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Scaling up nutrition in fragile and conflict-affected states: The pivotal role of governance



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ABSTRACT

Acute and chronic undernutrition undermine conditions for health, stability and socioeconomic development across the developing world. Although fragile and conflict-affected states have some of the highest rates of undernutrition globally, their response to the multilateral 'Scaling Up Nutrition' (SUN) initiative in its first two-year period was ambivalent. The purpose of this research was to investigate factors affecting fragile and conflict-affected states' engagement with SUN, and to examine what differentiated those fragile states that joined SUN in its first phase from those that did not. Drawing on global databases (Unicef, World Bank, UNDP), and qualitative country case studies (Afghanistan, the Democratic Republic of Congo, Sierra Leone, Pakistan and Yemen) we used bivariate logistic regressions and principal component analysis to assess social, economic and political factors across 41 fragile states looking for systematic differences between those that had signed up to SUN before March 2013 ($n = 16$), and those that had not ($n = 25$). While prevalence of malnutrition, health system functioning and level of citizen empowerment had little or no impact on a fragile state's likelihood of joining SUN, the quality of governance (QOG) strongly predicted accession. SUN-signatory fragile states scored systematically better on the World Bank's Country Policy and Institutional Assessment (CPIA) and the Worldwide Governance Indicators 'effectiveness of government' indices. We conclude that strengthening governance in fragile states may enhance their engagement with initiatives such as SUN, but also (recognising the potential for endogeneity), that the way aid is structured and delivered in fragile states may be an underlying determinant of whether and how governance in such contexts improves. The research demonstrates that more nuanced analysis of conditions within and among countries classed as 'fragile and conflict-affected' is both possible and necessary if aid policies are to be shaped in ways that support rather than undermine growth in governance capacity.

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1. Introduction

Undernutrition is associated with almost half (45%) of all under-5 child deaths worldwide (Black et al., 2013) and presents a particular concern in 'fragile and conflict-affected states' (hereafter FCAS or 'fragile states'). Almost two-thirds of countries in the bottom half of the Global Hunger Index are fragile (IFPRI, 2012). Of 21 countries with very high prevalence of stunting, 18 are fragile (Unicef, 2013). Undernutrition prevalence is estimated to be 50% higher in fragile than non-fragile African states (ADB, 2012). While

conflict generally leads to rapid increase in food shortages and acute undernutrition (IFPRI, 2012; World Bank, 2011), rising food insecurity can itself increase risk of social unrest and violence (Lautze, 2012; Hendrix and Brinkman, 2012; Wodon and Zaman, 2008). The quiet crisis of chronic undernutrition, meanwhile, can operate undetected over years to create whole cohorts of disadvantaged young men and women – cognitively compromised from before birth, educationally marginalised, and economically disempowered (Taylor et al., 2013; FAO, 2012; Black et al., 2008) – creating a poor, under-employed demographic which increases risk of violent crime and conflict (Urdal, 2004). Viewed in this light, reducing undernutrition is not only a health priority and a fundamental input to economic growth, but also a strategy for preventing conflict and reducing social and political instability.

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The focus on fragile states in this study is primarily based on the high prevalence of undernutrition in those countries, but it also allows us to explore systematic difference within what is a large and heterogeneous group of countries, based on early- and non- (or later-) adoption of a multilateral initiative, opening the way for further research towards a more empirical understanding of what fragility actually means in different country contexts. More granular understanding of fragility may enable a more nuanced approach to humanitarian and development assistance in such environments.

The evidence base for effective interventions to reduce undernutrition is increasingly robust. The need for concerted action on undernutrition in fragile states is widely acknowledged. We know what to do, and where. But we often do not understand the institutional pathways through which political commitment to progressive norms such as those invoked by SUN is generated – nor how that commitment is converted into effective action (Gillespie et al., 2013; Mejia Acosta and Farzo, 2012) – a problem particularly pressing in fragile states.

By early 2013, 33 countries had signed up to SUN ('signed up' denoting formal government submission to SUN's Geneva secretariat). Of these, 16 were classed as fragile. The start of 2013 constituted a pivotal moment for SUN, as the movement progressed 'from roadmap to strategic framework' (SUN, 2012, p.42). That point of transition offered an opportunity to explore, systematically, structural and situational factors that may be associated with fragile states' ability and willingness to sign up to SUN.

The focus of this paper is on fragile states signing up to SUN. Analysis does not support conclusions regarding likelihood of SUN signatories converting accession into meaningful action. Equally, the analysis does not presuppose a permanent difference between signatory and non-signatory fragile states defined at the cut-off point (which is, itself, somewhat arbitrary as we note later). States, including fragile ones, continued to sign up to SUN after March 2013. As such, therefore, our analysis identifies 'early-adopters', assuming that non-signatories at the cut-off may be construed as potential 'later-adopters'.

2. Methods

The study design was ecological, using fragile states as the unit of observation. We selected all countries classified as fragile and conflict-affected by at least two of three international agencies –

the Organisation for Economic Cooperation and Development (OECD), the World Bank, and the UK Department for International Development (DFID). We divided this group into those that had signed up to SUN and those that had not at 31 March 2013 (Table 1). In order to provide a comparison group, we included in the analysis the 17 non-fragile SUN signatory countries.

The selection of variables in our model was theory-driven. Drawing on current definitions of the primary constituent aspects of state fragility (Rice and Patrick, 2008), we identified factors hypothesised to have a bearing on a fragile state's likelihood of signing up to SUN, with corresponding data taken from recent multilateral reports (World Bank, *World Development Report*, 2012; *Unicef State of the World's Children*, 2012; UNDP *Human Development Index*, 2012) (Table 2). Availability of continuous data across study countries somewhat shaped the specific indicators selected.

