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Hungry, or Hungry for Change? Food riots and political conflict, 2005-2015[*]

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Abstract

This paper presents new, original data on food riots and protests between 2005 and 2015 and explores the societal conditions in which these events occurred. These conditions include a range of economic, social, demographic, political, and household consumption factors, with reference to a number of conflict theories. The paper explores whether instability related to food prices should be seen as an expression of hunger within the most vulnerable and deprived societies, or a demonstration of grievances rooted in broader political contestation. The paper also contributes to debates about the methodological challenges of focussing on food prices as a factor relevant to instability and conflict, and the question of whether food riots have significance to broader debates about conflict.

The role that rapidly increasing food prices may play in the onset of social unrest has intrigued analysts for many years, and this has attracted renewed interest since sharp rises in international prices occurred between 2007 and 2011, a period which also saw significant levels of instability and upheaval. The precise nature of this role and the conditions in which food price increases are more likely to contribute to instability are unresolved and ongoing fields of inquiry. The relationship between rising food prices and other conflict drivers – such as relative deprivation grievances, horizontal inequalities, political transition, and state fragility – is contested. In particular, the mechanisms which may be at work in the relationship between rising food prices and social unrest, and the manner in which rising food prices work in conjunction with other societal stresses, remain unclear. Moreover, given that not all the countries affected by sharp food price increases experience unrest – including those which exhibit well-established conflict risk factors – there is scepticism as to whether rising food prices significantly increase the likelihood of instability, as a general phenomenon.

This article will contribute to debates about the role of rising food prices in instability by focussing on food riots and protests. It presents new, original data on food riots and protests between 2005 and 2015 – providing arguably the most comprehensive record currently available – and it explores the societal conditions in which these events occurred. Through this, the article considers the broader significance of food riots and protests in relation to conflict and instability, with reference to a number of theoretical debates in conflict studies. Whilst thorough research on this broad topic

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exists (see below), this article has the distinction of addressing a specific question: *should instability related to the price and availability of essential foodstuffs be seen as an expression of grievances over absolute poverty and food insecurity – an expression principally of hunger – or an indication of grievances rooted in broader political contestation?* In addressing this question, the article considers the relevance of state capacity, human development, food security and nutrition, socio-economic inequality, public social protection, household spending behaviour, demographic factors, urbanisation, and government type in the incidence of food riots and protests. Based upon this analysis, the article argues that food-related instability should be seen as a reflection of broader political contention rather than narrow grievances related to food insecurity. Finally, the paper contributes to debates about the methodological challenges of focussing on rising food prices as a factor relevant to instability and conflict, and the question of whether food riots and protests have significance to broader debates about conflict.

Rising and fluctuating international food prices

A number of trends contributed to an international 'food crisis' that was most acute in periods between 2007 and 2011: severe food price increases, food price volatility, and disruptions in the distribution and availability of basic foodstuffs.[1] These trends occurred against a longer-term increase in dependency upon food imports in all regions of the world, and thus an increasing exposure to international food price increases. In 2005 international prices for basic foodstuffs began to increase, after a long period of stability. These trends are reflected in the Food and Agriculture Organization (FAO) Food Price Index, a measure of the monthly change in international prices of various food commodities (cereal, vegetable oil, dairy, meat, sugar) and presented both as individual commodity price indices and an aggregate combined index.[2] These prices soared in 2007 and the first months of 2008, and again in 2010 and early 2011. In the period from 2005 to mid-2008 the prices of some international food commodities doubled in real terms. The major increases were in the cereal price index and in the oil price index. The other commodities also experienced dramatic increases, including dairy, meat, and sugar. Other organizations, such as the World Bank – through its Food Price Watch[3] – and the World Food Programme – through its Vulnerability Assessment and Mapping[4] – also recorded these spikes. The World Bank Food Price Index rose by 60% in a matter of months in 2008, and international prices of maize, rice, and wheat increased by 70 percent, 180 percent, and 120 percent, respectively, compared to mid-2007. The soaring food prices peaked in mid-2008 before a return to just above their 2005 levels by January 2009. In the period from January 2009 there was an annual growth in the Food Price Index score but on a shallower gradient moving upwards by 59% to the beginning of 2011 with peaks in January 2010 and February 2011. In March 2011, the food index remained 36% above the level of a year earlier. Key staples that remained significantly higher in mid-2011 compared to a year before included maize (74%), wheat (69%), soybeans (36%) and sugar (21%).[5]

