

Reflections on Famine: Gaza and Beyond*

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Abstract: On 22 August 2025, the Integrated Food Security Phase Classification (or IPC for short) declared a famine “with reasonable evidence” in Gaza. Its hesitancy reflected its inability to obtain enough hard evidence on its criteria for establishing the presence of a Phase 5-level (i.e. famine). Here, we discuss the limitations of the IPC’s benchmarks and by what alternative definition the crisis in Gaza constituted a famine. This entails putting what happened in Gaza after 2024-2025 in economic context and discussing the evidence for excess mortality. An emphasis is placed on the usefulness of price data when other measures fail.

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I GAZA AND BEYOND

The recent history of famines has been a curious one. Early in the millennium there were grounds for hoping that famines, at least in peacetime, were a thing of the past. A sign of the times was the heated controversy about whether a food crisis in Niger in 2005-2006 qualified as a famine or not.¹ In 2011-2012 a genuine

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¹ Crombe and Jézéquel 2009; Reza *et al.*, 2008. In Ireland, GOAL, a prominent NGO, referred to the situation in Niger as a famine, while the Irish Red Cross and Concern refused to do so (e.g. *Irish Times*, July 29, 2005; August 11, 2005).

famine in Somalia seemed like a blip, a food crisis occasioned by drought that was magnified into famine by civil unrest. Famine scholar and campaigner Alex de Waal (2017) began a book in 2016 asking “why calamitous famines had become so rare in the contemporary world”; but then, within a year he had changed his mind after reading reports and warnings of starvation in several parts of Sub-Saharan Africa and the near east. However, de Waal’s worst fears were not realised.

But what counts as a “famine” nowadays and who decides? My own attempt at a pithy definition is “a shortage of food or purchasing power that leads directly to excess mortality from starvation or hunger-induced diseases” (Ó Gráda, 2009, p. 4). This defines famines as events that kill and embraces both Amartya Sen’s insistence on the role of food entitlements and the fact, sometimes forgotten, that in historical famines most victims succumbed not to starvation but to some hunger-related disease, and it is deliberately vague on what constitutes excess mortality.

Of late, the definition of famine has focused more specifically on how much excess mortality does it take to constitute a famine. The Integrated Food Security Phase Classification, or the IPC as it is better known, arose out of a perceived need by international organisations such as the FAO, the World Food Programme, and USAID/FEWS NET, for a classification system that would measure the severity of food crises transparently and rigorously, in a manner that facilitated cross-country comparisons. The IPC, which had its origin in concerns about the food situation in Somalia in the early 2000s, is widely recognised as *the* global hunger monitor.² According to the Famine Review Committee of experts which appraise the evidence collected for the IPC, only one of the several crises mentioned by de Waal – that in South Sudan in 2017 – was declared a famine.

Perhaps because of a perception that some aid agencies were in the habit of crying wolf, in the past the IPC has sought to adopt transparent benchmarks for determining the presence of a famine. Its criteria, inspired by Howe and Devereux (2004), were chosen with applicability in mind. First, the IPC classification distinguishes between five different degrees of food insecurity: (1) Minimal or None; (2) Stressed; (3) Crisis; (4) Emergency; and (5) Catastrophe or Famine. Our focus will be on Phase 5. In order for a famine (or Phase 5-level crisis) to be declared according to the IPC criteria, the following conditions must be present:³

- (1) 20 per cent or more of households must be facing an extreme lack of food and other basic needs;
- (2) 30 per cent or more of children must be suffering from acute malnutrition;
- (3) two people or four children for every 10,000 must die daily from outright starvation or from the interaction of malnutrition and disease.

Note that the focus here is neither on the supply of food nor on its cost, but on biological data.

² The IPC is a framework used by the UN and governments rather than a single organisation; its analysis is underpinned by support from organisations like the FAO, WFP, and FEWS NET.

³ *IPC Famine Factsheet* (<https://www.scribd.com/document/908823708/IPC-Famine-Factsheet>).

Clearly, establishing whether the above criteria apply in crisis situations will not always be straightforward. How can one be sure they were met in e.g. Sudan in 2024 or, indeed, in Gaza in 2025? The answer is that in Gaza the IPC could declare famine only “*with reasonable evidence*” (emphasis added), because none of the three conditions for a Phase 5-level crisis could be established directly. For the first, it relied on computer assisted telephone interviews (CATIs) with a modest, and possibly selective, number of respondents (n=504) in order to establish status regarding the lack of food and other basic needs. For the second, it lacked evidence on weight-for-height z-scores (WHZ), the standard proxy for child malnutrition, and relied instead on UNRWA data measuring MUAC (mid-upper arm circumference) (Horino *et al.*, 2025). MUAC is a simple, practical measure requiring no calculation, but it is much more permissive than WHZ, and how it was applied has been heavily criticised (COGAT and Ministry of Foreign Affairs (Israel), 2025). For the third, hard evidence on the mortality thresholds was lacking, so the IPC relied on evidence that

the frequency and volume of reported deaths rapidly accelerated in July 2025 ... consistent with the exponential increase in acute malnutrition – that was measured through MUAC 4 screenings – as well as the persistent and increasing levels of extreme food insecurity.

In effect, the IPC relied on “expert judgment” in the absence of the hard evidence set out in its technical manual (IPC 2025, pp. 3-4; IPC 2021). And so, rather than declaring a famine outright, it resorted to more cautious phrasing such as “famine likely”, “reasonable evidence”, or “famine conditions are present”. The limitations of the IPC’s criteria were laid bare in Gaza. In Sudan and South Sudan they were not fit for purpose either, and the IPC was similarly forced to rely on indirect indicators such as hospital data, satellite imagery, witness interviews, market price data, and so on, for making what also amount to informed judgment calls as to whether its three biological criteria have been met. In the absence of reliable data, should one err on the side of caution and thereby risk disaster, or is the danger of false positives too great? Needless to say, much press reporting in the wake of the declaration threw caution to the wind. Perhaps the lesson here is to beware of definitions of emotive terms using a discontinuous and arbitrary threshold.

The experts and the organisations who inform and sustain the IPC realise the dangers of false positives. Credibility is easier to lose than to gain. They know that if the classification declares a famine, then that is very serious for those who are seen to have caused the famine. Because the F-word is so contentious, the hope is that even a declaration of imminent risk of famine will result in immediate action (Nolen, 2024a).

And, indeed, the IPC’s criteria are demanding in the sense that if the conditions stipulated by them were to hold for a year or more, they would produce a cataclysm

of ‘biblical proportions’. Note that the deaths of two people per 10,000 population daily from famine-related causes over a whole year would mean an excess mortality of over 7 per cent of the population. However, the IPC classification “*is not based on how long a situation lasts, but on the convergence of evidence that thresholds for Phase 5 have been met or are projected to be met*” (emphasis added).⁴ Thus according to the IPC the famine that was declared in three provinces of Somalia in July-August 2011 lasted until February 2012, while those in parts of South Sudan in 2017 and Gaza in 2025 lasted only four months.

The IPC criteria diverge from those used in the so-called Indian Famine Codes, an early warning and famine relief system developed in the early 1880s by the colonial authorities in India in the wake of a cataclysmic famine in the late 1870s.⁵ The Codes distinguished between scarcity and famine, like the IPC does. But the criteria adopted by the two systems were rather different. According to the Codes, a succession of poor harvests and large numbers of people in distress signalled “scarcity”, while the warning signs of famine also included a 40 per cent “scarcity rate” rise in the prices of the cheapest local staple; a surge in migration in search of food; and widespread mortality. In the late nineteenth century, hard numbers on prices and harvest yields might be found, but data on migration and mortality would have to have been impressionistic.