Table 2
Dimensions, variables and data sources.

Dimension	Data	Source
Prevalence of undernutrition and related health outcomes	% Children wasted (mod. or severe), 2006–10	Unicef, 2012
	% Children stunted (mod. or severe), 2006–10	Unicef, 2012
	Reduction in <5 mortality since 2000 (%)	UNDP, 2012
	Neonatal mortality rate, 2010	Unicef, 2012
Health system capacity	Maternal mortality rate, 2008	World Bank, 2012
	% coverage vitamin A, 6–59 months, 2010	Unicef, 2012
	% <5 w/diarrhoea receiving ORT, 2006–10	Unicef, 2012
	% 1-year olds w/DPT1, 2010	Unicef, 2012
Citizen empowerment	% 1 + antenatal clinic visits, 2006–10	Unicef, 2012
	% institutional deliveries, 2006–10	Unicef, 2012
	Female youth literacy, 2005–10	Unicef, 2012
Economic conditions	Gender Inequality Index	UNDP, 2012
	% population urbanised, 2010	World Bank, 2012
	Active in environmental group (%), 2006–10	Unicef, 2012
	GNI per capita (US\$PPP 2005)	World Bank, 2012
Quality of government/governance	Gini Coefficient, 2000–11	UNDP, 2012
	GDP per capita av. annual % growth, 1990–2010	World Bank, 2012
	Av. annual inflation (%) 1990–2010	World Bank, 2012
	% population below \$1.25/day, 2000–10	World Bank, 2012
Conditions of conflict/crisis	Debt as % of GNI, 2010	World Bank, 2012
	Basic services to defence spending, 1998–2008	Unicef, 2012
	CPIA Score, 2011	World Bank, 2012
Busan Signatory (%)	Effectiveness of government, 2011	World Bank, 2012
	Political Stability/Absence of Violence 2000–11	World Bank, 2012
	Rule of Law, 2011 (WGI)	World Bank, 2012
	Disaster-affected population (per mn), 2001–10	Unicef, 2012

Table 1
SUN and non-SUN FCAS, and non-fragile SUN countries at 31 March 2013.

SUN countries (n = 16)	Non-SUN countries (n = 25)	Non-fragile SUN countries (n = 17)
Bangladesh	Afghanistan	Benin
Burundi	Angola	Burkina Faso
Ethiopia	Bosnia Herzegovina	El Salvador
Haiti	Central African Republic	Gambia
Kenya	Occupied Palestinian Territory (OPT)-	Ghana
Kyrgyzstan	Chad	Guatemala
Malawi	Comoros	Indonesia
Nepal	Democratic Republic of Congo (DRC)	Laos
Niger	Republic of Congo	Madagascar
Nigeria	Cote d'Ivoire	Mali
Rwanda	Eritrea	Mauritania
Sierra Leone	Guinea	Mozambique
Sri Lanka	Guinea Bissau	Namibia
Uganda	Iraq	Peru
Yemen	Kiribati-	Senegal
Zimbabwe	Liberia	Tanzania
		Zambia.

We hypothesised that fragile states with:

- Higher levels of health and nutrition need (% children wasted and stunted, under-5, neonatal and maternal mortality) would be more likely to sign up to SUN in the expectation of enhanced support.
- Weaker health infrastructure (vitamin A, ORT and DPT1 coverage, antenatal care, and institutional deliveries) would be more likely to sign up, viewing SUN as an opportunity to draw down additional aid for health.
- Weaker economic indices (per capita GNI, debt as a proportion of GNI, growth and inflation, poverty > USD\$1.25/day, and Gini coefficient), would be more likely to sign up, in the hope of gaining international assistance to off-set over-stretched domestic resources.
- A more active/organised civil society (urban population, [environmental] NGO membership, female youth literacy, and gender equality) would be more likely to sign up, as organised public pressure raised the disincentive for government to abrogate fundamental responsibilities.
- Better governance (Country Policy and Institutional Assessment (CPIA) score, WGI *Effectiveness of Government* score, and ratio of basic services to defence spending) would be more likely to sign up, as more stable political settlement and leadership within government enabled coherent attention to SUN as a political process, while greater administrative efficiency enabled technical engagement with SUN as a policy framework.
- Lower rates of violence and instability would have lower levels of uncertainty regarding government tenure, be in a better position to focus on policy matters beyond immediate crisis (such as SUN's integrated approach to sustainable nutrition improvement), and hence more able to sign up to SUN.

In the cases of the first three hypotheses, we foresaw the possibility of a bi-directional association with SUN accession. Fragile states with high levels of undernutrition might view SUN as a valuable opportunity; but they might also view exposure within SUN as politically-embarrassing. While fragile states with weak health systems might see SUN accession as a means of garnering support for system strengthening, they might hesitate to commit to an initiative with long-run implications for increasing domestic health system costs. Whilst we hypothesised that economically-weaker fragile states would be more likely to join SUN, we recognised that this was likely to be conditional on a credible signal from donors that new aid would follow accession. Conversely, economically-stronger fragile states might view the reputational advantage of SUN accession as worth the potential added costs in domestic spending.

For both 'citizen empowerment' and 'quality of government/governance', we hypothesised a unidirectional positive association with SUN accession, anticipating that a more active civil society would articulate public demand for government accountability, spurring government in those countries to sign up to SUN – and in a corollary fashion, expecting to see states with stronger indices of government capacity and governance supplying more active political leadership and more coherent nutrition policy, hence being in a stronger position both to understand the premise and embrace the opportunity of SUN.

