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ORIGINAL PAPER

Nobody left behind? Equity and the drivers of stunting reduction in Vietnamese ethnic minority populations

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Abstract

Vietnam has successfully reduced population stunting, but ethnic minority groups are being systematically left behind, limiting progress on national reductions. This mixed methods study aims to understand how policy drivers of stunting reduction differ between ethnic majority and minority communities. We used decomposition analysis to explain key determinants of stunting change between 2000 and 2010; and framework analysis to qualitatively assess changes in policy, actors and narratives that have underpinned these over decades. Our analysis shows that stunting reductions are associated with increased household wealth (accounting for 61% of change), improved access to specific health services (16%), and changes in level of maternal education (12%). Despite multiple actors involved in change and a large set of policies designed to address inequities, many among Vietnam's defined ethnic minority groups are not finding themselves able to effectively engage with central government plans for their communities, and central policies often do not consider their preferences or limitations. This in turn impacts the nutrition of minority groups through the determinants above. Vietnam has achieved the easier portion of stunting reduction through national economic growth and sustained commitment to socially-oriented policy. In order to tackle the remaining pockets of high malnutrition, more attention, thought and funding will need to focus on marginalised ethnic minority communities. The current national development discourse aims to incorporate minorities into mainstream majority systems. This paper argues that policy should rather take into account their particular needs and preferences to address and overcome the identified determinants of malnutrition.

Keywords Nutrition · Stunting · Policy · Equity · Ethnic minorities · Vietnam

1 Introduction

Vietnam has achieved significant progress in reducing undernutrition over the past several decades, and is held up as a regional example of what can be accomplished through sustained commitment to coherent policy across economic and social development, including nutrition. Between 2000 and 2014, levels of child stunting fell from 37% to 25% (Development Initiatives, 2018). These national figures mask significant inequalities in outcomes however: Among high-income households, stunting fell from 21% to 6%, while among low-income households the decline was from 52% to 41% (Development Initiatives, 2018).

Since the opening-up of Vietnam's economy in 1986, poverty rates have fallen significantly, from 58% in 1993 to 10% in 2012; the country achieved middle-income status in 2008 and is the world's second-largest exporter of rice (Mbuya et al., 2019). Through a sequenced combination of market liberalization, land reform, and public investments in health and education, combined with large aid and foreign direct investment inflows and collaboration with development partners, Vietnam has achieved a broad-based, sustained, and rapid economic growth, and translated this into human development outcomes through progressive taxation and inter-provincial transfers (Baulch, 2016).

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Not all have benefitted equally from this national development, however. In Vietnam, the poorest households tend to be ethnic minority households: Of the 10% of the population that is still living below the poverty line, 65% belong to ethnic minority groups (Tung & Trang, 2012). Vietnam has 54 recognized ethnic groups (though categorisation is contested and political) (Choi, 2014). The primary beneficiaries of higher living standards have been the Kinh majority, along with the ethnic Chinese Hoa; expenditure levels of Khmer and Cham groups, largely in the south-east, have increased to around the national average, but the remaining minorities have expenditure significantly lower than the national average, and often below the poverty line (Baulch et al., 2010). Other ethnic minorities however, and in particular smaller ethnic groups in the central and northern highland regions, have fallen significantly behind in Vietnam's advance to middle-income status, and a large proportion of the remaining burden of undernutrition therefore falls in ethnic minority communities (Thang & Popkin, 2003).

This paper aims to expand upon these figures with relation to nutrition outcomes, using the latest available data, to: 1) explore the determinants of undernutrition reductions in Vietnam between 2000 and 2010; 2) examine inequity in changes in undernutrition and determinant factors between ethnic majority and minority groups in Vietnam; and 3) explore how changes in the policy environment have driven these changes, and how policies might achieve more in order to close the equity gap and therefore reduce stunting further in the future.

2 Methods

This study is a part of an ongoing Stories of Change (SOC) project (https://www.ifpri.org/project/stories-change-nutrition) which has captured narratives of change in nutrition outcomes and policy processes in multiple countries (Gillespie et al., 2016). SOC-Vietnam aimed to understand the history, contemporary treatment, and future of nutrition and its related policy processes in Vietnam, with an explicit focus on equity.

This study uses mixed methods: 1) quantitative methods to explore trends in nutrition outcomes, including descriptive statistics and decomposition analysis to reveal key determinants of undernutrition reduction in a nationally-representative dataset between 2000 and 2010; and 2) qualitative approaches to analyse trends in the drivers of these changes, understood as change in *enabling environments* for nutrition, to reveal how different policies have gained traction and how the country might further reduce persistently high rates of undernutrition in its most marginalised communities.

2.1 Quantitative analysis: Determinants of change in undernutrition outcomes

We first used nationally available headline data between 2010 and 2014 to describe changes in nutrition outcomes and their potential determinants, and to understand differences in outcomes and determinants for ethnic majority and minority communities. We then used two rounds of Multiple Indicator Cluster Survey (MICS) which were conducted in 2000 and 2010 ($n = 3105$ and 3729 children under 5 years of age, respectively) for the decomposition analysis (Jann, 2008). Regression-decomposition has been used widely to study mean outcome differences between groups (Jann, 2008) including differences in child malnutrition between geographical areas (Spears, 2013; Srinivasan et al., 2013; Sharaf & Rashad, 2016) and between populations measured at different points of time (Headey, 2013).

For the decomposition analysis, we looked at the pooled national dataset instead of splitting by ethnicity due to small sample sizes of ethnic groups available MICS datasets. The health outcomes on which we focused were child undernutrition including stunting (defined as height-for-age z scores [HAZ] < -2), underweight (weight-for-age z scores [WAZs] < -2) and wasting (weight-for-height z scores [WHZ] < -2) (WHO Multicentre Growth Reference Study Group, 2006). We followed the UNICEF (UNICEF, 1990) conceptual framework to select potential determinants of change in undernutrition including maternal factors (age, education), child factors (age, gender, child feeding and morbidity such as diarrhoea and fever) and household factors (number of children <5 years, access to improved drinking water and sanitation, and socio-economic status). Health and social programmes covered in our data were selected across the continuum of care, from pregnancy to early childhood, including adequate antenatal care (ANC) (at least 4 ANC visits), skilled birth attendance, and whether a child received vitamin A supplementation, and full immunization as scheduled.

We used a Wald test (Mehmetoglu & Jakobsen, 2016) to assess changes in determinants from 2000 to 2010. We then used multiple regression (Mehmetoglu & Jakobsen, 2016) to examine the associations between potential determinants and outcomes. Finally, we performed a regression-decomposition analysis (Jann, 2008) to assess how much the change in each determinant contributed to the change in undernutrition over time.