1.1 Prices Matter

An important difference between the IPC and the Indian Famine Codes is the degree of their reliance on market price data. To an economist the rejection of high food prices as a prime proxy for, or measure of, famine’s severity by the IPC is surprising. It is hard to think of famines that were *not* associated with a rise in the real price of the staple food (i.e. the price adjusted for inflation). True, as Amartya Sen has stressed, this is theoretically possible; a reduction in the purchasing power of the landless, for whatever reason, could mean starvation in the absence of harvest shortfalls or price increases. But well-documented examples of such outcomes are almost as rare as Giffen goods or sightings of the Loch Ness Monster. Sen offered just one example: the case of Wollo in Ethiopia in 1972-1973, when the poor lacked the “market command” to push up prices or to attract in food from other, less affected, provinces (Sen, 1981: 95-96). On the other hand, in the past significant and sustained increases in the real price of food that did cause a famine are also rare. An interesting case in point is “the famine that wasn’t” in Ireland in 1799-1801 (Kennedy and Solar, 2025).

In general, however, prices offer both a warning of famine and a measure of its gravity. They capture both expectations and the reality on the ground. Perhaps the

⁴ IPC Technical Manual Version 3.1 (2021).

⁵ On the Famine Codes see Brennan, 1984; Singh, 1993. The 1876-78 famine is reckoned to have cost 8.2 million deaths (Maharatna, 1996: 14-16).

IPC decided to ignore food prices because of a sense, not confined to Sen, that prices may give false signals during famines due to market malfunction. But for the most part, both historically and today, real food prices are high, not mainly due to hoarding or speculation, but mainly because food supplies are low (Dyson, 2021; Ó Gráda, 2015).

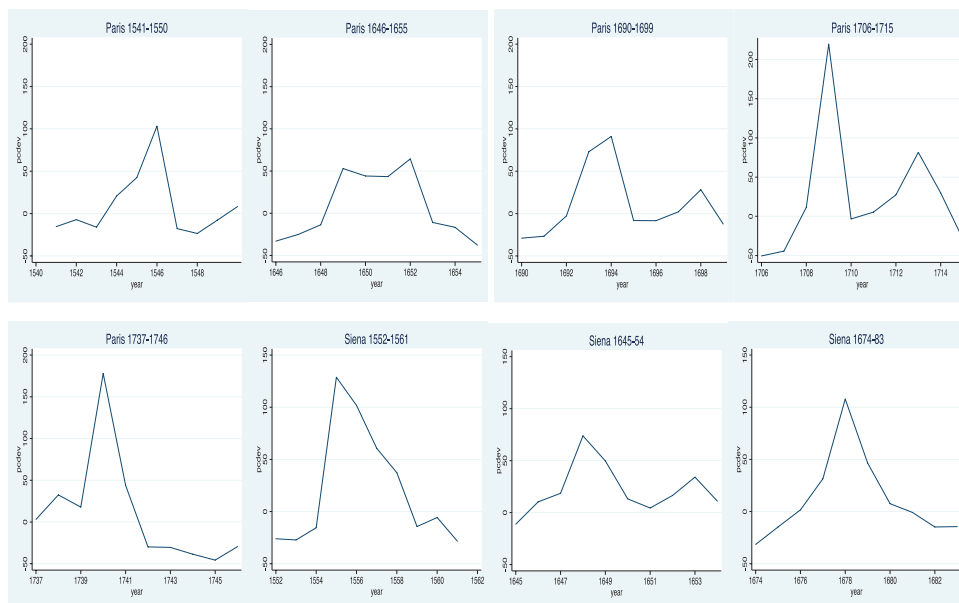
According to the Indian Famine Commission of 1880 “it may be said approximately and generally that, in time of very great scarcity, prices of food grain rise to three times their ordinary amount” (British Parliamentary Papers, 1880 p. 27). The price of rice rose by more than that during the Great Bengali Famine of 1943-44 – it quadrupled – but that was in a context of significant wartime inflation; indeed, Amartya Sen has referred to the famine as a “boom” famine (1981: 75). There are more extreme cases: in Kyiv in March 1933, the bazaar price of rye flour was 13.5 roubles per kg, seven times that recorded in September 1931, while during the Indonesian War of Independence in the wake of World War 2 the rise in food prices was far greater, albeit in the context of galloping hyperinflation (Davies and Wheatcroft, 2004, p. 510; de Zwarte *et al.*, 2026). However, and this is important, in the past it did not usually take a trebling of real food prices over a sustained period to produce a famine.

Surviving data on wheat prices in some early modern European cities suggest that only rarely did annual prices more than double during famines; and that famines rarely lasted for two years in succession. There are exceptions, but the examples described in Figure 1 describe a more general pattern.⁶ Figures 1a and 1b refer to monthly movements in a selection of cities in early modern Europe. They describe deviations from trend for ten-year windows during which a famine occurred, and are drawn to a common scale to facilitate comparison. They suggest that in years of famine prices were often double the norm, but no more than that. So, in general, in early modern Europe it did not take an enormous rise in prices to cause a famine. It follows that the price increase required to produce a famine will be income-dependent – on which more in a moment.

In contexts where incomes are low and storage and credit expensive, the damage inflicted by a protracted doubling of the real prices of foodstuffs may be easily imagined. Again, duration as well as context are crucial. Across Sub-Saharan Africa today, the average share of food in household spending is still over three-fifths, while in rural India it is nearly half. A survey carried out by UNRWA in the Gaza strip in November 2021 revealed that a still high but more manageable proportion, just short of one-third, of average household income was going on food.⁷

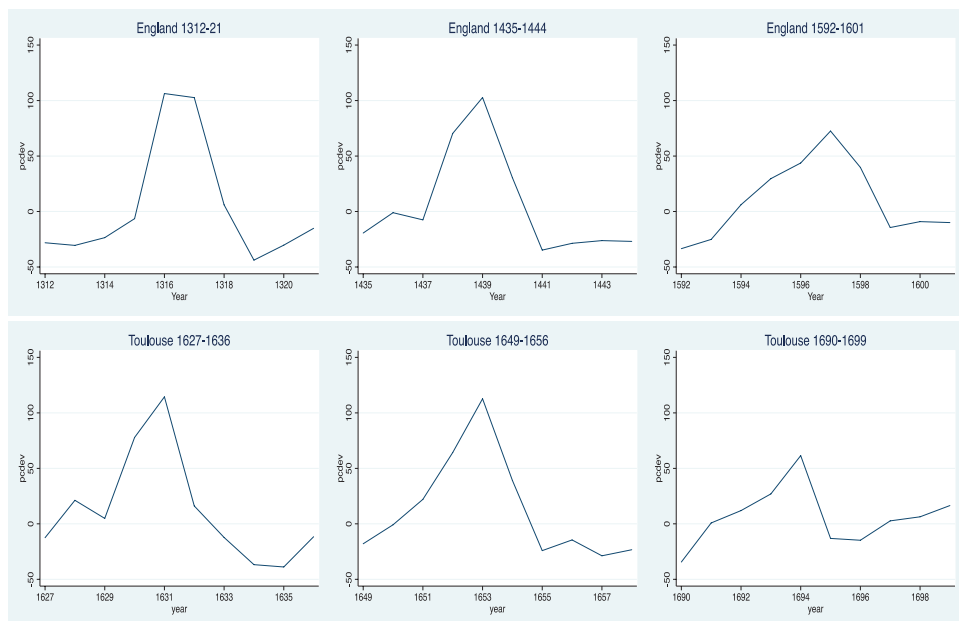
⁶ These are borrowed from Ó Gráda, 2016.

⁷ Manoj Kumar, ‘India household spending on non-food items rises as urban-rural gap narrows’, *Reuters*, December 27, 2024. (<https://www.reuters.com/world/india/india-household-spending-non-food-items-rises-urban-rural-gap-narrows-2024-12-27/>); *Food Production and Consumption Trends in Sub-Saharan*

Figure 1a: Paris and Siena: 16th and 17th centuries

Source: Allen and Unger, 2018.

Note: pcdev on the Y-axes refers to percentage deviations from trend

Figure 1b: England and Toulouse

Source: Allen and Unger, 2018.