Governance is widely cited as a critical factor in addressing undernutrition. In particular, there is strong theoretical and empirical support for the role of intra-governmental, intersectoral coordination in the design of coherent food and nutrition policy and implementation of effective, integrated strategy (Pelletier et al., 2013; Muthayya et al., 2013; Pelletier and Pelto, 2013; Pelletier et al., 2011; Solon, 2005). The axiomatic weakness of governance

implied in the concept of state fragility, and yet the apparent ability of some fragile states to join SUN in the first phase, suggested that testing for differences in governance between SUN and non-SUN FCAS was theoretically justified.

To assess governance, we used two primary data sources: the World Bank/International Development Association's CPIA index and the Worldwide Governance Indicators (WGI) dataset, also managed by the World Bank, but incorporating approximately 40 separate indices of governance (including, amongst others, the African Development Bank; Asian Development Bank; OECD; Afrobarometer; Latino-Barometro; Bertelsmann Transformation Index; Economist Intelligence Unit Country Risk Service and Democracy Index; Transparency International Global Corruption Survey & Political Risk Services International Country Risk Guide). Recognising that all governance measures are somewhat imperfect, we felt that conjoined and comparative use of CPIA and WGI indices was a reasonable and efficient means of covering a range of approaches to and metrics of governance, including both assessment of internal quality of government functions (CPIA), and external (e.g. public perception) assessment of government performance through key actions such as provision of public services (WGI). The use of WGI also allowed the inclusion of data that capture public perception of democratic accountability and institutional corruption.

Our focus on governance as pivotal in fragile states' orientation to SUN is, to a degree, reliant on the quality of that governance pre-existing states' decisions regarding SUN. In order to test this, we sequenced the times of accession of fragile states from the launch of the initiative in 2010 to the cut-off date in 2013 (Fig. 1). Since all fragile signatories included in this study signed up to SUN after October 2010, we compared their CPIA scores in 2011 with those in 2010, in order to discern any significant movement (up or down). Overall, the rate of change in scores was marginal (an average of 0.08 points up/down movement, on a 6-point scale), suggesting that governance performance was stable prior to SUN accession behaviour.

Our primary goal was to test the strength of associations between our explanatory variables and the outcome variable (SUN/non-SUN at 31 March 2013). The distribution of the variables was assessed. All continuous variables were transformed to binary using the median as cut-off point except for 'Increase/Decrease in % Undernourished, 1992–94 to 2004–06' and 'GDP per capita annual growth', where the cut-off point was zero. Bivariate logistic regressions were run for each of the explanatory variables with outcome signing up to SUN or not. Given the number of countries ($n = 35$) and variables ($n = 27$), they were not all included in a single regression. In order to test for omitted variable bias, the association between SUN and CPIA (as a continuous variable) was

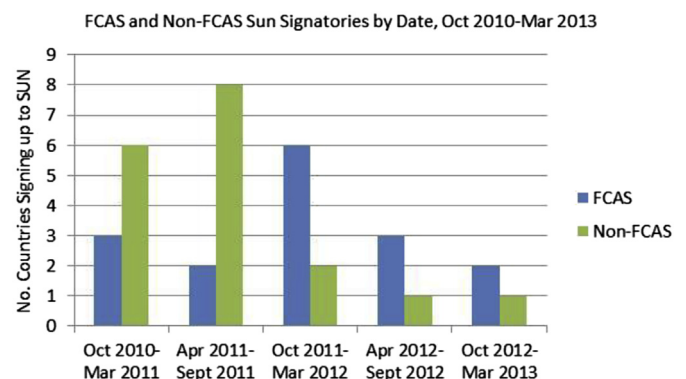


Fig. 1. Date of signing for fragile and non-fragile SUN signatory states, March 31, 2013.

Table 3
Characteristics of fragile states according to SUN signatory status and odds of joining SUN.