Soaring international food prices have been attributed to a number of causes, many of which remain inconclusive or controversial. Rising oil prices since 2006 had an inflationary impact upon food prices, increasing the costs of transportation and agricultural production, including the cost of fertilizer.[6] A significant amount of analysis also points to the nature of the global food system to explain soaring and fluctuating prices.[7] According to this, the food security crisis must be understood as a consequence of international structural factors related to international trade and profit. Market speculation on international food markets and commodity futures results in price fluctuations which can affect the value and availability of food, and in particular has an inflationary impact.[8] Protectionism and subsidies in developed countries are also blamed for inflating prices. Some primary produce markets are dominated by a small number of transnational corporations which are also involved in speculative market trading and strategic alliances. Trade liberalization has, according to some, increased the number of countries that are dependent upon international food markets and imports, and – in the developing world – increased the number of people vulnerable to food crises.[9]

Long term environmental degradation, and in particular climate change, has resulted in resource depletion and lower agricultural yields because the amount of fertile land is decreasing, and reinforced conflicts between different forms of land use.[10] It is generally accepted that environmental change has a relatively greater negative impact upon the developing world.[11] Natural disasters – resulting in the collapse of wheat production in Russia in 2010, and the droughts in Australia over the last decade and in China in 2010-11 [12] – have reduced the amount of certain foodstuffs on the international market and thus increased prices. Demographic changes, and in particular population increases and urbanization, have also increased the price of foodstuffs, although in uneven ways. World population increased from approximately 5.3 billion in 1990 to 6.9 billion in 2010, and is expected to increase to almost 9 billion in 2050. Where there are demographic stresses at the local level, food demand growth is outstripping output growth, affecting supply and inflating prices. Increasing production and use of biofuels, driven by national emissions targets and biofuel subsidies, has arguably also inflated food prices. The use of land for the biofuel industry can be significantly more lucrative for farmers than producing basic foodstuffs, so the amount of food for human consumption declines.[13] Moreover, biofuel companies are acquiring land in developing countries to meet the growing need for biofuel production. The overall impact increase the value of agricultural land, creating conflicts over land use and declining use of land for basic agricultural production, all of which has an inflationary impact.

Changing consumption patterns in economically thriving countries – particularly in some regions of Asia – are increasing demand for meat, on top of rising demand for meat in the industrialized world.[14] The production of meat for export provides a more lucrative use of land than for producing basic foodstuffs. Moreover, the amount of

land required for meat production is soaring, and this contributes to a downward trend in land use for basic foodstuffs. In addition, the production of meat requires grain, which results in a further diversion of agricultural capacity away from the production of foodstuffs for human consumption.

It is difficult to predict future food price trends, because these are a result of the complex interplay between many medium and long term factors. Agricultural production capacity, population growth, consumption patterns, and unpredictable factors such as natural disasters, political events and technological innovations, all play a role. Nevertheless, the driving forces of food insecurity show little sign of waning, and most projections based upon current trends point to future price inflation in basic foodstuffs, even if short-term international prices have dropped since their peak. There is wide consensus that oil prices will continue to rise long-term. The global population is projected to rise exponentially, as noted above, and for the first time in human history more humans live in urban rather than rural settings, a trend that is also certain to continue.[15] The Intergovernmental Panel on Climate Change claims that climate change could cause international food prices to rise by over 80% by 2050.[16] Moreover, the trend has clearly been for a growth in consumers (versus producers) and increasing import dependency, increasing exposure to international food price increases. In line with this, the FAO Agricultural Outlook 2011–2020 projects steady and sometimes sharp rises in international food prices.[17] Research for Oxfam forecasts astronomical price rises for staple foodstuffs within the next two decades in the absence of major interventions.[18]

Changes in international food prices do not necessarily have an automatic impact upon domestic or local prices, and not all countries are equally exposed. The local impact of international food price increases and fluctuations has varied in the 2008-2011 timeframe at the national level.[19] In addition, not all communities are affected uniformly, or indeed negatively, by food price increases. Countries and communities which are net food exporters experience food price increases differently from food importers; land-owning farmers may see their interests served by international food price increases, and agricultural communities may even experience protests when prices decline rather than when they increase. However, only a small number of developing countries are net exporters of core foodstuffs. The relationship between international and domestic prices is mediated by a number of factors.[20] However, international food price increases generally do have an inflationary impact locally, especially upon net importers of food (see more below) and where governments are less able to mitigate such increases.

Rising food prices, human security, and instability

The rise in international food prices – especially when this is translated into local markets – has a direct impact upon human security in developing countries, further deepening the poverty of almost 1 billion people who were already living in

deprivation. According to the FAO, there were 166 million more undernourished people in poor countries as a result of the first major price spike in 2007-08.[21] In turn, the World Bank estimated that the increase in food prices between mid-June 2010 and April 2011 led to an estimated 44 million increase in the number of the global poor.[22] Research also indicates that low and low-middle income countries have experienced higher levels of food price inflation compared to upper-middle and high-income countries, particularly when international prices spike.[23]