Against the broader pattern revealed by price data during famines, both Ireland in the 1840s and Gaza in 2025 stand out. Price data highlight how both were *sui generis* and how very different they were. Focusing briefly on Ireland first, before the arrival of the blight in 1845 the price of potatoes – setting aside the complications arising out of varieties and seasonality – was about two shillings per cwt. At the peak in 1846-1847 potatoes cost more than four times that.⁸ Moreover, in Ireland the famine lasted a very long time⁹ and potato prices remained correspondingly high (Figure 2).

Figure 2 also highlights the contrasting trajectories in potato and oat prices before and after the Irish Famine. It shows that while on the eve of the Famine the price of potatoes by weight was less than half that of oats, in the years following the famine the ratio remained not far off par. And that is because the arrival of the blight was an ecological disaster, with a lasting impact on potato yields. The price of the staple food did not fall back to its previous level, as is standard after famines, so there was no prospect of returning to the *status quo ante*. As an Irish landlord declared in mid-1847, “the population of Ireland had been created by the potato (and) that without the potato it cannot exist” and therefore “A large portion of that population... will be destroyed by famine and disease if they are not provided with means to emigrate” (as cited in Ó Gráda 2019: 319).

II GAZA

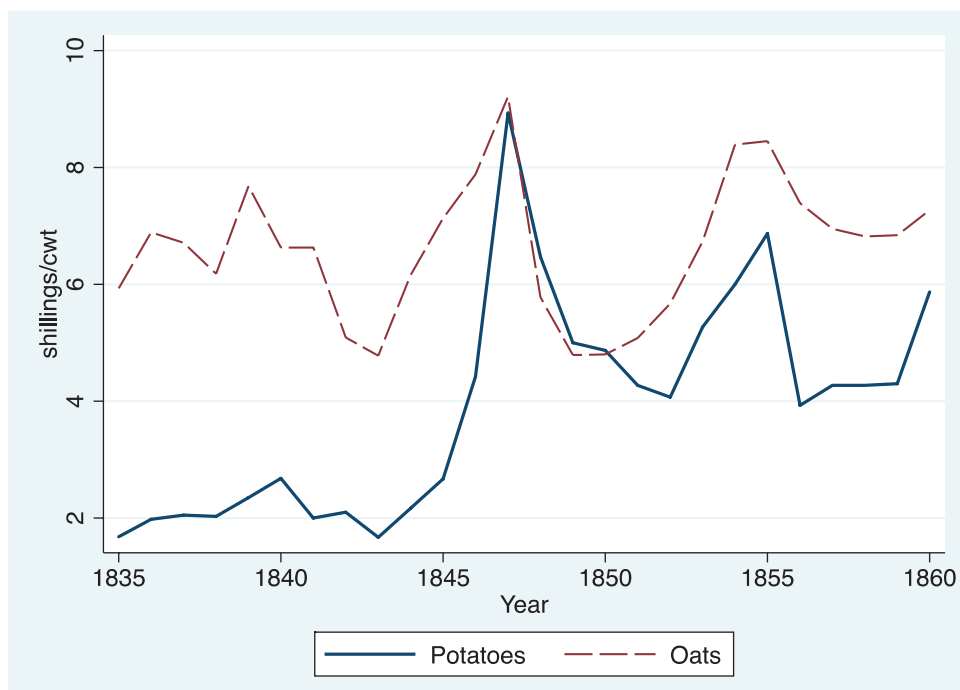
What of Gaza? First, relatively high-frequency and reliable price data are available. Second, since prices in Gaza are denominated in Israeli shekels (ILS), rapid inflation is not a confounding factor. Third, the data highlight both the severity of the price shock and its relatively short duration. But before we get to the data, some context is called for.

The economic situation in Gaza was already dire before 7 October 2023. Over two million people, two-thirds of them registered refugees or their descendants, were trying to eke out a living in an area (365 km sq) less than half the size of

⁷ (continued) *Africa: Prospects for the Transformation of the Agricultural Sector*, UNDP, 2023 (<https://www.undp.org/africa/publications/food-production-and-consumption-trends-sub-saharan-africa-prospects-transformation-agricultural-sector>); UNRWA, *Socio-economic Situation of Palestine Refugees in the Gaza Strip Crisis Monitoring Report: High Frequency Survey Results November 2021*. (https://www.unrwa.org/sites/default/files/content/resources/gaza_crisis_monitoring_survey_report_nov_2021_final.pdf).

⁸ Ó Gráda 2006; Ó Gráda 1999: 140; Kennedy and Solar 2007, pp. 139-140, 150-152.

⁹ Although some deaths by starvation were reported in Ireland before the blight attacked for a second time during the summer of 1846, the numbers began to mount only from October 1846 on. But before mid-October 1846, according to James McHale, parish priest of Hollymount in south Mayo, “deaths ... innumerable from starvation and its direful effects, plunder, robberies, and open attacks on property, are occurring every day; the bonds of society are dissolved” (*Freeman's Journal*, 12 October 1846). And in the west of Ireland, they continued into 1851.

Figure 2: Potato and Oats Prices in Ireland 1835-1860

Source: Kennedy and Solar, 2007, pp. 139-140, 150-152.

county Louth (826 km sq), Ireland's smallest county. According to UNCTAD (2023, p. 1) on the eve of the invasion they were:

confined in one of the most densely populated spaces in the world, in chronic conflict conditions, with inadequate access to clean water, without electricity for half the day and without a proper sewage system. Two-thirds of the population live in poverty, ... [and] there is a 45 per cent probability of being unemployed. (UNCTAD, 2023)

Yet, as in Ireland before the Great Famine, the nature of poverty in pre-war Gaza was somewhat complex and paradoxical. On the one hand, at an estimated \$2,713 in 2022, Gaza's GDP per capita was 18th lowest in the world, and the lowest outside Sub-Saharan Africa, with the exception of Afghanistan. Even allowing for the significant contributions made by emigrant remittances and the earnings of workers who made the crossing to Israel regularly before the invasion, Gaza was still very poor. Moreover, economic activity was severely circumscribed by Israeli restrictions on the movements of people and goods. The very high incidence of

mental illness in Gaza before 7 October 2023 has been attributed, plausibly, to war- and deprivation-induced stress (World Bank Group, 2022). On the other hand, life expectancy at birth in Gaza was about 74 years, the infant mortality rate 11 per 1,000, and the illiteracy rate of those aged 15 and more had dropped from 13.7 per cent in 1997 to 2 per cent in 2021. The vaccination of children against polio, measles, diphtheria, tetanus, and whooping cough was universal.¹⁰ According to a Palestinian publication, 44.3 per cent of Gaza's 18–24 year-olds were enrolled in higher education in the academic year before the war. And a study carried out on a sample of first-grade children in UNRWA schools during the summer of 2023 found that, while the diet was not diversified and most households were food-insecure, and while there was a high number of anaemic children, nevertheless only 2.5 per cent of them were stunted, and 4.4 per cent showed signs of wasting (Horino *et al.*, 2024). Table 1 compares values of a range of proxies for health and human capital in Gaza to those in “low income” and “low middle income” (World Bank categories) economies.

Such data help explain why the main causes of death in Gaza before October 2023 were closer to those in Ireland today than, say, to Bengal on the eve of the Great Bengali Famine. This is clear from Table 2, which describes the main causes of death in Gaza before the war (compare Maharatna, 1996, pp. 217–8). And this, too, would have an impact on the course and character of the famine.