	SUN FCAS ^a	Non-SUN FCAS ^{a,b}	OR ^d	95% CI	P
	Median (N)	Median (N)			
<i>Undernutrition/health outcomes</i>					
% Children wasted (mod. & severe), 2006–10	11 (16)	8 (17)	1.45	(0.37 to 5.70)	0.60
% Children stunted (mod. & severe), 2006–10	42 (16)	40 (17)	1.45	(0.37 to 5.70)	0.60
Reduction in <5 mortality since 2000 (%)	28 (16)	11 (19)	11.25	(2.32 to 54.6)	0.003
Neonatal mortality rate, 2010 (units)	28 (16)	39 (18)	0.17	(0.04 to 0.77)	0.02
Maternal mortality rate, 2008 (units)	490 (16)	640 (16)	0.60	(0.15 to 2.45)	0.48
Better undernutrition/health outcomes ^c	37.5 (16)	73.3 (15)	0.23	(0.05 to 1.00)	0.05
<i>Health system capacity</i>					
% coverage vitamin A, 6–59 months, 2010	91 (14)	85.5 (16)	0.71	(0.16 to 3.12)	0.65
% <5 w/diarrhoea receiving ORT, 2006–10	37 (15)	39 (15)	0.42	(0.09 to 1.92)	0.26
% 1-year olds w/DPT1, 2010	93.5 (16)	83.5 (18)	3.34	(0.80 to 13.9)	0.10
% 1 + ANC visit, 2006–10	88.5 (16)	79.5 (18)	6.43	(1.32 to 31.4)	0.02
% institutional deliveries, 2006–10	38 (16)	39 (17)	1.10	(0.27 to 4.55)	0.90
Better health infrastructure ^c	46.2 (13)	33.3 (12)	1.71	(0.34 to 8.68)	0.51
<i>Citizen empowerment</i>					
Female youth literacy, 2005–10	77 (16)	66 (15)	2.50	(0.59 to 10.6)	0.21
Gender Inequality Index, 2010	0.58 (13)	0.64 (12)	0.21	(0.04 to 1.16)	0.07
% population urbanised, 2010	21 (16)	35.5 (18)	0.42	(0.10 to 1.80)	0.24
Active in environmental group (%), 2006–10	24.3 (12)	19 (9)	1.12	(0.20 to 6.41)	0.90
Higher citizen empowerment ^c	63.6 (11)	40.0 (5)	2.63	(0.30 to 23.00)	0.38
<i>Economic conditions</i>					
GNI per capita (USD\$PPP 2005), 2010	1200 (15)	1130 (16)	1.11	(0.26 to 4.72)	0.89
Gini Coefficient, 2000–11	40.3 (15)	43.6 (13)	0.75	(0.17 to 3.33)	0.71
GDP per capita av. Annual % growth, 1990–2010	1.3 (16)	0 (17)	3.38	(0.77 to 14.8)	0.11
Av. Annual inflation (%) 1990–2010	10 (16)	9.5 (16)	1.00	(0.25 to 4.04)	1.00
% population below \$1.25/day, 2000–10	53.4 (15)	47.5 (14)	1.50	(0.34 to 6.53)	0.59
Debt as % of GNI, 2010	16 (15)	24 (13)	0.08	(0.01 to 0.46)	0.005
Better economic conditions ^c	40.0 (16)	40.0 (15)	1.00	(0.20 to 5.12)	1.00
<i>Quality of government/governance</i>					
Basic services: defence spend, 1998–2008	2.2 (13)	0.7 (11)	5.25	(0.80 to 34.4)	0.08
CPIA Score, 2011	3.4 (16)	2.8 (16)	omitted ^e		<0.001
Effectiveness of government, 2011	−0.58 (16)	−1.28 (18)	15.17	(2.84 to 81.1)	<0.001
Better governance ^c	76.9 (13)	10.0 (10)	30.00	(2.63 to 342.73)	<0.01
<i>Conditions of conflict/crisis</i>					
Political Stability/Absence of Violence 2000–11	−0.16 (16)	0.01 (18)	0.78	(0.20 to 3.01)	0.72
Rule of Law, 2011	−0.93 (16)	−1.28 (18)	4.40	(1.04 to 18.6)	0.04
Busan Signatory (%), 2013	21.4 (14)	70.6 (17)	0.11	(0.02 to 0.59)	0.01
Disaster-affected population (per mn), 2001–10	25,049 (16)	4163.5 (18)	4.33	(1.02 to 18.4)	0.05
Better conflict conditions ^c	78.6 (14)	20.0 (15)	14.67	(2.43 to 88.48)	<0.01

^a Medians presented except for Busan Signatory (%).

^b Non-SUN countries.

^c Dimension derived from PCA; the second and third columns represent the proportion of SUN and non-SUN countries in the higher/better category of each dimension.

^d Odds of signing up to SUN. Independent variables converted to binary variables by median split except those noted in Methods, reference lower/decrease/decreasing.

^e OR not estimable.

adjusted by each potential confounder separately. Potential confounder variables were: reduction in under 5 mortality; debt as % of GNI; being a Busan signatory; and rule of law, because they were associated both with SUN and with the CPIA score. The model adjusted for debt as % of GNI did not converge; the association between CPIA and SUN remained highly significant after adjusting for the other variables.

To test for unobserved factors we used principal component analysis (PCA), bundling our selected variables into six dimensions: Undernutrition/Health Outcomes; Health Infrastructure; Citizen Empowerment; Economic Conditions; Quality of Government/Governance; & Conditions of Conflict/Crisis. The weights for each variable from the first component were used to generate a score for each country. This score was then categorised into 'high' (or better) and 'low' (or worse).

The quantitative component of the study was complemented by qualitative country case studies in: Sierra Leone, DR Congo, Afghanistan (field-based), Yemen and Pakistan (remote). Qualitative findings were consolidated to elicit common conditions and experiences relating to SUN accession, and are included in more detail in the Results and Discussion sections. We did not seek ethical approval since our principal analysis was based on

internationally-published datasets, and our qualitative studies were conducted with the participation of informed individuals from government, UN and non-government agencies mandated to act on undernutrition in respective countries. Analysis of global datasets was conducted between September 2012 and June 2013, with field-based research in DR Congo (Kinshasa), Afghanistan (Kabul) and Sierra Leone (Freetown) between October 2012 and March 2013.

3. Results

At 31 March 2013, 16 fragile states had signed up to SUN ('SUN FCAS'), leaving 19 unsigned ('non-SUN FCAS') excluding six countries, prior to analysis, as only cited by one source (Bosnia Herzegovina, Occupied Palestinian Territories) or small island states with relatively small population (Kiribati, Marshall Islands, Solomon Islands, Micronesia). Table 3 sets out the results of the analysis.