2.2 Qualitative analysis: Drivers of change in the enabling environment

The key determinants of change found in the quantitative analyses were then explored through qualitative policy process work, looking particularly at implications for ethnic minority groups in Vietnam. To do this, we assessed aspects of

the *enabling environment* for nutrition, defined here as political and policy processes that shape the social and economic environment within which nutrition outcomes are achieved, adapted from Gillespie et al. (2013). Explicitly, we researched the actors and narratives which have driven the written policy environment; implicitly, this then shapes the socio-economic environment and public services environment within which communities exist.

Firstly, it was important to understand the written policy environment relating to nutrition in Vietnam, and how this has changed over time. A policy timeline was created showing when a particular policy and legislation relevant to nutrition and its determinants was introduced, and change in key elements of the policy narratives. Aspects of written policy relating to the identified determinants of change in undernutrition outcomes were extracted for the analysis.

Secondly, in order to understand and interrogate how and why change has happened in the policy environment for nutrition in Vietnam, a series of interviews were undertaken with key informants knowledgeable about the policy process in Vietnam, in 2017 in Hanoi and in 2018 in Kon Tum province in the central highlands. Because food, health and nutrition policy is driven by multiple stakeholders, we sought the perspectives of actors from government, the private sector, and national and international civil society in different sectors. A total of 40 interviews were undertaken with respondents from national government across multiple nutrition-relevant sectors, national non-government organisations including official associations and academic institutes, international development partners including UN agencies and NGOs, and private sector companies working in food and nutrition (Table Suppl. 4). These interviews explored the different actors, narratives and interests (Keeley & Scoones, 1999) involved in nutrition governance. Interviews were recorded and transcribed verbatim (and translated into English where necessary), then open coding was undertaken in Nvivo11 software (QSR International Pty Ltd., 2015) to break the data into manageable segments relating to the initial sensitizing concepts (Bowen, 2006) for the study (past/present/future; actors/narratives/interests; and identified determinants of undernutrition change).

A review of media was undertaken to complement the interviews in 2018 to assess how different media were reporting the topics of nutrition and ethnic minorities. Searches were conducted in Vietnamese in three key media outlets with different readership focus[1] using the terms 'nutrition' and 'ethnic minorities' as well as combinations of these. The first five articles appearing in the search engine from each of these search combinations were summarised, and core themes identified narratively and summarised.

2.3 Analysis and synthesis

Synthesis of these four streams of data (1. quantitative determinants; 2. written policy; 3. interviews; and 4. media review) was undertaken through framework analysis (Ritchie et al., 1994), a qualitative approach to data synthesis involving data familiarization (engaging with each piece of data to understand what it says on its own); identifying a thematic framework (in this case, built from the key determinants of stunting reduction identified through the decomposition analysis, combined with the *Actors, Narratives* and *Interests* policy process framework); indexing and charting (in this case, creating a table using the key determinants from the quantitative work and the policy process framework, and adding data from the initial coding into the resulting matrix); and mapping and interpretation (looking across the rows and down the columns of the matrix in order to synthesize the information on different themes). Findings are first presented separately for the decomposition analysis, and then are discussed together with the policy process findings in the final sections.

2.4 Study limitations and research needs

This study captured quantitative change from 2000 to 2010 (decomposition analysis) or 2014 (ethnic minority descriptive assessments) which points to a lack of up-to-date available data in Vietnam. Vietnam collects various nutrition-related data regularly (see Box 1) – but much of this data does not contain the variables required for our analysis, and much of the remaining data is not made available for analysis.

Box 1: Vietnam nutrition data

Vietnam regularly collects nutrition data, but this is not always coordinated and is not often made available for public analysis. There are 3 sets of data:

1. National Institute of Nutrition (NIN) surveillance which is conducted every year. Raw data are not publicly available, so researchers cannot conduct further in-depth analysis. This data has only a few determinant variables (age, education, ethnicity) but does not have broader health variables. A summary is posted on the NIN website by province and region, and by ethnicity in 2014 only (used in this paper).
2. NIN General Nutrition Survey in 2000 and 2010, with data on anthropometry and dietary intake. Again, raw data are not publicly available, only summary headline numbers from public reports.
3. Multiple Indicator Cluster Survey (MICS) data 2000–2006–2010-2014. In 2014, this data did not contain anthropometry. For this paper, we selected 2000 and 2010 to address an interval of 10 years.

In addition, food data is not available in the same datasets as health, so the underlying determinants of stunting reduction cannot be assessed together. Further, data does not always include ethnic minority groups, and some groups are so small

[1] Nhan Dan Dien Tu, a voice of the Vietnam's Communist Party produced in Hanoi; Tuoi Tre Online belonging to the Ho Chi Minh Communist Youth Union and bringing a south-Vietnamese perspective; and VnExpress, the country's first online newspaper without a paper-based version, produced by a leading Vietnamese IT company.

that it is difficult to undertake meaningful statistical analysis where data is available. The qualitative components of the research start to fill these data gaps, but more comprehensive, more disaggregated, and more timely numerical data is needed for independent analysis.

Other approaches are also needed to understand the experiences of ethnic minority groups of nutrition-related issues, such as participatory and anthropological work. For the qualitative work, discussing government policy agendas can be particularly difficult in Vietnam due to the particular government system in place, which may have limited some of the interview discussions.

3 Results

3.1 Changes in nutrition

3.1.1 Changes in nutrition outcomes

Vietnam has seen significant reduction in child undernutrition in recent decades. The proportion of undernourished children substantially declined between 2000 and 2010 (Table 1): stunting and underweight reduced by half (from 37 to 18%, and 33 to 15%, respectively), and wasting reduced by a third (from 5.7 to 3.7%). At the same time however, there has been a rise in overweight and obesity in all age groups, particularly in urban areas (Development Initiatives, 2018).

While child stunting has fallen dramatically in Vietnam overall, it has decreased more slowly and from a higher initial level for ethnic minorities. On average, ethnic minorities had the same levels of stunting in 2014 as the Kinh ethnic group had in 2000 (Fig. 1). Similar patterns were observed for underweight and wasting (data not shown here). Further analysis within these groups shows that different ethnic minorities have different levels of undernutrition, with some of the smaller ethnic groups having stunting rates above 50% (Fig. 2).

3.1.2 Changes in nutrition determinants

These inequalities in outcomes are mirrored when looking at the underlying determinants of nutrition relating to the social and economic aspects of equity (Harris et al., 2020): Ethnic minority groups consistently have worse socio-economic situation (by the proxy metrics available in the dataset) and more limited access to infrastructure and services, including reduced coverage of nutrition-related health services (Fig. 3). In particular, electrification, ownership of motorbikes and TVs, and some aspects of delivered health services have increased and become more equitable; but there are still large and growing disparities in improved housing, sanitation, access to health facilities, and overall socio-economic status that can be defined as inequitable in their clear ethnic bias.

