

Geographic Context, the Decline in Oromia, and Regional Disparities in Exclusive Breastfeeding (2024-25 EDHS)

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One of the major contributions of this study is the demonstration that geographic context remains strongly associated with exclusive breastfeeding in Ethiopia. However, the most consequential regional finding is not simply the wide range between the highest- and lowest-prevalence regions. It is the apparent deterioration in exclusive breastfeeding in Oromia, Ethiopia's largest and most populous regional state. In our 2016 analysis, the survey-weighted prevalence of exclusive breastfeeding in Oromia was 56.9%; in the 2024–25 analysis, it was 48.7%, representing a descriptive decline of 8.2 percentage points. Because these estimates derive from separate cross-sectional surveys, formal confirmation of temporal change will require a pooled analysis testing the interaction between survey year and region. Nevertheless, the magnitude and demographic location of the observed decline make it a finding of major national importance.

Oromia cannot be interpreted as merely one of fourteen regional observations. It contains the largest share of Ethiopia's population and accounted for approximately 38% of the weighted analytic population of eligible infants in the present study. Population estimates place the region on the order of 38–41 million residents—roughly comparable in demographic scale to California or Canada and to several medium-sized countries.^{27–29} A deterioration in exclusive breastfeeding affecting a population of this magnitude has the potential to exert disproportionate influence on the national estimate. Even if prevalence improves in several smaller regions, a decline in Oromia can offset those gains and contribute substantially to the persistence of Ethiopia's national EBF prevalence near 58%.

This scale effect changes the interpretation of national stagnation. The national estimate is not an arithmetic average in which each region contributes equally. It is a population-weighted measure dominated by the infant-feeding experiences of Ethiopia's most populous regions, particularly Oromia and Amhara. In the present sample, Oromia alone represented more than one-third of the weighted population of infants aged 0–5 months. Consequently, understanding why EBF appears to have declined in Oromia may be at least as important for national policy as identifying why prevalence remains particularly low in Somali or high in Tigray.

The Oromia finding is also notable because the region was used as the reference category in the multivariable model. Several regions—including Tigray, Amhara, Benishangul-Gumuz, and Southwest Ethiopia—had significantly higher adjusted odds of exclusive breastfeeding relative to Oromia, while Somali had significantly lower odds. Although the reference category facilitates statistical comparison, it can inadvertently make Oromia appear analytically neutral. In substantive terms, however, a prevalence below 50% in the country's largest regional population should be regarded as a central result rather than merely the baseline against which other regions are compared.

The observed decline warrants focused investigation rather than speculative explanation. Oromia is internally heterogeneous, encompassing major urban and peri-urban centers, densely populated agrarian zones, pastoralist and agro-pastoralist communities, remote rural districts, and areas with differing levels of health-service access and program implementation. A single regional estimate therefore combines

populations with markedly different livelihoods, maternal workloads, cultural practices, employment environments, health-system exposure, and security conditions. The EDHS regional sample is sufficient to identify the aggregate pattern but cannot determine which zones, livelihood systems, or population groups account for the decline.

Several plausible pathways should be examined in subsequent research. These include variation in the intensity and continuity of breastfeeding counseling; differences in postnatal and community health-extension contacts; maternal return to agricultural, informal, or salaried work; early introduction of water, milk, or complementary foods; family and community influence; urbanization and exposure to breast-milk substitute marketing; and uneven implementation of maternal and child nutrition programs. These possibilities are supported by broader Ethiopian and African literature, but they were not adequately measured in the present analysis and should therefore be treated as hypotheses rather than as demonstrated explanations.

The decline in Oromia may also help explain why national EBF prevalence has not increased despite favorable trends in other regions. In 2024–25, Tigray, Amhara, Benishangul-Gumuz, and Southwest Ethiopia recorded comparatively high prevalence, but their gains cannot be assumed to translate proportionally into national improvement. Population size matters. A small percentage-point change in Oromia affects many more infants than a similar change in a less populous region. National breastfeeding policy should therefore consider both the **level** of EBF in each region and the **population-weighted contribution** of each region to the national burden of nonexclusive breastfeeding.

