants about the formula shortage, expressed in press releases and on social media sites such as Twitter — serving primarily as rhetorical cudgels to beat opponents with — are not only useless for mothers staring at empty supermarket shelves in, but they also exacerbate polarization of American society. The consequences of this situation can affect future generations in terms of even greater economic, social, and cultural divisions.

In modern societies, a certain percentage of infants will always be formula fed. Therefore, it is important to make formula safe and available, as well as accessible, if the parents make an informed decision to use it. This is the responsibility of federal agencies such as the Food and Drug Administration (FDA), whose primary duty is to serve the consumers. The focus on safety and affordable prices should not automatically favor a few large players. Market diversification in the formula sector is urgently needed to include more domestic and foreign producers. The recent presence of foreign formulas on the U.S. market constitutes a good development. Although the policy allowing their importation was initially set to expire in November 2022, the FDA extended it to January 2023, after which companies can ask to stay on the market longer. Foreign companies must meet specific requirements for 30 nutrients and undergo manufacturing inspections if they want to continue selling their formula products in the United States. The recent entrants to the U.S. market are to make sure by October 2025 that their formulas are fully compliant with federal standards for nutrition, labeling, and manufacturing. Some of the companies are expected to meet these requirements much sooner (Perrone). Time will show if the United States is able to prevent similar crises in those sectors of its food system which are crucial to human survival.

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