There were several significant changes for the selected determinants of undernutrition over 2000–2010 in the overall population of Vietnam (Table 2). Specifically, household socio-economic status (SES) index nearly doubled (3.4 to 7.1 out of 10), as did access to improved sanitation facilities (37 to 76%). Access to improved drinking water and safe stool disposal increased by 18 percentage points (pp) and 33 pp., respectively. Women's education improved by graduating school 2.4 grades/classes higher. Timely introduction of complementary foods for children increased from 72 to 89%. Child diarrhoea slightly declined, but child fever not. Coverage of interventions during pregnancy (such as at least 4 ANC visits), during delivery (such as skilled birth attendance) and during childhood (such as children receiving vitamin A in the last 6 months) improved by 20–30 pp. Exclusive breastfeeding, another key determinant of nutrition change, reduced over time from 22% to 16.5% (data not shown as this was measured in a subset of children aged <6 months).

Multiple regression analyses (Table Suppl. 5) shows positive significant relationships between child HAZ and household socio-economic status, women's education, and having skilled birth attendance, but negative association with number

Table 1 Changes in anthropometric nutrition outcomes for children 0–59 months in Vietnam

Characteristic	Metric	2000	2010	Absolute change
HAZ	*Z score*	−1.57 (−1.68, −1.46)	−0.93 (−0.99, −0.87)	0.64***
WAZ	*Z score*	−1.48 (−1.56, −1.40)	−0.83 (−0.89, −0.77)	0.65***
WHZ	*Z score*	−0.65 (−0.71, −0.59)	−0.31 (−0.36, −0.26)	0.34***
Stunting	%	36.6	18.0	−18.6***
Underweight	%	33.0	15.4	−17.4***
Wasting	%	5.72	3.68	−2.04***

***$p < 0.001$

Source: MICS 2000, 2010

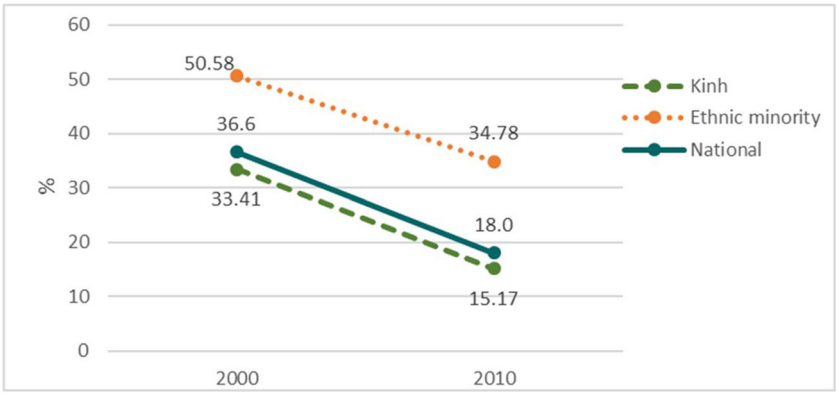

Fig. 1 Stunting rates in ethnic majority and minority communities, Vietnam 2000–2010. Source: Data are from MICS 2000 and 2010

of children under 5 years and fever. Similar associations were observed for WAZ and WHZ. Similar pattern of associations were observed when considering child stunting, underweight and wasting outcomes (with coefficients in the opposite sign, given the inverse association between HAZ and stunting).

Variables with significant contributions in the regression analyses were used in decomposition analyses to estimate the extent to which improvements in these factors could contribute to improvements in HAZ over time (Fig. 4). Overall, the decomposition model explained 91% of the HAZ change from 2000 to 2010. The explained share was accounted for by improvements a wealth index (61%), health and nutrition interventions (16%), and maternal education (12%). Similar findings were found in the decomposition analyses for WAZ and WHZ, which also included change driven by sanitation issues (data not shown here).

The key determinants of stunting reduction overall are therefore wealth, women's education, and access to health services. The sections below review changes in policy, actors, narratives and interests for each of the identified determinants, to shed light on the drivers of enabling environments in Vietnam that have encouraged or constrained these determinants of stunting reductions.

3.2 Changes in enabling environments for nutrition

3.2.1 Change in the nutrition environment`

Historically, Vietnam joined 158 other countries in the International Congress on Nutrition in Rome in December 1992, and soon after signed its first National Plan of Action on Nutrition into force (NPAN 1995–2000). The first NPAN has been updated as the National Nutrition Strategy (NNS) 2001–2010 and NNS 2011–2020, with general objectives, specific objectives, indicators, and proposed solutions, evolving in successive phases, in line with the evolving Vietnamese context and international guidelines. A detailed comparison of the specific objectives and main solutions in each phase shows the change in nutrition policy in Vietnam over the past 30 years (Table 3).

The early focus on hunger was replaced in Vietnam with a focus on specific aspects of undernutrition. The dominant global narrative, brought by international agencies and the UN, is largely one of stunting reduction through attention to nutrition in multiple sectors. This has been taken up in national policy, with stunting becoming the major focus of much nutrition policy. More recently, action on the double burden of malnutrition is becoming more apparent in Vietnamese nutrition policy.

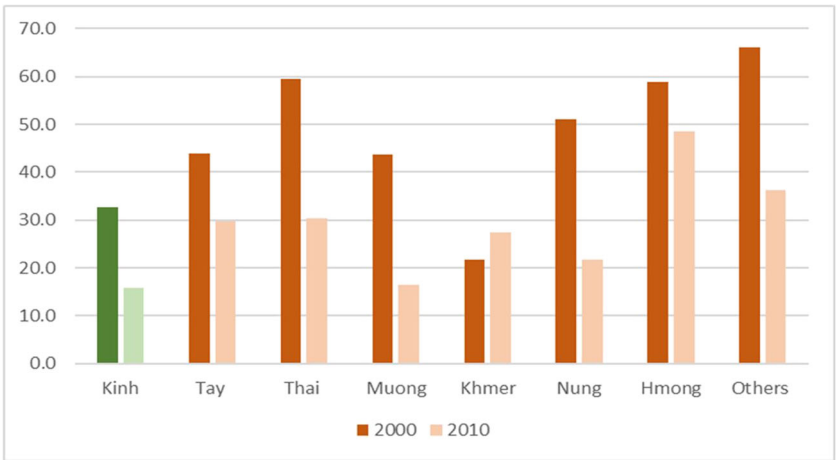

Fig. 2 Stunting rates in different ethnic minority groups, 2000–2010. Source: Data are from MICS 2000 and 2010