At the same time, the findings reveal substantial geographic inequality beyond Oromia. EBF prevalence ranged from 28.9% in Somali to 77.9% in Tigray. These differences persisted after adjustment for infant age, infant sex, maternal education, household wealth, residence, maternal age, and parity. The adjusted predicted probabilities also remained widely separated, indicating that measured maternal and household characteristics did not explain the regional pattern. Regional context therefore appears to capture influences that are not adequately represented by conventional individual-level DHS variables.

The persistence of geographic disparities is broadly consistent with previous Ethiopian spatial and multilevel research, which has shown that breastfeeding practices cluster geographically and vary across community and administrative contexts. Recent national trend analyses have likewise reported substantial and inconsistent changes across Ethiopia's regions, even when the national estimate appears comparatively stable.³⁰ These patterns caution against interpreting national progress as uniform and reinforce the need to examine which populous regions are driving aggregate trends.

The study's treatment of Ethiopia's administrative reorganization provides an additional methodological contribution. Central Ethiopia, Sidama, South Ethiopia, and Southwest Ethiopia were analyzed separately under the current regional structure and combined into a reconstructed former Southern Nations, Nationalities and Peoples' Region for historical comparison. This harmonization preserved continuity with the 2016 analysis. Yet the Oromia finding is unaffected by that boundary adjustment: Oromia remained a distinct and demographically dominant region in both survey rounds. Its apparent decline is therefore not an artifact of the subdivision of the former SNNPR.

These results have direct implications for program prioritization. Low prevalence in Somali requires urgent, context-specific attention, and the strong performance of Tigray, Amhara, Benishangul-Gumuz, and Southwest Ethiopia warrants investigation for potentially transferable practices. Nevertheless, from the standpoint of national impact, reversing the apparent decline in Oromia may offer the greatest

opportunity to shift Ethiopia's overall EBF trajectory. An intervention producing even a modest improvement in Oromia could affect a very large number of infants and materially raise the national prevalence.

The next analytical step should therefore be a formal pooled comparison of the 2016 and 2024–25 surveys. That analysis should harmonize outcome construction, covariates, survey design, and regional definitions; estimate absolute prevalence differences; and test survey-year interactions for Oromia and other regions. In the 2024–25 data, sufficiently powered subregional analyses should also be considered when geographic identifiers permit. Such work would determine whether the observed 8.2-percentage-point decline in Oromia is statistically distinguishable from sampling variation and helps identify the populations within the region where breastfeeding continuation has deteriorated most.