In the years following these international food price increases there was much academic interest in a possible link between rising food prices, instability and political change. The 2008-2011 timeframe provides an extraordinary period of soaring international food prices which coincided with a wave of social and political upheaval in a number of countries. Interest in this topic builds upon a long tradition of exploring the significance of food riots in historical perspective, in particular in the 18th and 19th centuries.[24] This unrest was often portrayed as being essentially spontaneous, reactive, and not engaged with broader national political agendas, at least not directly.[25] Whilst Tilly argued that such riots reflected a specifically pre-industrial local context, before centralized economies generated different types of protest,[26] others suggest that food riots are also a modern phenomenon.[27] Some research has also correlated rises in protests and riots with soaring international food prices in other historical periods, in particular in the 1970s and 1980s.[28] This earlier work has identified possible links between food prices and unrest but it has not been conclusive in terms of the mechanisms involved.[29]

More recent scholarship by conflict analysts and economists has sought to identify the precise effect of rising food prices in social unrest, in conjunction with other social, economic, demographic and political factors. A number of valuable contributions have been made. Firstly, there is wide support for the basic proposition that rising food prices have played a role in fuelling social unrest and instability, particularly in developing countries, whether the focus is on international[30] or domestic food prices.[31] Brinkman and Hendrix thus suggest that "food insecurity has been associated with increases in the probability of democratic failure, protest and rioting in developing countries, instances of communal conflict, and higher probabilities of civil conflict."[32] Other research also supports the general link with respect to specific countries such as Burkina Faso, Yemen, Sudan, Tunisia, and Nigeria.[33]

Beyond this, a key focus of the literature has been in seeking to understand the mechanisms that are at work and the societal conditions that increase the likelihood that food price shocks will play a role in instability. Natalini et.al. find that the level of political stability in a country plays a key role in the likelihood of unrest related to grievances over food prices.[34] Hendrix and Haggard suggest that the effect of international food price rises on social unrest is dependent upon regime type: "democracies are more prone to urban unrest during periods of high food prices than autocracies", due to the greater opportunities which exist for protest in open

societies.[35] Hendrix et.al. also found that the relationship is non-linear: decreases in food prices lead to some types of protests.[36] They claim that soaring food prices can be linked to an increase in protests and riots of all kinds – not just 'food riots' – in 55 major urban areas in Africa and Asia.[37] Brinkman and Hendrix note that "these effects are contingent on existing political institutions, levels of economic development, safety nets and demographic pressures; food insecurity is neither a necessary nor sufficient condition for acute political violence and conflict".[38] Raleigh et. al. approach food prices in parallel to – and interrelated with – climate stresses, finding that these influence violence in conjunction with marginalisation and hardship. Significantly, they also find that feedback between local food prices and political violence exists in a circular – rather than linear – manner, as a endogenous, reciprocal relationship.[39]

There is support for the idea that 21st Century food riots generally occur in urban settings.[40] This is in contrast with historical experience, which tended to associate such instability with rural locations which enjoyed less public services, and had lower incomes, than urban centres and were therefore more vulnerable to food insecurity.[41] Arezki and Brückner find that rising international food prices lead to a significant increase in social unrest in low income countries, but no significant effect in high income countries.[42] There has also been some attention to the distinction between food price rises and volatility in food prices, with Bellemare finding that the former is strongly associated with social unrest, but price volatility is not – and even that volatility is associated with a decrease in social unrest.[43]

There is considerable attention in the literature to whether *international* food prices are a fruitful focus in seeking to understand any relationship between food price increases and instability, given that it is local – and not international – prices that consumers are directly exposed to. The factors which mediate between international and local prices are therefore a key focus of many studies because these factors determine how food price shocks are experienced amongst the population, and therefore if international price spikes may play a role in social unrest.[44] Mediating factors can be divided into two categories. General factors, such as income and human welfare levels, state capacity, proportion of household income spent on essential foodstuffs, and the nature of the local market – in terms of which foodstuffs are staples – play an important role in determining the local effects of rising international food prices. Developed, industrialized countries can generally absorb food price increases and fluctuations as a result of higher incomes, social safety nets, government subsidies and counter-inflationary policies. The proportion of household income spent on essential foodstuffs in developed countries is generally significantly lower than in developing countries, allowing households to cope with international food price spikes. Developed countries are therefore generally resilient both at the societal and household level. In poorer, developing countries which have weak state capacity, soaring food prices and disruptions in food availability can have a far more negative impact upon welfare.[45] As a result, it is generally accepted that food price

rises are more likely to play a role in social and political unrest in developing countries.