The health situation in Gaza had deteriorated very quickly in the wake of the invasion. During the first month 33,551 cases of diarrhoea were reported, half of them young children, and there were “8,944 cases of scabies and lice, 1,005 cases of chickenpox, 12,635 cases of skin rash and 54,866 cases of upper respiratory infections”.¹¹ Within a year of the invasion, the number of cases of respiratory infections had risen to 1.1 million, that of acute diarrhoea 669,000, that of acute jaundice 132,000, and that of skin disease 225,000.¹²

There was talk of the threat of famine in Gaza very soon after the imposition of a full Israeli blockade on 8 October 2023 (e.g. Nolen, 2024a; 2024b). The situation in northern Gaza, in particular, in the spring of 2024 attracted a lot of attention, with a report by the IPC's Famine Review Committee confirming that:

¹⁰ Palestinian Central Bureau of Statistics, *Press release on the occasion of the International Day Of Persons with Disabilities*, 03/12/2023 (on mental health); UN, *Public Health Situation Analysis*, May 2, 2024 (on vaccination) (https://www.un.org/unispal/wp-content/uploads/2024/05/WHO-PHSA-oPt-020524-FINAL.pdf?utm_source=chatgpt.com).

¹¹ WHO, ‘Risk of disease spread soars in Gaza as health facilities, water and sanitation systems disrupted’, 8 November 2023 (<https://www.emro.who.int/opt/news/risk-of-disease-spread-soars-in-gaza-as-health-facilities-water-and-sanitation-systems-disrupted.html>).

¹² WHO Regional Office for the Mediterranean, ‘Health Policies Biweekly Bulletin’, 3 October to 16 October 2024. (<https://applications.emro.who.int/docs/WHOEMCSR797E-eng.pdf>).

Table 1: Health and Human Capital c. 2020-22: Gaza and Elsewhere

<i>Measure</i>	<i>Gaza</i>	<i>'Low Income'</i>	<i>'Lower Middle Income'</i>	<i>'Middle Income'</i>
IMR (per 1,000)	11	43	33	26
MMR (per 100,000 live births)	17.4	446	235	174
Life expectancy (years)	74	65	70	73
Literacy %	97	64	78	88
School enrolment (primary) %	99	81	87	90
TFR	3.9	4.7	2.6	2.1
GDP/capita	2,713	2,327	9,990	17,014
Improved drinking water (%)	98.9	29	64	...
Physicians (per 1,000)	2.7	0.4	0.7	1.4
Children <5 underweight (%)	2.1	18.0	17.7	12.7
Low birthweight (%)	8	...	21	16
Vaccination against DPT (%)	99	85		

Sources: https://theodora.com/world_fact_book_2023/gaza_strip/gaza_strip_people.html; State of Palestine, Health Annual Report 2022; World Bank Database.

Note: On maternal mortality in Gaza in 2022, see Lotfi Sroor and Hadill Masri, *Maternal Mortality West Bank 2022 Report*, p. 12. The vaccination rates refer to children aged 12-23 months.

Table 2: Top Ten Causes of Death in Gaza Strip 2022

<i>Rank</i>	<i>Cause</i>	<i>%</i>
1	Ischemic heart diseases	17.8
2	Malignant neoplasm	15.1
3	Cerebrovascular disease	11.6
4	COVID-19	6.8
5	Unknown causes	5.8
6	Diseases of respiratory system	4.3
7	Congenital malformations	3.9
8	Hypertensive heart disease	3.8
9	Diseases in the perinatal period	3.3
10	Diabetes mellitus	3.2

Source: State of Palestine, Health Annual Report 2022.

Famine is now projected and imminent in the North Gaza and Gaza Governorates and is expected to become manifest during the projection period from mid-March 2024 to May 2024¹³ (see Table 3).

¹³ IPC, *Famine Review Committee: Gaza Strip*, March 2024, p. 2; Devereux, 2024, pp. 10-11.

Israeli media accused the IPC of crying wolf,¹⁴ and, indeed, the famine predicted in March 2024 did not materialise. The EU-funded Food Security Information Network¹⁵ stated that the projected famine had been “averted due to the scale-up of the humanitarian response”, and warned that if the blockade imposed in the spring of 2025 lasted, “acute food insecurity, malnutrition and mortality will surpass famine (IPC Phase 5) thresholds during May to September 2025.” The full blockade, during which virtually no food was allowed in, lasted 11 weeks (from 2 March to 19 May 2025) and, as noted, conditions deteriorated in the following weeks.¹⁶

During the ceasefire of January and February 2025 Gaza was heavily stocked with basic food supplies. Those supplies turned out to be crucial, given that no food entered Gaza during March and April and that deliveries were below the minimum required for subsistence thereafter.¹⁷ As the crisis reached a peak, looting by unidentified bands of armed individuals surged. Nine-tenths of the trucks entering Gaza in July 2025 were looted, while in August the share was two-thirds. And so in Gaza, like other famine locations throughout history, at this point social and cultural norms were coming under strain, and state institutions were on the verge of collapsing. In early June 2025 the UN’s Office for the Coordination of Humanitarian Affairs was describing how families were increasingly resorting to new, unsafe survival strategies, including reliance on child labour and “a sharp rise in forced child marriage and family separation”.¹⁸ The combination of blockade, forced displacement, and indiscriminate bombardment made life intolerable.

However, the IPC did not declare “likely famine ... with reasonable evidence” in the Gaza governorate until 22 August, at which time it also declared famine to be imminent in Khan Younis and Deir al-Balah governorates. Fortunately, famine did not materialise in the latter two governorates, and our information on deaths suggests that the worst was over in the Gaza governorate by 22 August. The severe humanitarian crisis in Gaza was far from over, however.

Predictably, not everybody in Israel was convinced by warnings of famine in Gaza.¹⁹ But on 27 July Hebrew University economist Yannay Spitzer (2025) drew

¹⁴ *Times of Israel*, ‘Israel rejects ‘biased’ warning of famine in Gaza, says aid trucks enter war-torn towns’, 9 November 2024; *Times of Israel*, ‘New study: There was no famine in Gaza... according to famine review groups’ own data’, 12 February 2025.

¹⁵ Food Security Information Network, 2025 *Global Report on Human Crises* [<https://www.fsinplatform.org/report/global-report-food-crises-2025/>].

¹⁶ The worsening situation is captured in real time by the data on wasting in children collected by Horino *et al.* (2025).

¹⁷ I am grateful to Yannay Spitzer for insisting on this point.

¹⁸ UNOCHA, *Gaza Humanitarian Response Update* / 25 May-7 June 2025.

(<https://www.ochaopt.org/content/gaza-humanitarian-response-update-25-may-7-june-2025>).

¹⁹ A senior Israeli spokesman described the IPC’s declaration in August 2025 as “deeply flawed, unprofessional and gravely missing the standards expected from an international body entrusted with such a serious responsibility” (<https://www.jns.org/israels-foreign-ministry-decries-ipc-food-security-entities-20>

**Table 3: Course of the Crisis by IPC Phase, Nov 23 to July 25
(percentages in Phases 1 to 5)**

IPC Phase	Dec 2023	Feb 2024	May 2024	Sep 2024	Apr 2025	Aug 2025	Dec 2025
<i>Gaza Strip</i>							
1	0	0	0	0	0	0	0
2	7	5	5	14	7	0	23
3	34	26	51	49	37	20	50
4	42	39	29	31	44	54	27
5	17	30	15	6	12	26	0
<i>Gaza/Northern Governorates</i>							
1	0	0	0	0	0	0	0
2	5	0	0	10	5	0	15
3	30	20	35	45	35	20	50
4	40	45	45	35	45	50	30
5	25	30	20	10	15	30	5

Source: IPC Population Tracking Tool (<https://www.ipcinfo.org/ipc-country-analysis/population-tracking-tool/en/>).

attention in *Ha'aretz* to the huge increases taking place in the price of staple items such as rice. He wrote:

To the best of our knowledge there is no precedent in economic history for a documented famine crisis – outside of total war – where food prices soared like they have in Gaza. Very few households can sustain themselves under such scarcity for more than a few days.