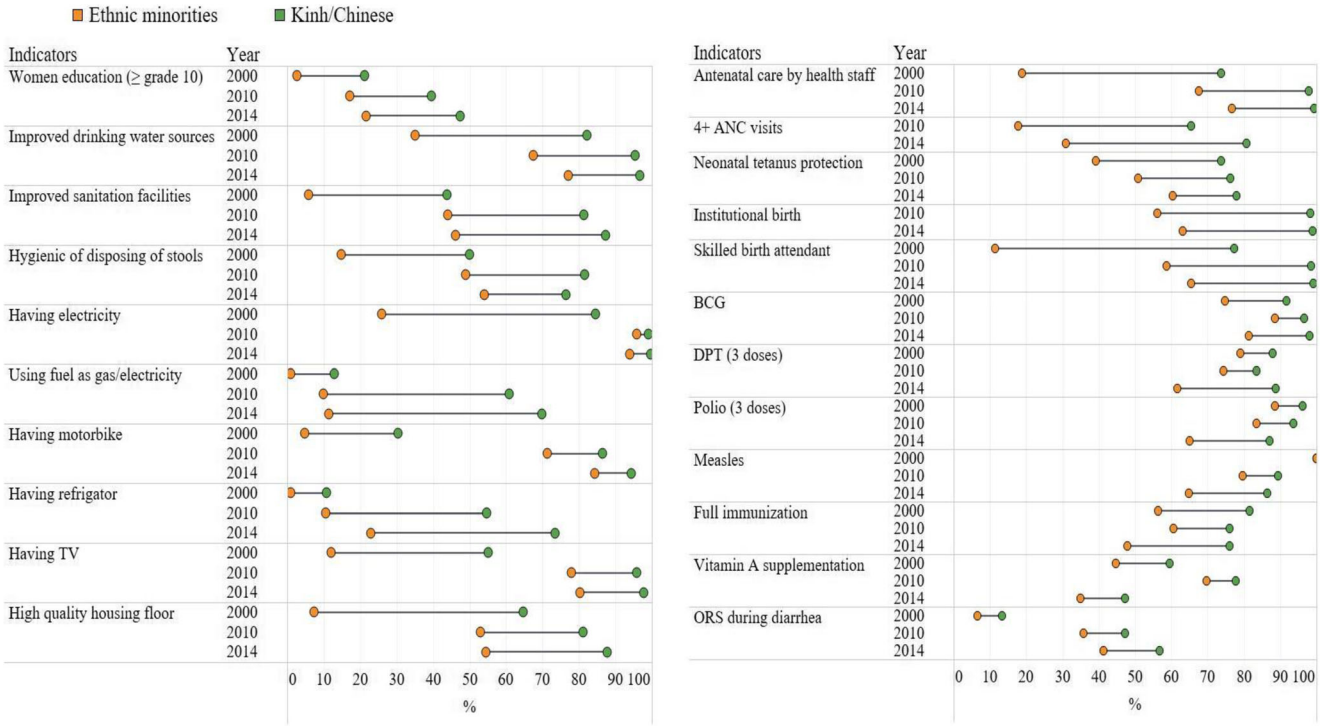

Fig. 3 Inequity between ethnic majority and minority communities for underlying determinants of child undernutrition in Vietnam 2000–2010. Source: Data from MICS 2000, 2010 and 2014

Nutrition programs have traditionally focused on delivery of nutrition-specific interventions, with separate food and agriculture policy tied more to rural development objectives than to nutrition. Some respondents in this research felt that hunger and undernutrition have to some extent fallen off the government's agenda as the country has developed, despite continued problems in many areas: "By 2000, 2005, Vietnam becomes very kind of quick development country. So there's no problem related to malnutrition. People didn't talk about malnutrition anymore" [Interview 2017_03]. This relatively rapid turn from hunger and undernutrition towards issues of modern food systems has the potential to leave behind segments of the population, in particular ethnic minority communities where undernutrition, and even hunger, are still significant issues.

At each renewal, the government, Ministry of Health and relevant agencies have issued supporting policies to implement NPAN / NNS. Vietnam now has a generally comprehensive system of policies and programs related to nutrition, including policies that directly address nutrition, specific technical policies on nutrition, policy on health and food issues which is nutrition-sensitive or affects nutrition, and policy in other sectors which is to some extent related to nutrition and its determinants. Supporting policies might be amended to suit each stage or be developed once specifically to fit a defined solution. The biggest and most public policy debates and changes in recent years have concerned extended maternity leave and restricted infant formula advertising, with both policies designed to tackle Vietnam's low breastfeeding rates. These policies were mentioned frequently in the interviews undertaken for this study, and are seen as a major accomplishment for the nutrition community – though they are targeted to women working in the formal sector and therefore don't address issues faced by most ethnic minority women. An analysis of supporting policies shows the changes in nutrition policy focus in Vietnam over time, with each phase of the NPAN/NNS (Fig. 5).

The NNS identifies the Ministry of Health (MOH) as the lead agency for implementation of nutrition policy, and the National Institute of Nutrition (NIN) as the focal point. The MOH therefore proposes policy to the National Assembly (NA), Vietnam's central decision-making body, and provides technical guidance to the generally part-time and non-expert MPs, along with NIN and the Institute of legislative Studies. The NA has been seen to be much more involved in nutrition policy in recent years (for instance through the Children's Committee of the NA) in part because of national debates around child welfare and infant formula. Historically, the role of NIN has been to conduct research on nutrition and, since 1998, to implement specific nutrition projects largely in the health sector, and the makeup of the institute as employing many PhD-educated medical doctors and public health professionals reflects this. The history of NIN is marked by the influence of visionary individuals who have taken the Institute in relevant directions.

Over the past decade or so however, the role required of NIN has evolved towards strategic advisory on implementation of the major national target programmes (particularly

Table 2 Changes in determinants of under-nutrition for children 0–59 months

Characteristics	Unit	2000	2010	Absolute change	*p* value
Household					
Number of children under 5 years of age	*Number*	1.34	1.28	−0.06**	**0.003**
SES index (0–10)	*Index*	3.83	7.07	3.23***	<0.001
Hygiene and sanitation					
Access to improved drinking water	*Percent*	73.36	91.40	18.04***	<0.001
Access to improved sanitation facility	*Percent*	36.75	75.91	39.16***	<0.001
Safe stool disposal	*Percent*	43.33	76.75	33.42***	<0.001
Maternal factors					
Maternal age	*Years*	29.26	29.18	−0.08	0.771
Maternal education (range 0–13)	*Years*	6.46	8.86	2.40***	<0.001
High school (10-12y) or higher	*Percent*	17.73	36.22	18.49***	<0.001
Child factors					
Child age, months	*Number*	31.78	29.53	−2.25***	<0.001
Child gender (female)	*Percent*	49.27	49.12	−0.15	0.913
Child birth weight	*Kg*	3.12	3.11	−0.01	0.835
Child low birth weight	*Percent*	10.46	4.95	−5.51*	0.017
Appropriate feeding	*Percent*	57.33	51.95	−5.38*	0.033
Timely introduction of foods	*Percent*	72.31	89.42	17.11***	<0.001
Illness (diarrhoea or ARI)	*Percent*	22.05	21.17	−0.88	0.532
Diarrhoea	*Percent*	11.34	7.27	−4.07***	<0.001
Fever	*Percent*	13.06	16.19	3.13*	0.012
Health and nutrition intervention					
Received ANC by health professionals	*Percent*	62.34	92.64	30.30***	<0.001
Received tetanus vaccine	*Percent*	17.63	31.79	14.16***	<0.001
Skilled birth attendance	*Percent*	63.62	91.65	28.03***	<0.001
Children received vitamin A in the last 6 mo.	*Percent*	56.79	76.60	19.81***	<0.001
Sought advice or treatment during illness	*Percent*	70.44	84.23	13.79	<0.001
Children received BCG vaccination	*Percent*	88.26	95.27	7.01***	<0.001
Children received polio vaccination	*Percent*	94.58	92.04	−2.54*	0.029
Children received DPT vaccination	*Percent*	86.1	82.07	−4.03*	0.027
Children received measles vaccination	*Percent*	100	87.8	−12.2***	<0.001