A second type of mediating factor concerns the policies enacted by governments – and occasionally non-government organisations – specifically in response to rising international food prices, in an attempt to mitigate the impact upon consumers. Government subsidies to producers, price controls, the release of warehoused food stocks, import substitutions, export taxes, and import tariff adjustments are interventions which can cushion the impact of international food price increases. According to Weinberg and Bakker every country for which data is available shows some degree of price distortion as a result of government intervention, so there is never a perfect transmission of changes in prices from international to local markets, although the nature of this transmission is contested (see below).[46] In dire circumstances, national authorities – sometimes in cooperation with international actors and non-government groups – can also undertake humanitarian assistance to relieve food insecurity. The responsiveness of national – and to a limited extent international – authorities may therefore be an important factor, although the capacity of governments to offset food price shocks varies.

Theoretical mechanisms

Social unrest related to grievances over food prices may be linked to a number of theoretical mechanisms and debates in the conflict studies field. A key focus of the literature described in the preceding section is the (possible) role of rising food prices alongside other social and political factors which fuel contentious politics.

Thus, it might be expected that rising food prices are more likely to trigger social unrest in societies which are relatively poor and have significant inequalities, in situations of political transition or group domination of power, where state capacity and public service delivery are weak, and where there are perceptions of clientalism and corruption in government. In such a context, protests triggered by rising food prices can become politicized and represent a vehicle of opposition to governments. However, it may be the underlying conflict drivers which are the key to explaining social unrest rather than rising food prices, even if rising food prices compound other grievances and thus exacerbate conflict. In societies which are prone to unrest and instability, rising food prices may therefore become a 'lightening rod' for a broad range of grievances. For this reason, rising food prices have been associated with some of the 'Arab Spring' uprisings.[47]

A number of other scenarios are theoretically relevant. In situations of horizontal inequalities (inequalities in societies divided by collective identities) sharp food price increases might exacerbate inter-communal conflict in the context of broader social tensions.[48] In this scenario, sharp food price increases may affect different groups disproportionately, generating resentment related to broader relative deprivation

grievances.[49] Similarly, food price increases can be symptomatic of the declining social welfare and status of certain sections of society, for whom a major grievance is not necessarily absolute deprivation but relative deprivation.

Internal and trans-border migration may be a consequence of food security crises as individuals and communities are forced to migrate in order to find new livelihood opportunities, habitable land, and food. This can generate friction between migrating and settled communities, and competition over limited resources and public services. Such tensions can and do easily spill over into open conflict.

In some, albeit limited, situations, food crises might directly contribute to recruitment into armed gangs and insurgencies, because membership in such organizations may provide the means for sustenance – something that the government and the market may fail to provide. Moreover, the risks of membership become acceptable weighed against the precariousness of poverty and hunger, and the inability of young men to provide for their families.

While the findings of this paper include some evidence relevant to the above debates, the following theoretical propositions will be explored as the principal objective of the analysis which follows.

Firstly, food riots might be seen as an expression of hunger, and as a key factor of absolute deprivation grievances.[50] Accordingly, food riots should occur with more frequency within societies which are particularly deprived and more vulnerable to food price increases at the household level, where a relatively high proportion of household income is committed to essential foodstuffs. Whilst broader political grievances and contextual factors may be relevant, this unrest should be seen essentially as a result of absolute poverty, where increasing food prices provide a tipping point into destitution and food insecurity for large sections of society. In this scenario, opportunity costs to being involved in protests, and the barriers to collective action, may be low.

Secondly, as an alternative theoretical scenario, sharp rises in food prices – whether domestic or international – can have a mobilizing effect in societies where there are broader political and social grievances. Often, such rises occur alongside price inflation in other essential goods, as well as other forms of social deprivation. In this way, food riots are not necessarily or primarily about food or hunger, but rather an expression of grievances which have become exacerbated by sharp price increases in societies which have existing drivers of instability. According to this scenario, it is not necessarily the poorest societies which experience instability, but those which are readily mobilized into political opposition or communal conflict due to various environmental conditions. Indeed, unrest can be associated with societies which are generally growing more prosperous – and especially those without social distribution policies – if sections of society become excluded from prosperity and social progress.

Alem and Köhlin, for example, have found that food price shocks can significantly reduce the perceived well-being of households even when the economy of a country is rapidly growing.[51] According to this model, food riots are rarely just about food; countries where food crises have triggered social protests and in some cases upheaval are likely to have a background of political problems and a tradition of upheaval. In these societies, protests and riots over food shortages and prices can be treated as a proxy for broader dissatisfaction over a range of social and political issues.

Methodological challenges

The relationship between rising food prices and social unrest is complex, and it is clearly not a simple causal one.[52] Many countries which have experienced severe food price inflation – including those which have other conflict risk factors – have not experienced widespread disorder, and some countries which have experienced serious unrest have been less affected by food insecurity than others. Indeed, food insecurity has hit households in sub-Saharan Africa more, for example, than the North African and middle Eastern societies that have experienced widespread instability. Similarly, the World Bank indicated very high food price inflation in Vietnam, Indonesia, and China in early 2011, without widespread unrest.[53] The overall political and social context of a country is therefore essential to understanding any possible link, and the impact of food price inflation must be considered in conjunction with these broader factors. Identifying the relative significance of rising food prices, particularly as a general phenomenon, is a key methodological challenge.