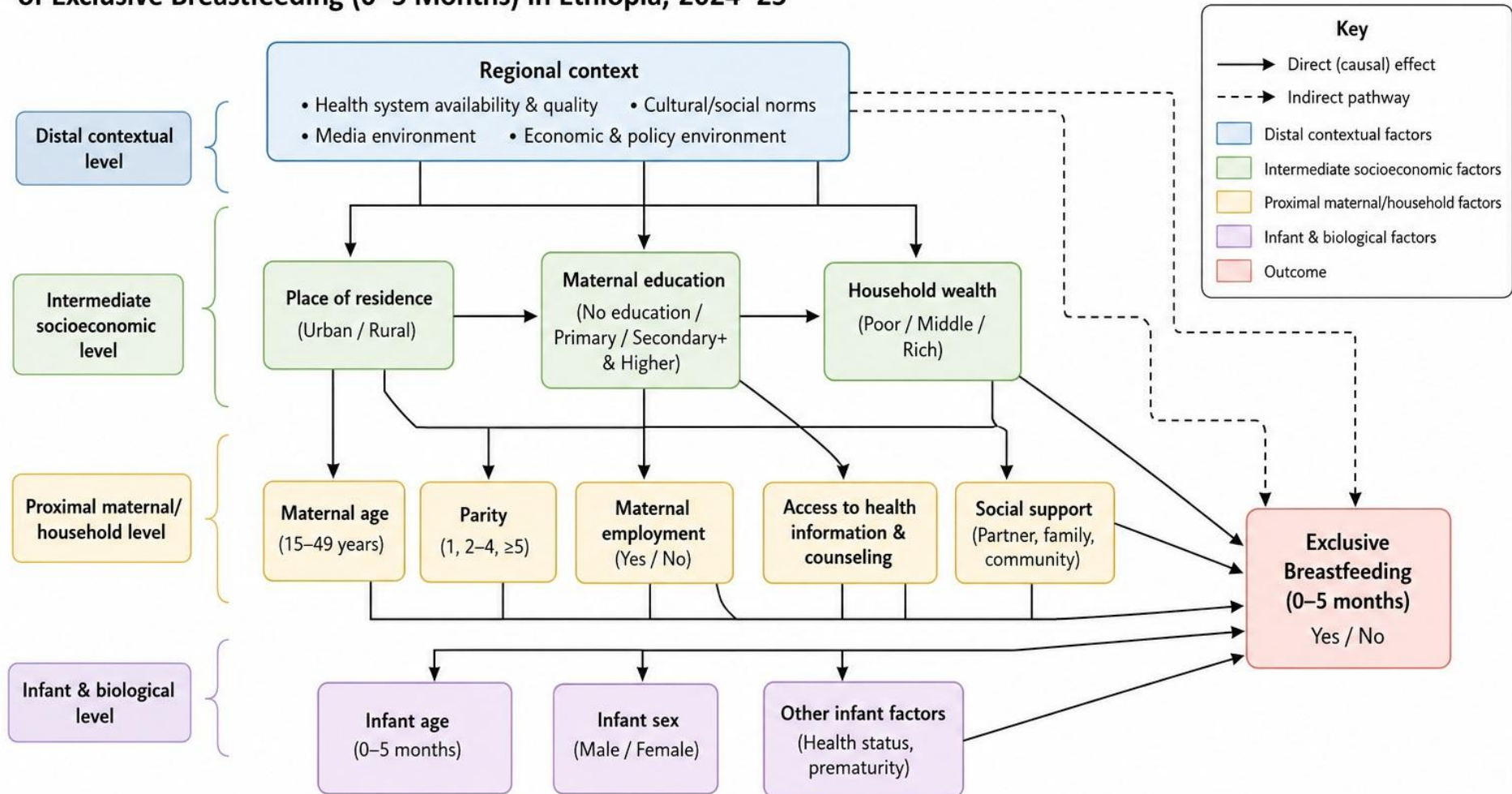
Overall, the regional findings support two complementary conclusions. First, Ethiopia continues to experience severe geographic inequality in exclusive breastfeeding, with regional context remaining independently associated after adjustment for measured maternal and household characteristics. Second, and more consequentially for national progress, exclusive breastfeeding appears to have declined in Oromia, the country's demographic center of gravity. The national EBF plateau may therefore be understood not only as a widespread difficulty in sustaining breastfeeding through months 3–5, but also as a population-weighted consequence of deteriorating continuation in Ethiopia's largest region.

The principal scientific contribution of this study is therefore not simply an updated national prevalence estimate. It demonstrates that Ethiopia's EBF plateau reflects both a persistent failure to sustain breastfeeding through months 3–5 and a population-weighted regional pattern in which deterioration in the country's largest region may offset progress elsewhere. National policy should accordingly prioritize two linked objectives: strengthening continued breastfeeding support throughout later infancy and undertaking focused investigation and intervention in Oromia while maintaining region-specific strategies for other low-performing areas.

Future analyses should formally pool the 2016 and 2024–25 EDHS datasets, harmonize the EBF definition and survey design, and test survey-year-by-region interactions to determine whether the observed decline in Oromia is statistically supported. Such work would clarify the extent to which Oromia has driven national stagnation and help identify the subregional populations and contextual mechanisms most responsible.

By combining rigorous indicator reconstruction and validation, age-specific analysis, contemporary and harmonized regional classifications, survey-weighted multivariable modeling, and comparison with the 2016 findings, this study provides an evidence base for a new phase of breastfeeding policy in Ethiopia—one focused not only on initiating breastfeeding, but on sustaining exclusive breastfeeding through six months and reversing deterioration where it has the greatest national impact.