There was no association between the prevalence of undernutrition (including both wasting and stunting) and the odds of a fragile state becoming a SUN signatory during the first phase of the movement. Respondents in the country case studies confirmed a wider experience in FCAS – that the weight of government, donor

and NGO policy attention was aimed at dealing with acute malnutrition primarily through direct food aid and therapeutic feeding interventions in critical localities, rather than to broader national action on the combined problems of acute and chronic undernutrition and to the kind of integrated multisectoral response envisaged by SUN (Mejía Acosta, 2013).

On the face of it, health infrastructure did not appear to be associated with accession to SUN. Although fragile states with greater reduction in under-five mortality (1990–2010) and lower rates of neonatal mortality, were more likely to be SUN signatories, only one of four indicators of health system function – utilization of antenatal care – was associated with becoming a signatory.

The relationship between citizen empowerment and SUN accession was, broadly, weak (though gender inequality marginally predicted non-accession). As above, the case-based research suggested that most civil society organisations working on nutrition spent the lion's share of their time and resources on direct delivery of food assistance to areas affected by high rates of acute undernutrition. As a result, they tended to concentrate in crisis regions, leaving other areas under-served, occupying an instrumental role as government service providers, arguably attenuating their ability to engage in more contentious political and policy-oriented advocacy.

There was some evidence that better economic conditions predicted SUN accession. Odds of signing up were lower in countries with a higher debt-to-GNI ratio, while positive GDP growth increased the likelihood of accession when comparing non-SUN fragile states with combined fragile and non-fragile SUN signatories. Yet the expectation of additional aid for SUN was reported by government respondents in both signatory and non-signatory case study countries as a key factor stimulating domestic attention to the initiative. Absence of a clear commitment by donors to provide such funding was reported to diminish domestic interest in accession among non-signatories, and to weaken commitment to implementation among those signed up.

Better governance strongly predicted fragile states signing up to SUN. All non-SUN states had CPIA scores below the median (Fig. 2). But governance constitutes a complex set of effects – from strength of political leadership, through functionality of institutional and administrative systems and control of corruption, to democratic accountability and popular legitimacy. Analysis of the 16 sub-categories of governance within the CPIA pointed to 'structural policies' (related to finance, trade and business regulation) and 'policies for social inclusion/equity' as fields in which signatory fragile states consistently out-performed non-signatories. SUN signatories also scored significantly higher on the WGI *Effectiveness of Government* index, which includes internal measures of government capacity and external, including perception, measures of governance performance. Country case studies all confirmed the importance of intersectoral coordination and cooperation within government – between ministries horizontally, and between the technical/managerial and political levels of decision-making vertically – as a key influence on states' engagement with SUN.

Comparing fragile with non-fragile states, we found that fragile signatories spent more on health as a proportion of GDP than non-fragile, and had higher rural populations. Perhaps unsurprisingly, fragile signatory states scored higher on the Failed States Index than their non-fragile counterparts. But arguably the most interesting finding was that the difference in governance scores between fragile and non-fragile signatory states was negligible, while difference between all SUN signatories (fragile and non-fragile) and non-signatory fragile states was significant and almost perfect (Fig. 3).

This raises an immediate question about the validity of the FCAS classification itself, to which we return. It is possible that some of

the null findings in this research are the product of the study's inclusion criterion. Taking the example of health need (based on prevalence of moderate/severe stunting), though, there was significant variation in performance across both SUN and non-SUN signatory fragile states, ranging from 10–20% to 60% of population in both groups (Fig. 4). This might suggest that scale of undernutrition could be expected to differentiate fragile states' orientation to SUN, but it does not appear to.

But the degree of the significance of the governance finding also raises the question of endogeneity – that is, the possibility that accession to SUN and [good] governance are, in essence, mutually constitutive effects, rather than aligned in a causal relationship, which we explore further in the Discussion.

Stronger rule of law and exposure to natural disasters both appeared to enhance a fragile state's likelihood of joining SUN. A lower level of instability and violence in a country marginally predicted SUN accession; and SUN signatory fragile states spent proportionally more on basic services than defence.

PCA broadly supported this analysis. Undernutrition/Health Outcomes was marginally associated with SUN ($p = 0.051$) – countries with higher need were in fact less likely to be signatories (OR: 0.23 95% CI 0.05, 1.00). Health Infrastructure, Citizen Empowerment and Economic Conditions were not associated with SUN. Governance was strongly associated with signing up to SUN – countries with better governance had higher odds of being signatories (OR: 30 95% CI 2.63, 342). Better Conflict Conditions were also associated with signing up to SUN (OR 14.7 95% CI 2.43, 88.5). But the very large odds ratio for Governance points, again, to the possibility of endogeneity, and incomplete data meant there was a problem of 'missingness' in some dimensions. Thus, although PCA supports the findings of the original analysis, it is presented with qualifications, and we judged it more appropriate to report complete case analysis for each component.

4. Discussion

Amongst the drivers of government policy on an issue like nutrition, it is possible to distinguish between what one might call demand-side factors (levels of visible undernutrition and palpable need, associated with public manifestations of dissatisfaction and organised civil society pressure for action), and supply-side factors (available fiscal resources, service delivery infrastructure, political will and institutional capacity within government to act). Our findings, taken together, suggest that action on undernutrition (constituted, admittedly imperfectly, as accession to SUN) is shaped more strongly by the supply-side of governance capacity, and less by the demand side of health needs and the level of citizen empowerment necessary to articulate those needs. Neither the scale of undernutrition, nor degree of citizen empowerment was predictive of fragile states joining SUN. Although preliminary and tentative, this would suggest that investment in strengthening the policy supply side (institutional capacity and cross-government coherence) may be an important strategy for improving nutrition policy in fragile states.