Some scholars have questioned whether it is helpful to focus on rising *international* food prices, given that there are so many mediating factors which determine how they are translated into domestic markets. According to this, if the research problem is how people are affected by food prices, it is the local retail prices that are important. Smith, for example, uses domestic food prices in his analysis of social unrest in urban Africa, following this reasoning. He demonstrates differences between international food price index levels and domestic prices in a number of African countries, and claims that it is a "flawed assumption" that changes in international commodity prices are directly reflected in domestic prices.[54] Weinberg and Bakker similarly use domestic food prices, arguing that, in addition to the range of intervening factors that affect price, international prices are only relevant if the product in question is actually imported and not all countries consume the same types of food.[55] Raleigh et.al. also argue that – in an African context, at least – the dynamics of food price-related instability are essentially local, and so local markets and prices should be the focus.[56] Weinberg and Bakkar also suggest that many countries have been able to insulate themselves from international food price inflation to some extent.[57] They therefore suggest that the "vast majority of African local markets are not affected by world food prices, despite the growing number of purchasers".[58] According to this, African domestic food prices may be more stable than global prices.[59] Certainly, in some regions of the world, a substantial amount of staple foodstuffs are produced and

consumed locally, and thus are not substantively or directly affected by international commodity prices or price increases.

However, others have found that there is a clear and direct transmission between international and domestic prices.[60] There is also evidence of growing dependency upon food imports and declining self-sufficiency, especially in developing regions.[61] Moreover, even when food markets – including prices – reflect local production and consumption to a significant degree, an inflationary 'knock-on' effect from rising international food prices has been detected.[62] In addition, data from the FAO Initiative on Soaring Food Prices (GIEWS), which has tracked local prices since 2008, demonstrates a transmission between international and domestic prices.[63] There is therefore strong support for the claim that local and international prices are integrated to a considerable degree, even if the transmission from international prices to local markets is not perfect and is mediated by various factors.[64]

There are also methodological challenges related to using food protests and riots as a dependent variable. As Raleigh et. al note, there is inconsistency in how 'food riots' should be defined in relation with other forms of conflict.[65] Clearly, differentiating between social unrest specifically associated with food related grievances and other forms of unrest is difficult. One approach – taken in this paper – is to identify incidence of unrest which are specifically linked to such grievances by those participating in them. In addition, there may also be an endogenous relationship between food prices and social unrest to some extent.[66] Rising food prices may cause social unrest, but social unrest can also inflate prices. In turn, there is also a difficulty of accounting for unobserved variables – for example, elections may increase the likelihood of all types of social unrest.

Method

The primary purpose of this paper is to identify patterns across societies which have experienced unrest related to food prices and availability, and to explore possible links between the occurrence of such unrest and theoretical debates about conflict. In particular, the objective is to explore whether large-scale unrest related to food price grievances is more likely to be an expression of absolute deprivation – hunger – or a proxy for political unrest more broadly, linked to other conflict drivers.

Like Bellemare and others, the data used in this paper is based upon social unrest directly associated with grievances over food price increases.[67] Hendrix and Haggard, Smith, and Weinberg and Bakker, in contrast, base their analysis on unrest more broadly, whether or not food prices were an explicit factor.[68] Their work demonstrates an increase in social unrest in line with international food price increases, without needing to identify 'food riots' specifically. Given that unrest might be associated with food prices even if this is not explicit, their approach is persuasive. Moreover, as Smith observes, the integrity of the concept of 'food riots' is open to question.[69]

However, despite the limitations, there is value in basing analysis upon incidents of social unrest which are specifically identified as food riots or protests, because it is an important sub-category of events. Moreover, since the primary aim of this paper is to establish observations about conditions in societies in which food riots occurred, the sub-category is essential, because there may be important distinctions between these events and other types of social unrest. Clearly, unrest may often be completely unrelated to food price grievances, and if so needs to be excluded from the analysis. Finally, a further advantage of generating a specific food protest/riot event dataset is that it allows for broader coverage in different socio-economic and political contexts, which is not provided by – for example – the Uppsala Armed Conflict Location & Event Data Project (ACLED). The new global events data prepared for this analysis therefore allows comparisons across very different types of countries and societies which have experienced food related unrest.