Spitzer's intervention attracted considerable attention.²⁰ Rises of the kind witnessed in Gaza – a thirty to forty-fold rise in the price of flour in southern Gaza in late 2024 and early 2025, and an even higher increase throughout Gaza between April and July 2025 – cannot be explained by hoarding, whether by private speculators or by Hamas. In Gaza the kind of “speculative withdrawal and panic purchase of [food] stocks ... encouraged by administrative chaos” claimed by Sen (1981, pp. 63, 76) for Bengal in 1943 was not a feature.²¹ Presumably markets were very

²⁰ See also *Ask Haviv Anything*, ‘Episode 35: Solving hunger in Gaza with Prof. Yannay Spitzer’ (<https://www.youtube.com/watch?v=t6akDMYIHZM>).

²¹ A shortage of paper money during much of 2025 made it difficult to carry out transactions, including accessing food and other basic necessities. Banks and merchants took advantage, or else were forced into the situation of selling cash for high commissions. The cash out commission rate rose from 17 per cent in January 2025 to a peak of 42 per cent in June-July 2025, and 47 per cent on 28 July, falling back thereafter to about 20 per cent in October 2025. The shortage of money would have tended to restrict, rather than to exacerbate, any rise in prices.

thin at those prices; note too that, as elsewhere during the two world wars, the price of the staple food rose much more than those of discretionary foods (Ó Gráda, 2024, pp. 53-7).

III PRICES IN A TIME OF WAR

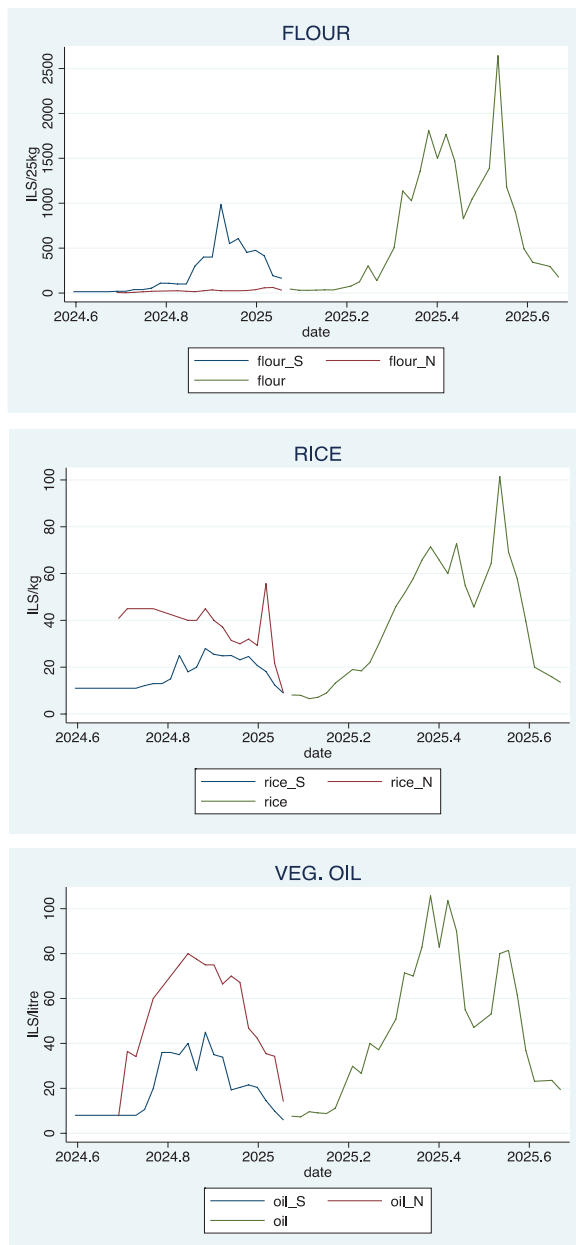
From the beginning of August 2024, the Gaza Chambers of Commerce collected data on a range of essential food and other items on a daily basis. At the outset, the data were collected from markets south of Wadi Gaza, specifically in those in Nuseirat, Deir al-Balah, and Khan Younis, but from 12 September data were also collected for the northern part of the Strip. At that point, all goods cost more in the north than in the south, with the exceptions of flour and lemon. The lower price of flour in the north was attributed to:

*the entry of more than sufficient quantities ... as humanitarian aid, as well as the number of operating bakeries there, whereas lemons were cheaper because of local cultivation and “the small population there”.*²²

However, the price of flour in the south would soon rise way above that in the north, as the IDF’s campaign focused on the southern part of Gaza and the impact of displacement and the reduction of food imports began to bite. However, from late January 2025 on, only one price is given for the whole of Gaza (Figure 3).

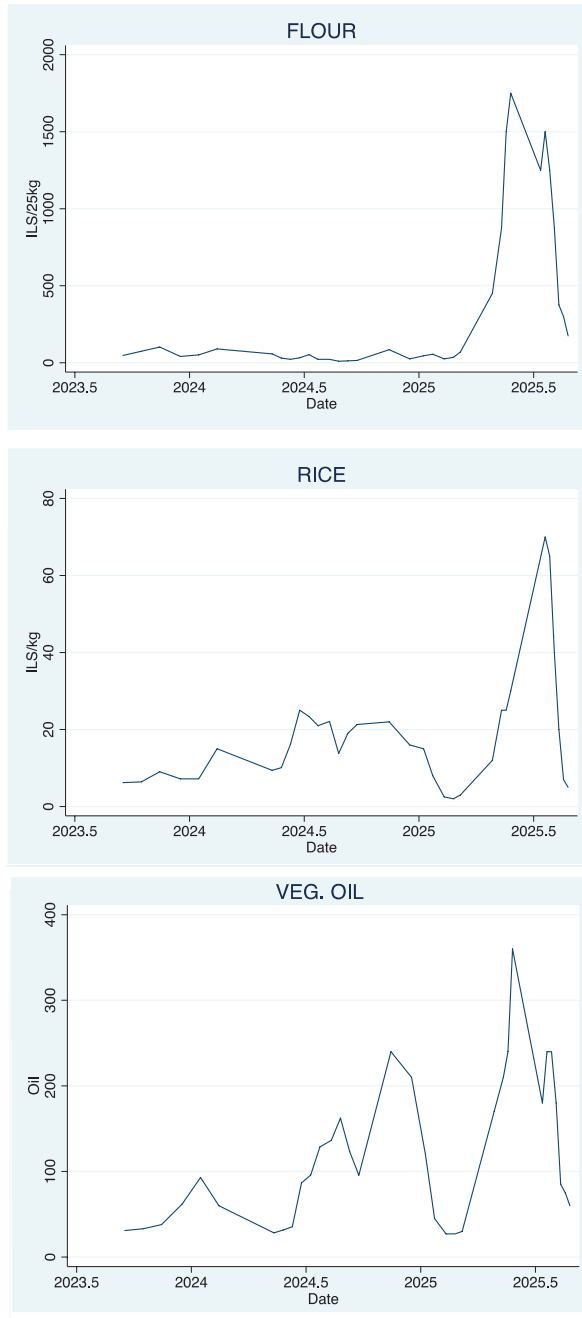
The prices of food and several other items in Gaza were also monitored by the World Food Programme. Figure 4 describes movements in the WFP prices of rice, flour, and vegetable oil in Gaza between mid-2024 and late 2025. Note again the differential impact of the war on prices in Gaza city and the centre, on the one hand, and Khan Younis and the south on the other: between September 2024 and late January 2025, due to intensified military operations, population displacement, and a virtual halt to commercial food imports because of looting on the route from the Kerem Shalom crossing to Khan Younis, the price of flour in the south was much higher than it was in the north. From late January 2025 on, in the wake of the ceasefire, southern and northern prices converged and Gaza could be considered a single market. In its report for June 2025 the WFP described rises in the price of wheat flour “of up to 4,900 per cent since late February and over 3,000 per cent compared to pre-conflict levels”, noting that “the extreme price spikes [were] driven more by market expectations than availability.” In such unstable and extreme circumstances some deviations in prices from place to place were inevitable; so, for example, at the end of May the kilogramme of flour which might be obtained for 20-30 ILS per kg near relief convoys in Khan Younis and at 45-50 ILS in Deir

²² FPCCIA, Gaza Movement of Goods Weekly Report, Week 6, 26 Sept. 2024, p. 16.