There was little apparent difference in health system performance between SUN and non-SUN states, with the exception of antenatal care and, perhaps relatedly, neonatal mortality. If, though, we assume that antenatal care reflects an underlying true indicator of health system function (insofar as vaccinations and ORT tend to be heavily underwritten by external donors, and institutional deliveries tend to be very low in general), we might conclude that the structural functionality of the health system (as indicated by ANC) is, in fact, somewhat influential in fragile states' engagement with SUN. The higher ratio of basic services spending to defence, and considerably stronger performance in under-5 child mortality

reduction among SUN signatory fragile states, could support this hypothesis.

The role of economic conditions in influencing fragile states' orientation to SUN appears complex. We know that fragile states with a higher debt-to-GDP ratio were less likely to have signed up to SUN. This could reflect reticence among economically weaker fragile states to take on the perceived costs of SUN in a period of global economic downturn, and uncertain prospects for aid. Between 2007 and 2011, SUN-signatory fragile states saw overall aid receipts increase by an average of 33%, while aid income to non-SUN fragile states over the same period rose by just 5% (author's calculations, OECD Creditor Reporting System, accessed 20 July 2013).

But we also find, from the country case studies, that absence of donor commitment to new aid for SUN mitigated interest in the initiative among *both* signatory and non-signatory states. One interpretation of this is that aid is viewed – commonly across fragile states – as a primary resource for action on undernutrition, in a sense irrespective of the underlying strength of domestic resources. This would be consistent with the dominant focus in fragile states on acute undernutrition and emergency interventions with a heavy reliance on external humanitarian aid, and the relatively small domestic budget allocations to structural action on chronic undernutrition.

Governance emerges in this research as an important factor influencing – or framing – fragile states' accession to SUN. Within governance, analysis of the CPIA and WGI indices highlights the role of policy coherence and intersectoral coordination as potentially influential. The CPIA index focuses on the quality and consistency of government policy formulation, balancing macro-economic stability with coordinated allocation of public spending to the range of sectors supporting economic growth and poverty reduction (World Bank, 2010). SUN-signatories also scored consistently higher than non-SUN fragile states on the Worldwide Governance Indicators *Effectiveness of Government* index. Seventy percent (28/40) of the individual metrics within this index measure quality of government institutions, institutional coordination and policy development, and efficiency of bureaucratic policy implementation.

The peculiar requirements of an integrated nutrition agenda necessitate substantial contribution from a range of sectors, including centrally health and agriculture, but also *inter alia* education, labour, gender, finance and economic development. They incorporate approaches from across the humanitarian (food aid) and development (food security) intervention spectrum. And they rely on a coherent network of government, non-government and private sector actors. Integrated nutrition, thus, invokes the critical importance of cooperation (or at least coordination) across a wide range of government, para-statal and non-government institutions and organisations often with competing interests or incompatible mandates. In fragile states, nutrition-relevant government institutions may rely heavily for revenue on bilateral funding relations with external donors, resulting in intense territoriality between sectors and ministries anxious about the potential loss of those bilateral lines of revenue through subordination under a cross-sectoral, collaborative agenda. A relatively strong state capacity to negotiate with, and ultimately discipline, this array of institutions and organisations within and around government, may be important in shaping the institutional and policy coherence on which SUN depends (Muthayya et al., 2013; Pelletier and Peltó, 2013; World Bank, 2013).

The importance of intersectoral coordination for nutrition was identified in all of the country case studies. In DR Congo, allocation of different ministries to formerly hostile parties as part of the peace process was reported to result in weak communication and

cooperation between sectors, such that negligible shared knowledge of SUN undermined collective institutional pressure on political leaders to engage. Sierra Leone's comparatively positive experience of SUN accession was reported to have been driven by a bilateral relationship between the Ministry of Health & Sanitation and the Ministry of Agriculture, Forestry and Food Security – but one which was brokered by the Ministry of Finance and Economic Development empowered to guide *and enforce* alignment of sectoral budgets. What is clear is that intersectoral coordination was felt to be an institutional platform supporting subsequent political accession to SUN.

In addition to intersectoral coordination, other aspects of governance associated with joining SUN were: 'rule of law', 'business regulatory capacity' and, separately, 'exposure to natural disaster'. Although the data in this study do not allow us to state with confidence precise mechanisms by which these factors may improve capacity to engage with SUN, we may hypothesise pathways by which their influence operates.

Stronger rule of law may reflect government capacity – and commitment – to managing land tenure arrangements critical to the livelihood viability and productivity of smallholder farmers, in particular during the resettlement and reintegration phases after a conflict. Inequitable distribution of and access to land is a known risk factor for fragility and conflict, and a factor in both acute and chronic undernutrition. The ability to formalise more equitable access to farming land through extension of norms and controls on property, may reflect government policy capable of – and interested in – advancing livelihood, food security and associated nutritional welfare of its rural farming population and, in this respect, positively oriented to an initiative like SUN (Leonard, 2013; Prosterman, 2012).

In a related fashion, fragile states with stronger capacity in business regulation may be better placed to protect household farming in the face of industrialising agriculture and land acquisition often through foreign direct investment in post-conflict settings, as well as balancing the interests of domestic smallholder agriculture with the emphasis on export-oriented agribusiness development common to economic recovery strategy in many predominantly rural, low-income conflict-affected countries (Longley et al., 2007). Stronger business regulation may also denote a greater institutional capacity and willingness to influence the behaviour of commercial food producers. Finally, systemic or repeating exposure to natural disaster may sharpen the kind of cross-government coordination necessary to organise a coherent response to calamity – similar to the institutional coherence implied by SUN.