The data for this exercise comprises an original dataset of incidents of unrest – riots, demonstrations, major protests – where grievances over food prices were specifically identified as a, but not necessarily the only, factor which motivated people involved in the event. These events are categorized into two levels of severity: high intensity events include violence, injuries, fatalities, widespread damage to property, major confrontation between protesters and police, or mass arrests. Low severity events involve major protests and demonstrations which do not have these features. The dataset covers the period between 2005 and 2015 (inclusive), and it is based upon newswire stories taken from the online Nexis source, which has global coverage. Relevant events were identified using a combination of key words: 'riots', 'food', 'protest', 'prices', 'violence', 'hunger'. This followed a pilot exercise which involved testing a broader range and combination of search terms, including the names of specific foodstuffs, such as 'bread', 'maize', 'oil', and 'wheat'. A stemming device was used to reduce words to their root where necessary in order to identify variations of use, so that, for example, 'violence' and 'violent' were reduced to 'violen*' and 'riots' and 'rioting' would be identified as 'riot*'. In turn, a Boolean method was also used to identify combinations of words, and the key words were used in proximity in order to increase the chances or relevance, but without the likelihood of missing relevant stories. (Automated data mining was also explored as a method for extracting relevant stories, but was found to be less effective than a manual search.)

This approach generated approximately 1000-2000 results for each year, which were all manually checked, resulting (for the 2005-2015 period) in between 1 and 18 events confirmed as relevant per year. In case of ambiguity as to the relevance on an event, corroboration was sought through further independent checking. Unsurprisingly, multiple newswire stories were identified which referred to the same event, and so care was needed to avoid recording single events more than once. Similarly, care was needed to avoid double recording of an event when it recurred. To avoid this, particular scrutiny was paid to multiple events which were identified in the same month, and if there was any doubt as to whether they might refer to the same event, it

was recorded only as a single event, to avoid any chance of over-reporting. For the same reason, the recording of events was based on reports of confirmed events, not the reporting of planned or anticipated events. There is the risk of missing relevant events with this, since some news organisations report planned protests without following-up with a report which confirms if the event occurred, but a cautious approach was taken to be certain to record only actual events. High severity events – including riots, violence, physical destruction and loss of life – would always be reported after the fact, which reduced the risk of under-reporting.

Once the events were recorded and checked, a range of social, economic, political, and other variables were recorded for the date of the event year (since most indicators are only available on an annual basis). This allows a certain amount of descriptive statistics to be undertaken – in particular, identifying correlations – to generate observations about the countries which experienced social unrest related to food prices. Specifically, variables were added to cover: international food price indices, undernourishment, human development, public social protection, food consumption as a proportion of household income, inequality, levels of urbanization, strength of democracy, state capacity and fragility, and state-based and non-state armed conflict indicators. In theory, the dataset is suitable for regression analysis, but this was not undertaken. The methodology is designed to identify general patterns in conditions in societies which have experienced serious and recurring instability related to grievances over rising food prices, and a descriptive approach is adequate for this. Moreover, the methodology does test the alternative theoretical models – 'hunger' versus contentious politics – through the choice of the indicators that are integrated into the dataset and the analysis which follows.

Since the data also indicates the frequency and (month-year) temporality of these events, it also allows some basic analysis of the frequency of events in relation to variations in certain economic, political and other conditions, as well as a correlation between social unrest and international food price rises.

There are a number of limitations to using events drawn from newswire sources as a subject of analysis, and these need to be discussed in addition to the broader methodological challenges noted above.[70] The method relies upon the interpretation by news organizations as to whether an incident of social unrest is associated with food price grievances, and if the search terms are not used in a newswire report, then an event will not be recorded as relevant. This is mitigated to some extent by the tendency for high severity events to be reported by multiple news sources, thus reducing the likelihood of missing them. Moreover, extensive piloting of variations of search terms resulted in a high level of reliability in identifying relevant stories. It is worth noting that many reputable conflict databases draw upon media reports, and the use of such sources per se is well established.

A more difficult problem arises with the possibility of bias in reporting in line with

the media interest in rising international food prices between 2007 and 2011. Thus, as a result of this 'food crisis', it is possible that news organizations and journalists were more active in looking for and recording food riots and protests compared to when food prices are less prominent as a political issue.[71] However, despite the interest in food riots around 2008-2011, there is evidence that journalists and media organizations certainly were interested in these phenomena before this period, demonstrated by a test conducted using the same methodology as outlined above in a sample of earlier periods. We can assume, therefore, that the use of newswire sources does not result in an unduly distorted or exaggerated picture of the incidence of social unrest.

As a further challenge, news reporting may be less accessible or reliable in some countries, raising the possibility that relevant events are neglected in the analysis. Yet few countries can fully escape the gaze of international media organizations, as demonstrated in the dataset by the reports of food riots and protests in undemocratic states. In turn, some governments – such as North Korea – are very intolerant of public protest and as a result incidence of such unrest is rare, but this does not mean that no grievances related to food prices or availability exist. In contrast, some countries have more of a cultural tradition of protest and so events were clustered to some extent – 80 in India alone, for example, in the 2005-2015 period – and so this skews cross-national analysis to some extent. Nevertheless, for the purposes of this paper, basic clustering and frequency of relevant social unrest – rather than absolutely precise numbers – are adequate to generate observations about the kinds of societies in which such unrest occurs.