Figure 3: Prices of Flour, Rice, and Oil in Gaza, June 2024 to June 2025

Source: Gaza Chamber of Commerce (e.g. <https://efaidnbmnnnibpcajpcglclefindmkaj/https://www.gazacham.ps/Uploads/InformationCenter/f3dd8626bd1d4371926fdbb0bfe775ac.pdf>)

Note: _S and _N denote in the south and north of the country.

Figure 4: Prices of Rice, Flour, and Oil in Gaza 2023-2025 (WFP)

Source: World Food Programme. (e.g. <https://fscluster.org/state-of-palestine/document/gaza-market-monitor-august-2025-wfp-0>)).

al Balah, cost 65 ILS in Gaza City on 31 May and 45 ILS a day later.²³ At such a price the calories needed to keep the population barely alive for a year would cost five times Gaza's pre-war GDP.²⁴ The situation in the second half of July was "the worst it's been since the start of the conflict; prices soared to unprecedented levels and almost all essential food items went missing from the markets".²⁵ Then in late July prices fell significantly due to a relaxation of the IDF's policy that enabled a significant increase in the amount of humanitarian aid entering Gaza. Still, prices remained out of the reach of most, being multiples higher than September 2023 levels (Table A.1).

Even before the war, Gaza was heavily reliant on food imports. After 7 October it was almost entirely reliant, so that data on border crossings by trucks (Figure 5) are a fair proxy for food movements and consumption. Crossings came to a virtual halt in the wake of 7 October 2023 and also between late February and 19 May 2025. Between 19 May and 27 July, food was being allowed in, both through the international aid organisations and the US-Israel-supported Gaza Humanitarian Foundation, but the overall quantity was far below the bare minimum quantity needed for subsistence. The data are subject to three caveats. First, they are contested; whereas those produced by the OCHA include only trucks verified by the UN in Gaza, COGAT include both humanitarian and commercial trucks cleared by the Israeli authorities. Second, as the situation worsened, food constituted an increasing share of goods carried over time (e.g. 68 per cent in January 2024, 80 per cent in December 2024, 99 per cent in the second half of July 2025). Third, looting at the height of the crisis was a major problem: of the 803 trucks that entered in the second half of July 2025, 774 (96.4 per cent) were looted and their contents diverted from intended recipients.²⁶ The communal kitchens run by the WFP and the World Central Kitchen were also routinely looted at that time. The chaos disadvantaged the weakest at the expense of those linked to looting gangs, the able-bodied who could carry heavy loads and those who were willing to take significant risk.

The Gaza Humanitarian Foundation played an increasingly important but controversial²⁷ role between late May and September 2025. At the outset its distribution points were linked to horrific instances of bloodshed, reflecting both

²³ WFP, *Market Monitor Gaza: Food Security Analysis*, June 2025, p.1 (<https://wssd.mosd.gov.ps/wp-content/uploads/2025/07/WFP-0000166964.pdf>).

²⁴ On the assumption that 1kg of flour contains 3,500 calories, or enough to keep 1.5 people alive.

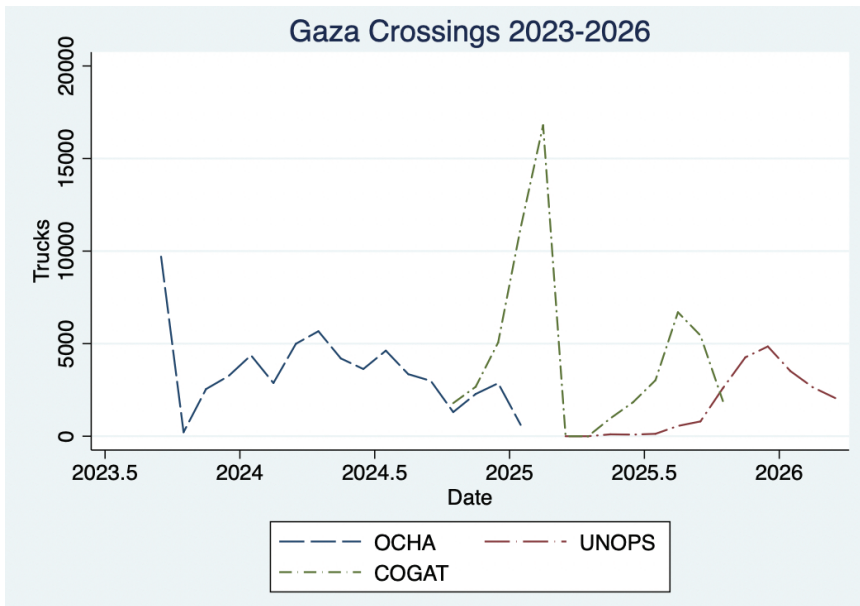
²⁵ OCHA, *Humanitarian Situation Update #311|Gaza Strip* (<https://www.ochaopt.org/content/humanitarian-situation-update-311-gaza-strip>).

²⁶ Federation of Palestinian Chambers of Commerce, Industry, and Agriculture, 'Gaza Movement of Goods Weekly Report', Weeks 51-52, p. 2.

²⁷ Alex de Waal, 'Israel's food points are not just death traps: they're an alibi for the starvation of Gaza', *The Guardian*, 26 July 2025; Save the Children *et al.*, 2025: 'Gaza – Starvation or Gunfire: This is not a Humanitarian Response', 1 July 2025 (<https://www.savethechildren.net/news/gaza-starvation-or-gunfire-not-humanitarian-response>).

army brutality and the risks which people were prepared to take in search of food. The GHF was never transparent about how much food it distributed, but an informed source tells me that it was responsible for “anything between a third and half of the food entering Gaza in June-August”. So, on the one hand, GHF’s actions can only have alleviated the desperate situation which led to its foundation; on the other, its *modus operandi* may well have caused more deaths than the famine caused starvation deaths.²⁸ Additionally, the loosening of restrictions of food trucks probably prevented the famine from becoming a catastrophe.

Figure 5: Trucks crossing per month



Source: UN office for the Coordination of Humanitarian Affairs (OCHA); UN 2720 Mechanism for Gaza (UNOPS); Humanitarian Affairs Israel (COGAT).²⁹

3.1 “Deaths from Inanition”:

People died in the resulting famine, but how many? Death tolls during famines are often controversial because they are easily translated into measures of culpability. One has only to mention North Korea in the mid-1990s, China in 1959-1961, Vietnam in 1944-1945, Bengal in 1943-1944, or Ireland in the latter half of the

²⁸ According to a report issued by the UN Commissioner for Human Rights on 5 August 2025, “At least 859 people have been killed around GHF sites since the beginning of GHF’s operations in late May 2025” (UN OHCHR, ‘UN experts call for immediate dismantling of Gaza Humanitarian Foundation’ (press release), 5 August 2025; <https://www.ohchr.org/en/press-releases/2025/08/un-experts-call-immediate-dismantling-gaza-humanitarian-foundation>).

²⁹ The data may be found online at <https://www.ochaopt.org/data/crossings> (OCHA); <https://app.un2720.org/tracking/arrived> (UNOPS); and <https://gaza-aid-data.gov.il/mainhome/> (COGAT).

1840s. At the height of the Irish Famine in early 1847, prime minister Lord John Russell waved away demands for a census of famine deaths with the remark that “a man found dead in the fields would probably be mentioned in the police returns as having died of starvation” – as, of course, he should have been (as cited in Ó Gráda, 1999, p. 84). But the leader of the Opposition protested that “The time will come when we shall know what the amount of mortality has been, and though you may groan, and try to keep the truth down, it shall be known” (Ó Gráda, 1993: 104). In lieu of an official count, the Repeal Association carried out a partial “death census” with the help of the Catholic clergy: but only about one parish in ten produced estimates, and the sample was not random (Kennedy *et al.*, 2023). The Irish example is also a reminder of another important point about famines: mortality was relatively limited in 1845-1846, a reminder that even in very poor places it takes time to produce catastrophic outcomes.