The association of governance and SUN accession in fragile states presented in this analysis should be treated as preliminary – as a starting point for more detailed research. The issue of possible endogeneity in the relationship between governance and SUN accession, in particular, points to the need to consider (and in following research test for) omitted variables that might account for both effects. A growing body of research hypothesises that it is the long trajectory of political-institutional development, shaped by distinct cultural, economic, geographic and demographic influences, which culminates in a given state's level of governance and, coterminously, its proclivity to endorse normative international initiatives like SUN (Acemoglu, 2005; Mansfield et al., 2002; Acemoglu et al., 2000). Those deep-rooted historical factors, however, are mainly understood retrospectively. A nearer-term equivalent of this hypothesis, with greater potential for future development application, is that the specific modalities of international assistance experienced by a fragile state may, over time, shape both the general quality of its governance and its capacity for intersectoral coordination, and its likelihood of perceiving value in

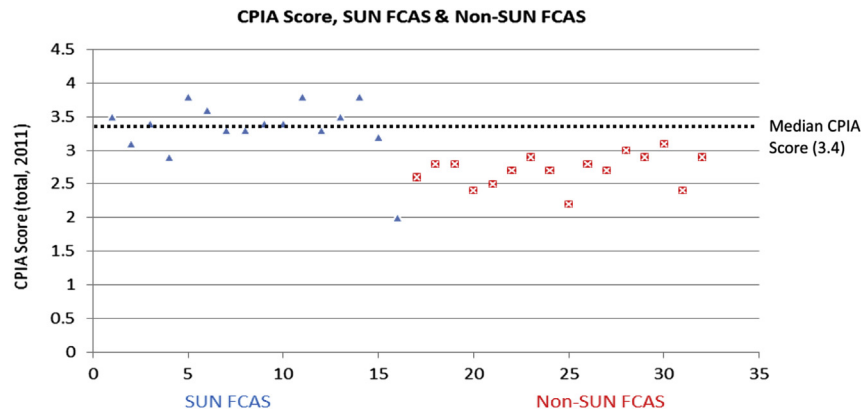


Fig. 2. Quality of governance in SUN (blue) and non-SUN (red) fragile states, March 31, 2013. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

SUN membership.

We know that between 2007 and 2011, SUN-signatory fragile states received substantially larger increases in aid than non-signatory fragile states (and we know that all case study countries reported the importance of aid as a motive for engaging with SUN). We know, also, that non-signatory fragile states received a larger proportion of their aid in humanitarian forms (forms which, characteristically, sideline or entirely bypass recipient government control thereby, arguably, undermining the development of governance capacity). In 2011, non-signatory fragile states received almost twice as much aid in humanitarian form as SUN signatories (16.5% and 9.2% respectively). Between 2007 and 2011, SUN signatories received almost half of their nutrition-related aid in non-emergency forms while in non-signatory states emergency food aid was twice the volume of all other forms of nutrition-related assistance combined.

At an institutional level, external assistance that supports coordination among nutrition-relevant government ministries and agencies – in particular the UN's REACH (Renewed Efforts Against Child Hunger) initiative – was cited by informants in country case studies as influential in subsequent willingness and capacity to engage with SUN. REACH countries constituted the majority of states signing up to SUN in its first 12 months. Of 12 REACH countries, all (both fragile and non-fragile) are SUN signatories. Half of the REACH countries are classed as fragile, but all had signed up

to SUN in the initial 2-year period. While SUN describes itself as a global 'movement', focusing on galvanising high-level political commitment, best practice, country ownership and resource mobilisation (SUN, 2012p.1), REACH describes itself as focused on 'strengthening government capacity to scale-up nutrition actions ... improve nutrition management and governance, and ... multi-sectoral approaches' (REACH, 2012, p.1). It may be that REACH's applied approach to strengthening nutrition governance through enhancing technical, managerial and institutional capacity, provides a functional basis across government on which political commitment to SUN is easier to forge. Although, clearly, this is a rudimentary analysis (there are a number of SUN-signatory fragile states without any experience of REACH, for example), it points to the possibility that the specific contours of the aid relationship in a fragile state might be a significant factor shaping both the broad quality of governance and the specific orientation to a normative initiative like SUN.

Aid for food and nutrition in fragile states is delivered primarily through humanitarian mechanisms, with most attention paid to acute malnutrition and provision of emergency food aid (European Commission, 2013; WFP, 2012a; OECD-DAC, 2010). Ninety percent of food and nutrition aid is delivered through project vehicles (characterised by non-state and external partner management delivered mainly in the short term) rather than programme vehicles (characterised by government ownership and management,

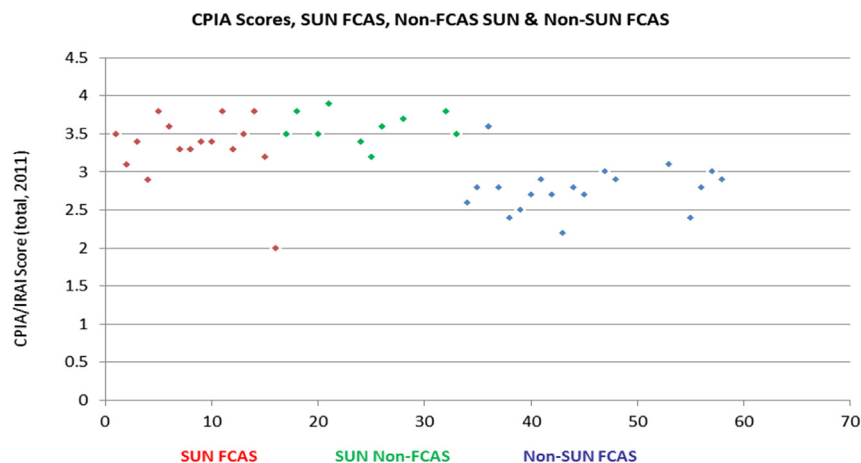


Fig. 3. Quality of governance in fragile and non-fragile SUN state (red/green) and fragile non-SUN states (blue). (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