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

Source: MICS 2000, 2010

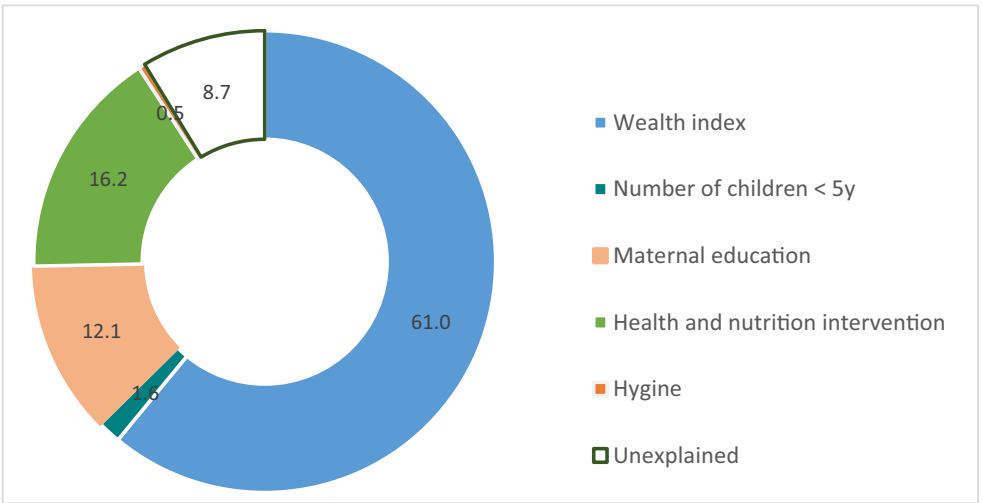

Fig. 4 Decomposition analysis for factors contributing to change in height-for-age z-scores among children 0-5y in Vietnam from 2000 to 2010

Table 3 National nutrition plans since 1995

NPAN 1995–2000	NNS 2001–2010	NNS 2011–2020
Specific objectives		
1. To put an end to the low food intake and increase the per-capita intake of energy. 2. To reduce the ratio of malnutrition: Focus on chronic energy deficiency (CED) in women of reproductive age (WRA) and the underweight status of children under five 3. To reduce the incidence of micro-nutrient deficiency: focus on people's vitamin A and iodine deficiency and anemia in pregnant women	*1. Improve people's knowledge on nutrition and practice a rational nutrition regime.* 2. To reduce the malnutrition rate of children and mothers: Focus on: CED in WRA; child malnutrition (underweight *and stunting; low birth weight (LBW); control overweight of children under 5.* *3. To basically eliminate* the state of vitamin A and iodine deficiency and to substantially reduce the nutrition related anemia 4. To reduce the rate of households with low energy intake *5. To clearly improve the state of food hygiene and safety.*	*1. To continue to improve the diet of Vietnamese people, in terms of quantity and quality* (Including to reduce the rate of households with low energy intake) 2. To improve the nutrition status of mothers and children: CED in WRA; LBW; Child malnutrition (stunting, underweight), *improve the height of children and adolescents*; overweight in children under 5. 3. To improve micro-nutrient status: vitamin A, anemia, iodine *4. To effectively control overweight and obesity and risk factors of nutrition related non-communicable chronic disease in adults.* 5. To improve knowledge and practices regarding proper nutrition in the general population. *6. To reinforce capacity and effectiveness of the network of nutrition services in both community and health care facilities.*
Main solutions		
1. To ensure foodstuff security for households. 2. To effect the plan for primary care of the health service. 3. To prevent deficiency of micro-nutrients, especially the deficiency of iodine, Vitamin A and iron. 4. Education on nutrition: to train cadres and to conduct research on nutrition issues. 5, To ensure norms of food quality and sanitation. 6. To monitor and appraise activities in nutrition and food sanitation.	1. Educating and popularizing the nutrition knowledge to the entire population; 2. Ensuring the food security at household level; *3. Preventing and combating protein-energy malnutrition among children and mothers;* 4. Preventing and combating micronutrient deficiency; *5. Preventing and combating nutrition-related chronic diseases;* 6. Integrating nutrition activities into the primary health care; 7. Ensuring the food quality, hygiene and safety; 8. Monitoring, evaluating and supervising the nutrition work; *9. Building up pilot models in order to draw managerial experience*	*1. Approaches for policy* *2. Approaches for developing resources* *3. Approaches for nutrition advocacy, education and communication* *4. Technical approaches* *5. Approaches for science and technology and international cooperation*

Key: Italic = added since previous plan.

Source: Authors' review of key nutrition strategies since 1995

rural development); nutrition actions have been assigned among several different sectors as implementation focus has been for multisectoral approaches, so NIN's placement within public health has become a hinderance to strategic action. Several respondents in this research find that NIN overall is finding the transition from implementers to strategic advisors difficult, not least because of the changes in funding streams that this implies, away from traditional development donors and core government funding. This is illustrated by one interview respondent: "So [NIN] are, they feel less empowered, and they have less money, and they have to really figure out their new role" [Interview 2017_01]. NIN therefore find it difficult to coordinate among the different entities implementing nutrition-relevant policies or guiding these towards marginalised areas, given their placement within a sectoral ministry. At the same time, Vietnam's evolving economic context has meant that the international community of UN and NGO organisations, who might be expected to focus on under-served communities, has been less able to act: Since Vietnam achieved middle-income status, the UN tends not to implement programmes (other than proof-of concept pilots) and prefers to work through government systems with an assumption of better sustainability over time; and NGOs are less able to secure funding for work in higher-income countries. Combined with reducing funds allocated by the Vietnamese government to the National Nutrition Strategy 2011–2020 (NNS) nationally, the lack of strategic oversight and reduction of international aid has meant that ethnic minority groups are not well served by nutrition-relevant services.