In December 2024 the number of deaths since 8 October 2023 attributed to famine or malnutrition by the Gaza Ministry of Health was still small: thirty-two (de Waal, 2025). On 22 May 2025 the Minister of Health revealed that “in the last couple of days” 29 children and elderly people had succumbed to starvation.³⁰ The cumulative figure of 86 for deaths from starvation and malnutrition released on 20 July would imply 25 deaths between 22 May and 19 July, if there were no deaths between January 2025 and shortly before 22 May 2025. A daily record of deaths officially attributed to malnutrition and famine³¹ is available from 20 July on, as described in Figure 6. Note that the daily data on deaths began to appear just as the price of rice peaked; the price of flour had already peaked a few weeks earlier. The number of deaths rose at a diminishing rate almost from the start but remained high till the end of August; thereafter there were strong signs that the worst was over. From 7 October on the cumulative totals remained at 463, of whom 157 were children.

Between 20 July and 11 October, 377 deaths from starvation or malnutrition were recorded. 253 of those occurred between 20 July and the end of August, when the crisis was at its most intense. Such a toll would represent an annualised rate of 1 per 1,000 population.³² But the IPC’s mortality criterion of 2 per 1,000 per day translates into an annual 73 per 1,000, as noted above. Thereafter conditions on the ground improved and on 19 December, the IPC declared that there was no longer famine in Gaza.

Naturally, that is not the end of the story. Critics have repeatedly accused the Ministry of Health of faking the numbers. Caution is certainly in order but in the

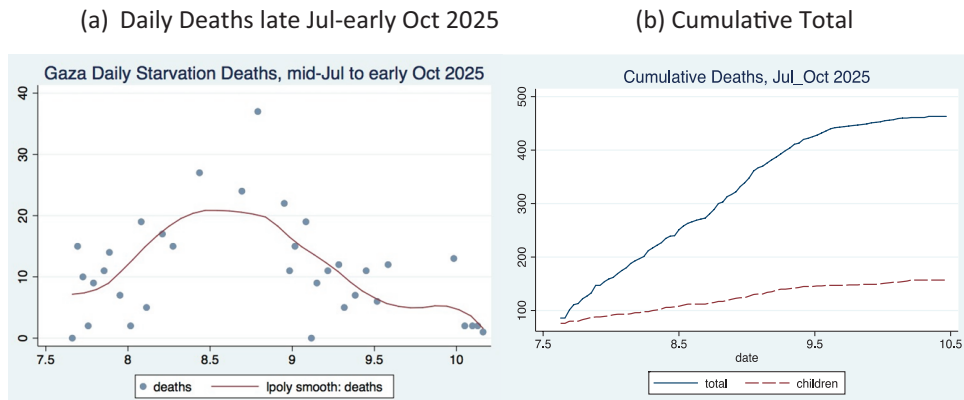
³⁰ Reuters, ‘Palestinian minister reports 29 starvation-related deaths among Gazan children, elderly’: available at <https://www.reuters.com/world/middle-east/palestinian-minister-reports-29-starvation-related-deaths-among-gazan-children-2025-05-22/>.

³¹ Obtained from <https://data.techforpalestine.org/ar/docs/casualties-daily/>. Towards the end the data are no longer provided daily, and the data are interpolated to allow for this.

³² Or $(253 \times 365 \times 1,000) / (43 \times 2,100,000)$.

case at hand the issue is not exaggeration but underreporting. Indeed, there are grounds for arguing that the MOH figure is an underestimate, given the conditions imposed by the relentless bombardment and resultant mass displacements. A stigma about giving starvation as the cause of death on death certificates may also have played a role.³³ But there is no obvious way of knowing how many starvation deaths have been missed. Nor is there any firm information available on the gender, age, or socioeconomic status of those who perished.

Figure 6: Reported Famine Deaths in Gaza



Source: Gaza Ministry of Health (as tabulated in: <https://data.techforpalestine.org/docs/killed-in-gaza/>).

IV DISEASES MATTER

Irish physician Dominic Corrigan stated at the very outset of the Great Irish Famine that “If there be no famine, there will be no fever”. As it turned out, fevers – broadly defined as infectious diseases – were responsible for most of the deaths attributable to the Irish Famine (Corrigan 1846, p. 33; Mokyr and Ó Gráda 2002). And that is the common pattern for famines before the twentieth century. What of Gaza? One of the most difficult questions to answer about Gaza is whether and how much famine-related diseases added to the death toll. And the IPC guidelines make a relevant point here:

Death rates need to be directly attributable to outright starvation or to the interaction of food consumption deficits and disease; all deaths due to trauma should therefore be discounted from death rates (IPC, 2021, p. 86).

³³ Alex de Waal tells me that the stigma runs very deep, and that several health workers have informed him that there was serious under-registration (email, November 26, 2025).

The first point to remember is that, to repeat, while Gaza before the invasion was very poor in material terms, it was rich in human capital relative to textbook underdeveloped economies. And for that reason, infectious diseases were not rampant there on the eve of the war. The second is that the war created an ideal environment for infectious diseases to flourish in, with a chronic scarcity of clean water, “damaged sewage systems, severe overcrowding, waste accumulation, high insect populations, damaged health facilities, and insufficient vaccination coverage”.³⁴ As a result, there were huge increases in the incidence of scabies, chickenpox, hepatitis A, upper respiratory infections, and diarrheal diseases. But a point requiring some emphasis is that despite warnings from various quarters³⁵ about conditions conducive to the spread of lethal diseases, none of the adjuncts of famine in backward economies such as typhus, tick-borne relapsing fever, polio, cholera, malaria, and typhoid fever – all associated with deteriorating sanitary conditions – made an appearance.

The case of polio is particularly interesting. Before the invasion, community engagement and awareness meant that high immunisation rates could be maintained in the Gaza Strip. After a suspected case of polio was detected in Deir al-Balah in an unvaccinated 10-month old child in July 2024, a mass two-dose polio vaccination campaign was carried out by the Palestinian Ministry of Health with support from WHO, UNICEF, and UNRWA, which reached nearly 600,000 children aged under 10. The success of the campaign using novel oral polio vaccine type 2 (nOPV2) depended on there being a ceasefire in operation. The vaccination was carried out before the start of the total blockade in early 2025.³⁶ In addition, during the war UNRWA personnel provided over 15 million “health consultations”: 10 million by UNRWA doctors and 5 million by nurses and others “for vaccination, health checks, and counselling”.³⁷ That is equivalent to seven to eight consultations per head of population. UNRWA’s remit included ensuring the provision of clean water, the removal of thousands of tons of solid waste to temporary dumping sites, conducting hygiene awareness sessions and cleaning campaigns, and much more.

The deteriorating public health situation in Gaza can be traced from week to week through the relevant sections in UNRWA’s weekly *Situation Reports*. During the spring of 2025 its medical teams still focused on health consultations with post-

³⁴ Samia Boussaa, Zuhair Dardona, and Mounia Amane, ‘Challenges and risk factors for infectious diseases in Gaza due to the current conflict’, *East Mediterranean Health Journal*, 31(2) (2025), pp.127–133, <https://doi.org/10.26719/2025.31.2.127>.

³⁵ E.g. barely a week after 7 October OXFAM warned of “an outbreak of deadly infectious diseases, like cholera” (<https://www.oxfam.org/en/tags/gaza?page=8>), a warning echoed by UNRWA on X in June 2024 (<https://x.com/UNRWA/status/1798624525405598083>).

³⁶ See https://en.wikipedia.org/wiki/2024_Gaza_Strip_polio_epidemic; also <https://www.who.int/news/item/28-02-2025-humanitarian-access-improves-quality-of-polio-vaccination-campaign-in-the-gaza-strip>.