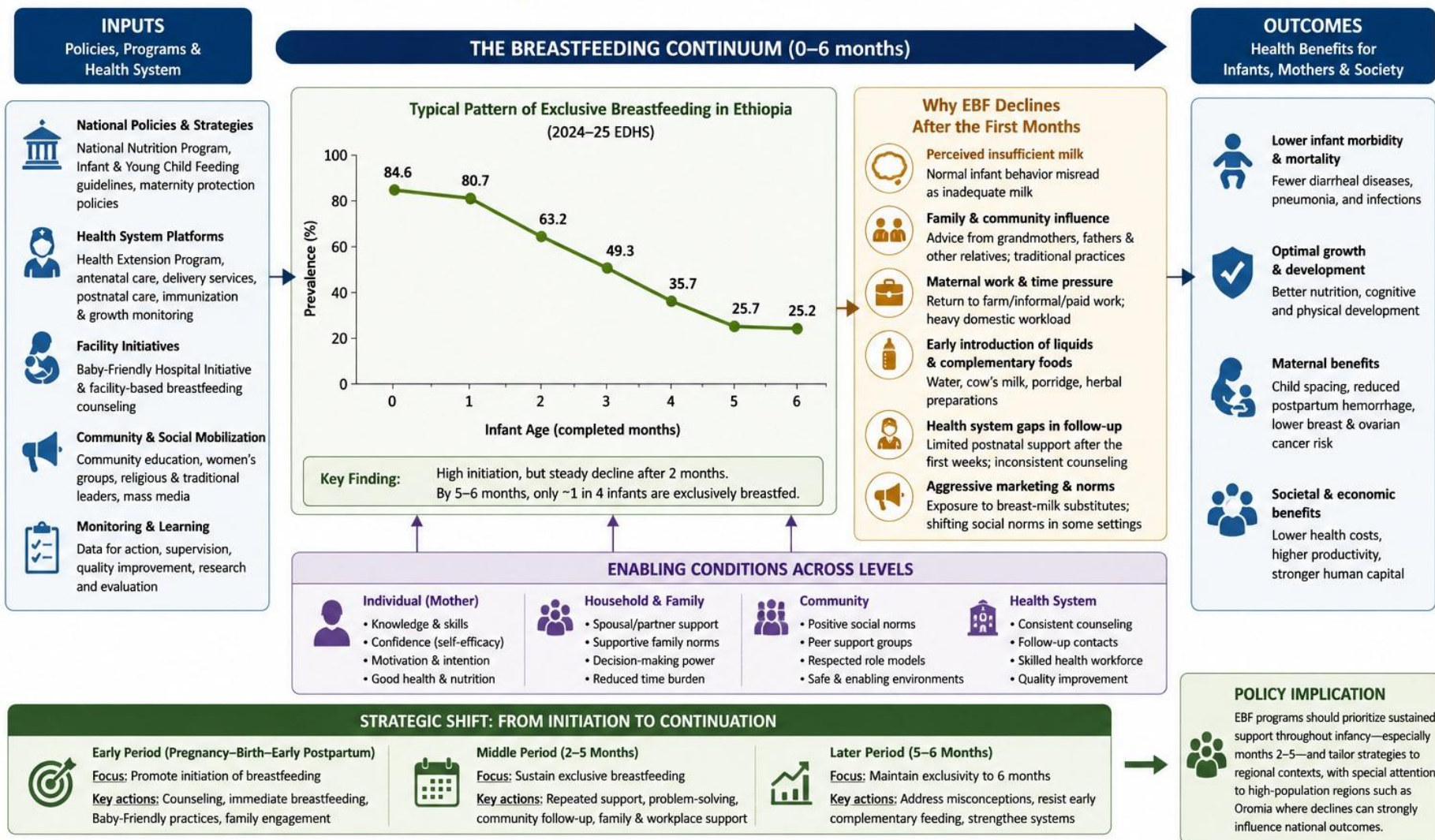
Figure 1. Directed Acyclic Graph (DAG) Showing the Conceptual Framework for Determinants of Exclusive Breastfeeding (0–5 Months) in Ethiopia, 2024–25



Note: The DAG represents hypothesized relationships based on existing literature and theoretical considerations. It is used to guide variable selection and control for confounding in the multivariable logistic regression model. The model adjusts for all variables shown in the boxes.

Figure 2. From Initiation to Continuation: Conceptual Framework for Exclusive Breastfeeding in Ethiopia

Why EBF Declines After the First Months and Where Interventions Should Focus



Abbreviation: EBF = Exclusive Breastfeeding.

Note: The framework integrates findings from the 2024–25 EDHS and existing evidence to guide interpretation and programmatic action.