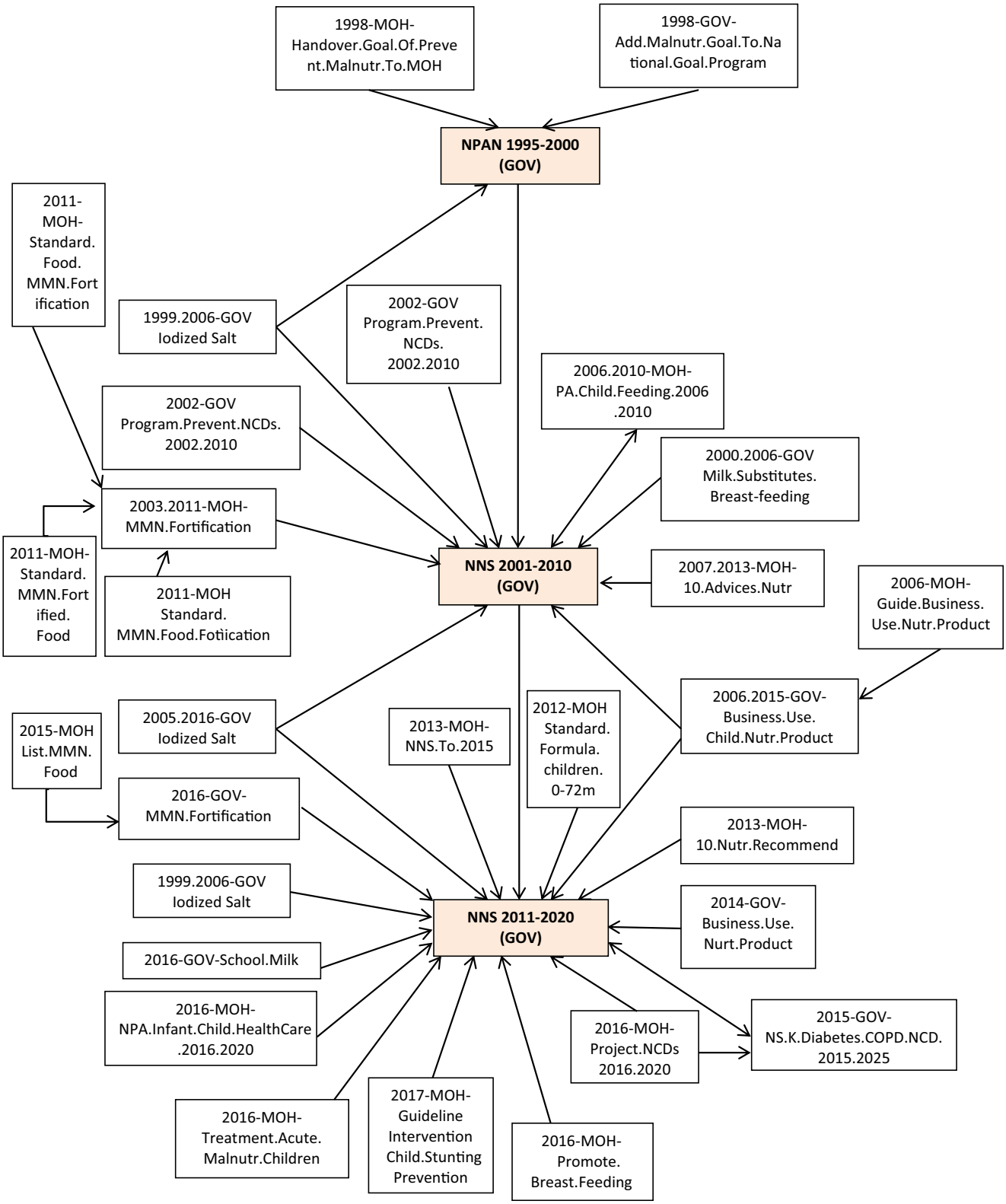

Fig. 5 Nutrition policy mapping

All these issues and narratives are shaped by periodic release of data on nutrition. NIN is tasked with producing periodic data on nutrition, monitoring implementation of nutrition policies annually using a national nutrition surveillance system, and once every 10 years a general nutrition survey is administered to evaluate the NNS and NPAN with the results used to inform the next NNS. Different data held at different levels (commune, province, national) sometimes shows

conflicting results, and it can be unclear which is more reliable. Data is not always released in a timely fashion, as evidenced by the data available for use in this study, with government reluctant to release data until it is clear that plans are in place to address any negative trends. While some data is disaggregated by ethnic group (as we use above) much is not, and the long intervals between surveys fails to capture rapid changes taking place in different communities.

3.2.2 Change in the wealth environment

Over half of stunting reductions are significantly associated with increased wealth of large sections of the Vietnamese population. In particular, Vietnam is now classified as a middle-income country with a GDP per capita of USD 7042 in 2019 (Development Initiatives, 2020a). National economic policy since 1986 has increasingly focused on global connection, with the country acceding to the World Trade Organisation in 2007, and 14 free trade agreements signed so far and a further 12 in process (Asia Regional Integration Center, 2020); encouraging foreign direct investment and lowering the cost of doing business domestically; and investment of economic gains in human capital and infrastructure, particularly health and education (Nguyen & Baulch, 2007; Eckardt et al., 2018). The interviews and a review of media outlets show that self-comparison with other ASEAN countries is frequent, with a narrative of wanting to be similar or ahead in development and wealth indicators while retaining a focus on socialism.

While economic development is seen as a source of regional pride and higher standard of living for many, it is also seen by some as having eroded the collective nature of Vietnamese society compared to before Doi Moi, and interviews speak of a country that is struggling to balance global economic imperatives with domestic concern for social cohesion. For instance, one respondent said: "So the collectiveness that was maybe behind the original ideology is changing, and it becomes a very much ego-centric society and it's not prepared for that" [Interview 2017_01]. Income inequality measured by the GINI Index has remained similar since 1992 (the earliest that World Bank records are available) at a score of around 35 (World Bank, 2020a), and our quantitative data (above) shows that disparities in many non-economic outcomes and opportunities have actually narrowed for ethnic minority groups compared to the Kinh majority (Fig. 3). Frustration at the slow pace of convergence was expressed by many interview respondents, with lack of Vietnamese language skills, education, and resources (eg. land) cited as barriers for ethnic minorities to participate in the modern Vietnamese economy.

There is concern with equalising levels of economic development between ethnic minority and majority communities in written Vietnamese policy. Among several policies with an explicit focus on poverty in ethnic minority communities, Program 135 phase II was poverty reduction programme (since 2006) to support the development of poor and mountainous communes through market-oriented agriculture, resettlement, basic infrastructure, and social services; this program has now been incorporated into the larger National Target Program for Sustainable Poverty Reduction to 2020. More recently on economic issues, Resolution No. 80/NQ-CP (2011) "On sustainable poverty reduction during 2011-2020"; Decree 05/2011/ND on ethnic minority affairs; the National Strategy on Ethnic Minority Affairs; and the Plan of Action Toward 2020 all have sustainable poverty reduction as a central issue, with an explicit focus on the economic development of ethnic minority communities. Not all of these policies have had the time or the resources for impact assessment, but phase II of Program 135 was found in an evaluation between 2007 and 2012 to have reduced the poverty headcount in targeted areas by around 12 percentage points to 49%, but the poverty gap remained consistent at around 22% and the GINI coefficient of inequality actually increased in target areas, from 43 to 48 (UNDP, 2012). These figures suggest that some benefits of programmes in rural areas are captured by the relatively wealthy, as targeting is based on communes rather than at household level (Mbuya et al., 2019), so they may not be addressing some of the key drivers of economic change for minority populations.