Data and observations

The data is based on 297 incidents of unrest related to grievances over food prices between 2005 and 2015, in 79 countries. In terms of frequency, this ranged from just one relevant event in around 30 countries, to 80 events across the time period in India, followed by Pakistan (19 events), Sudan (10), South Africa (8), Kenya (8) and Burkina Faso (7). The frequency of events by country (combining both low and high severity) across the entire period is shown in figure 1. Figure 2 indicates a rough correlation between international food price rises – using the FAO International Food Price Index – and incidents of social unrest specifically linked to food price grievances. Figure 3 demonstrates a rough correlation in both low and high severity events. Both graphs suggest that social unrest became more frequent during and following the 2007/2008 and 2010/2011 international food price spikes. Clearly, this does not infer a causal relationship – although, as the above discussion of literature indicates, others have claimed that it is causal – and there are challenges relating to lagged effects and the transmission of international food prices to domestic markets. Nevertheless, these findings do demonstrate a correlation.

The data which has been assembled for countries which have experienced food riots

and protests allows some observations about conditions within these societies. In terms of socio-economic conditions, UNDP Human Development indicators can be used. In terms of frequency of social unrest in relation to human development, the trend line in figure 4 indicates that unrest increases as human development deteriorates. However, as figure 5 demonstrates, social unrest related to food prices and availability is not concentrated in the *lowest* human development countries which are, theoretically, most vulnerable to price increases. 46% of the countries which experienced unrest between 2005 and 2015 are defined by the UN Development Programme as medium human development countries, 30% are in the low human development category, and 16% are high human development countries. Moreover, figure 6 indicates that a strong majority (89%) of countries experiencing food price unrest were also experiencing improvements in human development, however marginal that might have been. The Human Development Index is a crude indicator which is aggregated at the national level, so it cannot capture sub-national variations, but these patterns still nevertheless suggest that it is not the most absolutely deprived societies which experienced the most food price unrest.

Aside from general human development, levels of nutrition in societies which experience food riots and protests are also directly relevant to the question of absolute versus relative deprivation. In terms of frequency of unrest events, the trend line on figure 7 suggests an increase in events in line with increased levels of undernourishment. However, if India is removed – with its 80 events – this trend is far less pronounced. Moreover, figure 8 indicates that of all the countries which experienced food price unrest between 2005 and 2015, only 13% were experiencing an increase in undernourishment according to the WFP. 57% of these countries reflected a decrease in undernourishment, and 26% had no change.

Drawing upon ILO data on public social protection as a proportion of GDP, figure 9 indicates that social unrest related to food prices is more frequent in societies with lower levels of social protection. This is unsurprising, given that the absence – or weakness – of social protection can be associated with vulnerability to food price shocks, and with weak mitigation policies.

A further key factor in terms of individual vulnerability to food price shocks is the proportion of household income that is spent on food, which is known to be higher in developing countries. Theoretically, the higher this proportion is, the greater is the exposure to food price shocks, especially in societies which have other vulnerability factors. Figure 10 confirms that the frequency of social unrest related to food price grievances is highest in societies where households spend a high proportion – 40% to 60% – of income on essential foodstuffs. Such unrest almost never occurs in industrialized societies where the proportion is low. For example, the proportion for the UK was 10% in 2007 and 14.1% in Germany in 2010.[72] Nevertheless, some of the societies which reflected high frequency of social unrest related to food prices – such as India – do not reflect the highest proportions of household expenditure on food.

Levels of inequality may be related to frequency and likelihood of social unrest through a number of theoretical mechanisms. In particular, food price grievances may be exacerbated in societies with sharp inequalities in income since they result in uneven exposure to food insecurity, and fuel broader relative deprivation grievances. Figure 11 does confirm higher occurrences of social unrest related to food prices in societies which reflect higher levels of economic inequality, between .30 and .50 on the World Bank's gini-coefficient scale (where 0 is equal and 1 is completely unequal). The average of the gini-coefficient in countries which experienced food riots was .39. At the same time, there were countries which did not experience food riots which had extremely high levels of inequality, such as Namibia (.70), Lesotho (.63), Sierra Leone (.63) and Central African Republic (.61).

Urbanization – a measure of the proportion of a population living in urban environments – is potentially relevant to frequency of various forms of unrest, including protest over food prices. Historically, food riots were more likely to be associated with rural settings, in theory because urban dwellers tend to be served better in terms of income opportunities, public goods, and social protection. However, cities can provide opportunities for dissent to foment, especially where there are other stresses associated with rapid rural to urban migration, particularly in low and middle income countries. The 2005-2015 period certainly confirms that unrest associated with food price grievances was generally an urban phenomenon. However, figure 12 does not present a clear relationship between frequency of unrest and level of urbanization, based upon World Bank data. In fact, the trend line suggests a negative correlation between frequency of social unrest and urbanization.