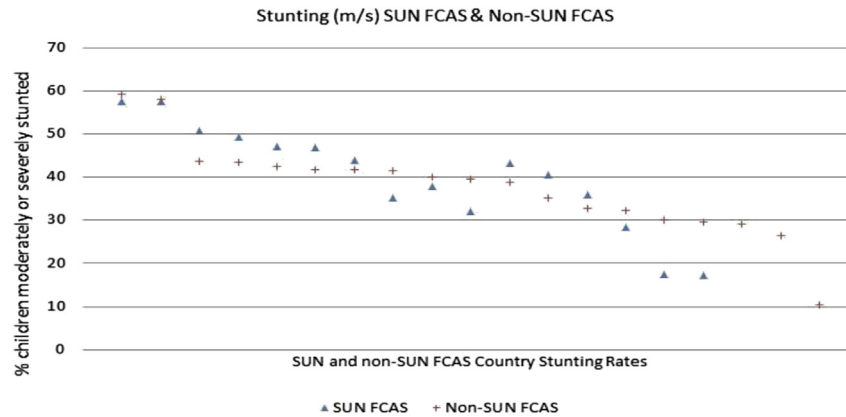


Fig. 4. % Children moderately or severely stunted, SUN and non-SUN FCAS.

aiming to improve national food systems in the medium-to long-term) (OECD/Creditor Reporting System [accessed July 2013], author's calculations). This pattern is stronger in non-SUN fragile states. As long as donors continue to channel food and nutrition investments in fragile states through humanitarian mechanisms that bypass or actively undermine government, they will limit the chances of their aid contributing to sustainable, country-owned strengthening of governance capacity.

5. Conclusion

This research identifies governance a potentially important factor in—or context of—fragile states signing up to the SUN initiative, recognising that the possibility of endogeneity in the model. Qualitative case studies confirmed the importance of governance—specifically the positive effect of intra-government, intersectoral coordination. We believe this is an important finding because it illuminates the often-neglected dynamics of political and policy-making process that underpin institutional commitment and capacity within governments in heavily-affected fragile states to develop integrated action on undernutrition (Gillespie et al., 2013; World Bank, 2013).

5.1. Implications

The major implication of this research is that improving governance in fragile states may be an important strategy to promote accession to and implementation of SUN. A corollary implication particularly for donors is the need to consider how fragility itself is defined; how aid allocations, on the basis of that definition, are structured; and how the resulting aid relationship may—or may not—contribute to the development of the fragile state's own governance capacity.

The fact that, in this research, signatory states classed as fragile scored above the CPIA threshold for fragility, and almost identically to non-fragile signatory countries raises questions about the consistency and objectivity of the FCAS category. Given the dependence of fragile states on aid, and the way FCAS status conditions aid access, ensuring a transparent and objective system for assessing fragility is important. Developing a more sensitive index of fragility could help donors tailor their assistance strategies to fit more closely institutional weaknesses—but also strengths—in each country context.

5.2. Strengths and weaknesses of the research

By assessing a range of socioeconomic and political factors among states classified as fragile, and systematically measuring difference between two groups demarcated by accession to an international initiative (SUN), and by using a mixture of quantitative and qualitative methods, this research contributes to a more nuanced understanding of what constitutes state fragility, in its relation to governance and nutrition.

But we recognise significant limitations. Some models became unstable with more parameters, relatively few observations and some missing data. Relevant associations could be missed because statistical power was lacking i.e. type II error. In particular, we note limits on interpretation of our findings due to possible endogeneity, suggesting the need for more detailed analysis of the relationship between governance and SUN accession. We also note that our findings relate to SUN accession and do not tell us whether signatory fragile states will act on accession.

5.3. Research in context

Governance is widely recognised in contemporary food and nutrition security literature—as a 'basic cause of malnutrition' (World Bank, 2013, p.29); as a major determinant of equitable basic services relevant to nutrition; as a framework for coordinating relevant policies and sectors, including agriculture and food security, health and education, land tenure and protection to small-holder farmers, and control of natural resource exploitation, within a stable macroeconomic policy framework (IFPRI, 2012; FAO, 2012; Gillespie et al., 2013; Mejia Acosta and Farzo, 2012; Wild et al., 2012; WFP, 2012b; Enoughfood.org, 2013; Haddad, 2012, 2009). But it is also noted that a closer empirical analysis of what is meant by governance is lacking, and that a research agenda, combining qualitative with quantitative analyses of governance is needed (Gillespie et al., 2013; Haddad, 2009). This work helps to address that gap.

5.4. Implications for policy and research

The current study cannot confirm that improving governance and intersectoral coordination will support conversion of SUN accession in fragile states into meaningful action on the ground. That should be the focus of further research over the coming 3–5 years. But this study offers a basis for more detailed research on how modalities of aid can constitute an underlying factor influencing both the general development of governance and specific

forms of international cooperation (such as SUN) in fragile and conflict-affected states.

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