3.2.3 Change in the education environment

Changes in level of maternal education explained around 12% of stunting reduction in our study. The major government agency for education is the Ministry of Education and Training (MOET), and with an annual budget of VND 5100 billion in 2018 and a perception of success in the education sector in Vietnam, this is an influential government agency. The government spent just under 15% of its total expenditures on education in 2018 (World Bank, 2020b), and education is named as the leading social development policy in Vietnam's national Socioeconomic Development Strategy 2011–2020, with a focus on universal education.

Primary education is near-universal and provided for free in Vietnam, with 96% of children who start primary school eventually finishing it, and the female adult literacy rate approaching 94% in 2018 (World Bank, 2020c). But enrolment drops significantly at secondary and tertiary levels for both men and women, and is lower overall for ethnic minority groups: While most students start secondary education, just under half of ethnic Kinh women had passed grade 10 in 2014, whereas the figure for ethnic minority women was just over 20% (Fig. 3). This has improved over time for women in both groups, but the gap between ethnic groups remains similar since 2000. Beyond enrolment, the national strategy calls for primary and secondary education of increasingly higher quality, particularly in mountainous and ethnic minority areas (GOVN 2011). Vietnam reports that 100% of its primary school teachers are trained to at least the minimum required

teacher training level, but does not report on secondary or tertiary level teachers (World Bank, 2020e).

Education is not always provided close to home in Vietnam, and particularly in geographic regions that are predominantly home to ethnic minority groups. The preschool education programme (Circular 17/2009/TT-BGDDT, 2009) and its 2016 update prescribe boarding conditions for children based away from home, and children from very small ethnic minority groups, from remote areas, or from poor households, are exempted from school fees (to grade 9), or the fees are reduced. As with economic development, the practical barrier to engagement in education for ethnic minority groups was reported as largely due to language. Provisions for ethnic minority students (RESOLUTION No. 52/NQ-CP, 2016) aim to improve their 'professional discipline and professionalism, and rational structure' alongside their physical and mental capacity, and interviews for this project frequently suggested that ethnic minority groups needed to catch up to Kinh and the more socially-integrated ethnic minority groups, rather than education needing to be adapted to the needs and preferences of ethnic minorities (in terms of language, location, or scope). One interviewee professed an opposite opinion, suggesting that addressing the language needs of ethnic minority children might be a solution: "Imagine you're an ethnic minority child, you have to go to school and all of a sudden, someone speaks to you in the main Kinh language that you have never heard of before. You don't learn anything, right? So the introduction of bilingual education that you can learn in the first years in your own language and then switch might help on, you know, keeping children in school" [interview 2017_11]. While low disparities between men and women in education suggest that gender equity is adequate, high disparities between ethnic majority and minority groups show that education has not become a driver of equity for many ethnic minority groups.

3.2.4 Change in the health environment

Changes in specific health interventions (ante-natal care, vaccination, and seeking medical help during child illness) were associated with nearly 16% of stunting reduction in our analysis. Around 75% of ethnic minority women had received some antenatal care in 2014 vs. almost 100% of Kinh women, and only 30% had had the recommended 4+ antenatal visits, vs. 80% of Kinh women. Less than 50% of children of ethnic minority communities were fully immunized in 2014, vs. almost 80% of Kinh children. Similarly, a lower proportion of ethnic minority parents reported using health services such as vitamin supplementation or rehydration therapy in illness than ethnic majority parents (Fig. 3). The gap in access to health services has narrowed over time for many indicators but still remains significant.

Access to nutrition-relevant health services remains highly unequal in Vietnam, for a variety of reasons. Flagship health policies such as the maternal leave policy focus on women employed in the formal sector, and so do not benefit ethnic minority women who are self-employed or employed informally. Language barriers are again cited in the low health service use seen in ethnic minority communities. Historically, low public funding for the health sector and gradual decentralisation allowing more regional autonomy has led to heterogeneous health service quality, contributing further to low use of health service in some ethnic minority areas.

The government recognises the importance of universal health coverage however, and spent just under 9% of total government expenditure on health in 2016 (World Bank, 2020d). Additional health funding comes from an ambitious Social Health Insurance law (2009) providing single-payer insurance in combination with health infrastructure upgrades with a goal of universal health coverage. Currently around 87% of people are covered by health insurance, either through insurance purchases or the multiple exemptions provided for poor and marginalised groups including many ethnic minorities (Vietnam Ministry of Health et al., 2017); however other assessments have still found much lower rates of coverage among minority groups than in the majority population for a given level of economic development (Somanathan et al., 2014). This is despite policy dating back to 1989 which recognises the particularities of providing health services for ethnic minority populations (LAW No. 21-LCT/HĐNN8), and significant exceptions providing free coverage to poor and marginalized groups which has reduced the incidence of catastrophic health spending to 9.5% of the population in 2016 (Mbuya et al., 2019). Beyond the basic cost of services, the costs of transport to health centres remains, and so do food expenses while at the health centre, which may be prohibitive for some.

Alongside the Ministry of Health, international organisations such as the World Bank have been significantly involved in assessing and recommending action particularly on the health insurance programme, with recommendations based to some extent on institutional views on the role of insurance in health systems (Somanathan et al., 2014). These recommendations have focused on equity in terms of poverty, but inconsistently on ethnic minority groups and their circumstances in particular. Health worker capacity was also cited in the interviews as a limitation to health service use: in terms of staff numbers and time availability to reach more distant areas; in terms of providing information and services that are relevant to different services users; and in terms of language skills and communication for different groups.

4 Discussion

There is now a clear acknowledgement that deeper structural issues underpinning inequity among groups are driving change or stagnation in stunting reductions globally (Harris & Nisbett, 2018; Development Initiatives, 2020b; Harris et al.,

2021), and the decomposition analysis above has shed light on the particular configuration of determinants in the Vietnamese context. Overall, we find that the significant reductions in child undernutrition in Vietnam are driven by improvements in wealth, female education, and nutrition-relevant health services, as well as an undefined set of determinants which we hypothesise would include food security, diets and breastfeeding. Undernutrition reductions are highly unequal in Vietnam however, with ethnic minority groups in general, and certain minorities in particular, lagging significantly behind both in nutrition outcomes and key determinants.

In assessing the enabling environment for stunting reduction in ethnic minority communities, we find that key issues have been: 1) narratives moving away from the issues of hunger, food insecurity and undernutrition that still affect minority communities, as well as not considering ethnic minorities in the emerging nutrition transition; 2) the evolving national economic and institutional context making it harder for departments and organisations focused on nutrition to strategically consider or serve ethnic minority groups; and 3) a limited national and international civil society failing to bring services to ethnic minority areas or the voices of ethnic minorities into nutrition policymaking processes. Each of these is discussed further below.