³⁷ UNRWA Situation Report 194 on the Humanitarian Crisis in the Gaza Strip ..., 27 October 2025 (<https://www.unrwa.org/resources/reports/unrwa-situation-report-194-situation-gaza-strip-and-west-bank-including-east-jerusalem>).

natal and pregnant women, physiotherapy rehabilitation, mental and psychosocial stress, treating non-communicable diseases and injuries, dental care, handing out medicines, providing vaccinations, and the like. The lack of mentions of infectious diseases is striking. It was only from July 2025 on, as the crisis reached a peak, that the reports refer to a rise in the incidence of water-borne diseases, with:

acute watery diarrhoea accounting for 39 per cent of reported illnesses, alongside emerging cases of bloody diarrhoea and acute jaundice syndrome reported at overcrowded displacement sites (11 July).

Severe dehydration, acute jaundice syndrome and bloody diarrhoea ... also on the rise... between 1 and 9 July, 178 suspected cases of meningitis were reported,³⁸ the majority of which were among children under one year of age (18 July).

Mentions of cases of acute flaccid paralysis (possibly though not necessarily a symptom linked to polio) (25 July), and Guillain-Barré Syndrome (GBS), a rare neurological disorder, followed (1 August). By 5 September the total number of suspected GBS cases had risen to 101 with ten associated deaths reported. A week later “acute watery diarrhoea” still featured prominently. But then all mentions of diarrhoea and infectious diseases suddenly cease. There were apparently no outbreaks of cholera or typhus in Gaza, or of typhoid fever, another disease associated with the weakened immunity and poor sanitation associated with famine.

My tentative reading of these reports is that infectious diseases caused relatively few deaths in July or August 2025, at the height of the famine in Gaza. If borne out as more detailed information becomes available, that would be a remarkable outcome. More generally, deaths directly due to famine were only a small fraction of civilian deaths in Gaza since October 2023 – 1 per cent, perhaps, at a rough guess. During the First World War, by contrast, famines accounted for nearly four-fifths of all civilian deaths, and during the Second World War for nearly half (Ó Gráda, 2024: 395).

The crisis in Gaza also resulted in a striking reduction in the number of births. According to the General Director of Gaza’s Ministry of Health, Dr. Munir Al Borsh, only 17,000 births were recorded in the first half of 2025 (and therefore conceived between March and September 2024), compared to 29,000 births during the same period in 2022 – a reduction of over two-fifths.³⁹ Even allowing for the

³⁸ That would have been far more than the seasonal norm.

³⁹ OCHA, *Humanitarian Situation Update #306* | Gaza Strip (<https://www.ochaopt.org/content/humanitarian-situation-update-306-gaza-strip>). Comparable data for before 7 October 2023 are scarce. Data compiled from the archives of the Nasser Medical Complex in south Gaza found an increase of from 8.5 to 12.5 per cent in miscarriages (Abushnena *et al.*, 2025). A 2012 study of over 4,000 at Al Shifa hospital, where over one-fourth of all births in Gaza occurred at the time, reported that 1.4 per cent born with major structural birth defects and 2 per cent born prematurely (Naim *et al.*, 2012).

likelihood that not all births were recorded, the implied reduction in births in Gaza is striking. In past famines such a reduction would be attributed in large part to a malnutrition-induced reduction in fertility; but in Gaza in 2025 factors such as war deaths, a fall-off in registrations, the dislocation and displacement caused by the war, a decline in libido due to malnutrition, and, not least, family planning,⁴⁰ are more plausible reasons.

V FINALLY

By what definition was there a famine in Gaza? Clearly, according to the strict criteria laid down by the IPC there was not. But by the definition I gave at the outset there was, and the price data argue likewise. A more interesting question is why there wasn't a *major* famine in Gaza, given the protracted bombardment, displacement, and blockade forced on the civilian population. It is too soon for a definitive answer, but part of the answer surely lies in Gaza's endowments of human and social capital. Despite the inevitable looting when the crisis was at its peak, most seems to have been made of what little food there was.

In due course, demographers will discover something closer to the true death toll in Gaza. It may turn out to be considerably higher than the figures on hunger and starvation deaths from the Gaza Ministry of Health. Beyond that, again, it is just too soon to say. My suggestion that the man-made Gaza famine was a "modern" famine – in the sense that deaths from hunger-induced infectious disease are relatively limited in such crises (Ó Gráda, 2009, pp. 116-7) – is based on my reading of conditions before 7 October 2023, on impressionistic evidence provided in UNRWA's invaluable weekly *Situation Reports*, and other similar information. If I am wrong, then the much bleaker scenarios described by Stephen Devereux (2024), Alex de Waal (2025), Epicentre/MSF (2025), and Michael Spagat *et al.* (2025) will obtain. To add to the horror, we should not forget that the evil famines do lives after them: deaths alone are only a partial measure of the damage that they cause, in terms of lasting damage to susceptibility to diseases, cognitive ability, mental health disorders, and more (compare Ó Gráda *et al.* 2024; Li *et al.* 2025). But if it turns out that the death toll from starvation and associated diseases was modest, relief agencies such as UNRWA and the WFP, NGOs such as MSF and the Palestinian Red Crescent, can take much of the credit.

⁴⁰ Before the invasion about 59 per cent of married women in Gaza were availing of family planning, and even though the war disrupted supplies, usage was also common during it. See UNFPA in Palestine, 'Palestinian Multiple Indicators Cluster Survey (PMICS) Announced', December 15, 2020 (https://palestine.unfpa.org/en/news/palestinian-multiple-indicators-cluster-survey-pmics-2019-2020-announced?utm_source=chatgpt.com).

The catastrophic toll inflicted in Gaza on innocent civilians, mainly by indiscriminate bombardment, are probably unique in modern history. In times to come I suspect they will be better remembered than the much, much smaller number who succumbed to starvation and related diseases.

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Table A.1: Prices of Flour, Rice, and Vegetable Oil in Gaza
Sept 2024-Oct 2025

Date (week starting	Flour (ILS/25kg)		Rice (ILS/kg)		Vegetable Oil (ILS/kg)	
	North	South	North	South	North	South
Sept 12	6	20				
Sept 18	3	20				
Sept 25	8.17	38				
Oct 1	14.14	38.86				
Oct 8	20	55				
Oct 15		110				
Oct 22		108				
Oct 29	25	100				
Nov 5	20	100				
Nov 12	15	300				
Nov 19	25	400				
Nov 26	35.0	400.0	40.0	25.5	75.0	35.0
Dec 3	25.8	985.7	37.1	24.9	66.4	33.9
Dec 10	25.0	550.0	31.4	25.0	70.0	19.3
Dec 17	25.0	607.1	30.0	23.1	67.1	20.4
Dec 24	27.1	453.6	32.0	24.6	46.8	21.6
Dec 31	37.1	475.0	29.3	20.7	42.3	20.4
Jan 7	58.3	414.3	55.7	18.1	35.4	14.6
Jan 14	61.7	192.9	21.7	12.4	34.3	9.9
Jan 21	32.9	165.0	9.2	9.0	14.3	6.0
Jan 28						7.6
Feb 4						7.3
Feb 11						9.6

Table A.1: Prices of Flour, Rice, and Vegetable Oil in Gaza
Sept 2024-Oct 2025 (Contd.)

Date (week starting	Flour (ILS/25kg)		Rice (ILS/kg)		Vegetable Oil (ILS/kg)	
	North	South	North	South	North	South
Jul 29						61.7
Aug 5		903.6				36.9
Aug 12		492.9				23.1
Aug 19		342.9				23.6
Aug 26		296.4				19.4
Sep 1		178.1				19.9
Sep 8		210.7				15.4
Sep 15		178.6				17.0
Sep 22		198.0				16.3
Sep 29		123.3				
Oct 6	163.6	82.5	14.4	12.2	17.4	14.3
Nov 1-8	228.0	58.3	13.5	10.2	18.4	10.2
Pre-Oct 23						24
						31

Source: Gaza Chambers of Commerce; WFP Palestine Food Security Analysis Market Monitor, November 2025 (<https://docs.wfp.org/api/documents/WFP-0000170222>).