Underpinning each of these issues are common and institutionalised perceptions of ethnic minorities as 'backwards' and needing assimilation through government policy, rather than acknowledging and incorporating communities' own framings of issues and solutions in context. Many characteristics are ascribed to ethnic minority groups in terms of their preferences, activities, and attributes – though there is very rarely acknowledgement expressed of distinct minority groups and their distinct socio-cultural contexts. This is influenced by a long and complex history of ethnic minorities and the state in Vietnam, whereby these communities have often sided with enemies of central government in the course of multiple conflicts and are seen as a destabilizing force (Choi, 2014). There is therefore a consistent narrative of the need for inclusion of minority groups into the mainstream, framed as access to economic development, education and health services.

The Government produces policies which aim to include ethnic minority households in all aspects of national economic and social development, and the Committee for Ethnic Minority Affairs (CEMA) was established in 1998 to address established disadvantages, though minorities have historically been under-represented in positions of power in government beyond this (Jamieson et al., 1998). Despite many separate policies targeting ethnic minorities, however, there is little mention of adaptation for the aspirations and preferences of different groups, and no mention of trade-offs for minority households themselves in making the suggested adaptations. This pattern has continued as the National Assembly adopted the 'Resolution on the master plan of socio-economic development in ethnic minority and disadvantaged regions' in November 2019. Calls for differentiated socio-economic policy for ethnic minority groups in Vietnam are not new (Jamieson et al., 1998; Baulch et al., 2002), and this paper adds evidence that attention to the specific needs and preferences of these communities – and respect for the knowledge they hold about their own contexts and communities – are important for addressing nutrition, too.

Conventional reasons for disparity in economic engagement and service use – heard again in many interviews for this project – include the geographic remoteness of many ethnic minority communities; lack of knowledge about available programmes or service entitlements among minority groups; and language barriers. These concur with earlier findings on education (Karlidag-Dennis et al., 2020), health (Lapping et al., 2014), and economic development (Baulch et al., 2010). Vietnamese social policies however almost always assume that minorities want and need to or need to integrate into the majority social and livelihood model in order to progress. While state policy and waves of migration have already changed ethnic minority communities over time (Jamieson et al., 1998), recent anthropological studies in ethnic minority areas have described risk-aversion amid uncertain and unpredictable livelihoods that have led many minority households not to fully engage with the central government policy of sinking all household resources into a single enterprise for the economic betterment of the commune or country (Van Suu, 2017). This reluctance to prioritize potentially improved livelihoods in the long-term over family security in the near-term has bolstered the perception that ethnic minority communities are somehow backward in their economic aspirations, and policy has largely failed to engage with the underlying and historically-rooted causes of uncertainty (Van Suu, 2017). This is reflected in nutrition-relevant policy across many different sectors, leading to repeatedly disappointing outcomes for ethnic minority communities if programme impacts are assessed. Engagement with the aspirations and concerns of ethnic minorities (a 'bottom-up' approach) is likely lacking when undertaking policy making on their behalf (Hà et al., 2016).

The government certainly wants to see improvements in malnutrition rates, but is reticent to publish up-to-date data until solutions are available for the issues this uncovers. This puts pressure on provinces to perform, with all accountability heading towards central government (Fritzen, 2006). Vietnam's bureaucracy is nascent however, and has been challenged by the rapid pace of social and economic change over the past 40 years in understanding both its role and its structure. More recent focus on decentralisation of some services has in the end led to further inequity, as poorer provinces (in particular those with higher ethnic minority populations) have fewer resources and less capacity with which to plan and act; this has been illustrated for the case of nutrition in Vietnam (Harris et al., 2016). As has been called for before (Lapping et al., 2014), prioritised nutrition funding and capacity

building will be needed for provinces with high minority populations, to overcome these barriers to service delivery.

Beyond central government, interviews and field visits for this project have confirmed that there are very few agencies – either government or NGO – working in most ethnic minority regions of Vietnam, so roll-out of the policy ideas is constrained in part by local government capacity, particularly in the context of decentralisation of health and nutrition services (Fritzen, 2006; Lapping et al., 2014; Harris et al., 2016). International organisations – UN and international civil society – historically have far less power here than in many lower-income countries (Tran, 2018), limited by strong political institutions with tight regulation around the possibilities for action, such as the contested Law on Associations which has been in draft for a decade. Combined with the high level of education of many urban Vietnamese who have over time been hired to work in these international institutions, this has led to a strong narrative of partnership between development partners and government ministries, working through evidence and information - rather than lobbying or accountability measures for a more redistributive approach (Fritzen, 2006). The line between being involved in partnership, and promoting accountability for marginalized groups, has therefore been a difficult tightrope to walk for some INGOs. National civil society consists mainly of government-registered mass organisations such as Associations and Unions which promote social cohesion but not government accountability. Civil society organisations outside of these do exist, but tend to be set up for specific social assistance purposes (credit and savings groups, cooperatives) or to facilitate participation in government policymaking exercises, and do not engage critically in policy debates (Taylor et al., 2012). It remains to be seen if the Scaling Up Nutrition civil society network established in October 2019 will do more to bring national civil society voices into nutrition policy debates in Vietnam. What is clear is that ethnic minority require advocates in nutrition policy processes, to bring their voices and preferences into closed and invited spaces. Civil society can and should play this role, to enhance the government planning processes.

5 Conclusions

Vietnam is often seen as a winner in the current global economic paradigm, with sustained economic development managed well enough to drive social development in support of a well-educated and increasingly healthy population. Yet there are many Vietnamese citizens today who are not achieving high levels of wellbeing, particularly in marginalised ethnic minority communities, and this is reflected in large disparities in nutrition outcomes and their determinants. The Government's development strategy aims for Vietnam to become an upper middle-income country by 2035. This rests on the pillars of economic prosperity and environmental sustainability; of social equity and inclusion; and of state capacity and accountability. Each pillar is conducive to undernutrition reductions, but our work indicates that focusing on inclusion of different perspectives and preferences and respecting different contexts and forms of knowledge (rather than assimilation into the majority) is more likely to lead to engagement with the policy on the key determinants of malnutrition reduction, and therefore to equitable malnutrition reductions in minorities that have so far been left behind.

This study has focused on ethnic minority communities, because that is where the quantitative data are clearest in pointing to outcome disparities for undernutrition and its determinants. Vietnam has achieved the easier portion of stunting reduction through economic growth and sustained commitment to socially-oriented policy. Stagnant rates in ethnic minorities are holding back national declines in undernutrition rates however, and holding back those individuals and communities exposed to malnutrition. In order to tackle the remaining pockets of high malnutrition, more attention, thought and funding will need to focus on marginalised communities. The current national development discourse aims to incorporate minorities into mainstream majority systems. The analysis above argues that instead, policy should take into account their particular needs and preferences to tackle identified determinants of malnutrition in ways that are relevant, sustainable, and culturally appropriate.

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Declarations

Ethics approval This study was approved by the National Institute of Nutrition in Vietnam and the IRB of the International Food Policy Research Institute. Appropriate consent processes were followed for all research participants.

Competing interests The authors declare no competing interests.

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