In terms of political system, the data confirms what others have found: food protests and riots are more frequent in democracies or partial democracies (figure 13), presumably because dissent is tolerated more in such societies. In terms of state capacity, figure 14 indicates that social unrest events occurred more frequently in societies which had fragile states, with a clear cluster of events in the most fragile quartile of the Center for Systemic Peace state fragility index. This is unsurprising, given that fragile states are more likely to be unequal, have poor social protection, and have less capacity to mitigate the impact of rising food prices, and be associated with a range of other political and economic conflict drivers.

The possible links between rising food prices and upheaval has been a popular topic within the conflict analysis community, and some scholars – cited above – have sought to consider if rising international prices may have played a role in armed conflict. The food protest data suggests, however, that it may be better to treat these as separate phenomena, even if social unrest and armed conflict share some of the same drivers. Across the ten year period, of the 79 countries which experienced social unrest related to food price grievances, only 18 (23%) experienced some form of armed conflict in the same year, according to the Uppsala Conflict Data Program.[73]

Of these conflicts, state based armed conflicts – where the government is a party to the conflict – were more frequent than non-state or inter-communal conflicts. The difference may not be significant but it may suggest – if anything – that unrest is more likely to be directed against the state in settings where food price grievances are acute, rather than against non-state groups.

Discussion and conclusion

The preceding section presented a range of observations about the societies which experienced serious food riots, protests and other incidents of social unrest between 2005 and 2015, relative to the frequency of such events. Some of the observations are unsurprising and intuitive: such events tended to occur in democracies or partial democracies in low and middle income countries, the frequency of unrest increased as human development deteriorated, and the frequency of social unrest related to food prices was higher in societies with lower levels of social protection. Social unrest related to food price grievances also tended to occur in urban settings in societies in which a high proportion of household income is spent on food – particularly those above 40% – and which have relatively weak state capacity. This unrest also tended to occur in societies which are relatively food insecure, as measured by undernourishment. Some of these patterns suggest that food riots and protests are essentially an expression of grievances over absolute deprivation by the most vulnerable – and most hungry – people in developing or middle income countries which are exposed to food price shocks, and where the political environment is conducive to expressions of protest.

However, some of the findings appear to defy this conclusion and suggest something more complicated. Most conspicuously, social unrest specifically linked to food price grievances was not clustered in the very poorest societies, or those with the lowest levels of human development. Indeed, most events occurred in societies experiencing improvements in human development prior to the onset of food riots, and 46% of the countries which experienced unrest are categorized as medium human development. These events are therefore not disproportionately concentrated in the lowest income countries or countries which are experiencing negative economic growth. Moreover, whilst levels of undernourishment in countries which experienced food riots and protests tended to be relatively high, the incidence of such unrest was not clustered in the societies with the *highest* levels of undernourishment, and only 13% of societies which experienced this unrest were suffering a deterioration in nourishment levels (figure 8). The average level of undernourishment as a proportion of population in countries which experienced food riots was 20.7% in the 2005-07 period, prior to the sharp rise of international food prices. This is significantly lower in 2005-07 than some other countries which did *not* experience such unrest during the period, including Central African Republic (40.6% undernourishment), Botswana (32.2%), Chad (39.7%), Angola (31.3%), Congo (32.8%), and Sierra Leone (37.1%),[74] all of which would have been exposed to rising food prices. It is thus not the most food

insecure societies which experience the highest levels of social unrest related to rising food prices.

This is indirectly supported by household vulnerability levels. The average proportion of household expenditure spent on food in countries which experienced food riots was 46%, which is certainly relatively high. However, this proportion is significantly higher in some countries for which food riots were not recorded, such as Chad (68% of household expenditure on foodstuffs), Ghana (50%), Mali (51%), and Nigeria (56%).[75] Again, there is no reason to think that these countries were any less affected by rising food prices.

If it is not the most deprived societies which experience social unrest related to food price grievances, as an expression of absolute destitution, an alternative interpretation is that these events are an expression of broader frustrations in societies prone to contentious politics related to other social and political issues. This is borne out by the manner in which those societies which experienced food protests are associated with high levels of all forms of protest, something confirmed by the Nonviolent and Violent Campaigns and Outcomes (NAVCO) Data Project.[76] Notably, countries experiencing such unrest performed relatively poorly on measures of public perception of corruption in the years in which they experienced food riots and protests.[77] Moreover, although there is not a strong association between food protest and armed conflict, societies in which food events occurred are still more likely to experience conflict. Of the 79 countries which experienced social unrest related to food price grievances in the 2005-2015 period, 48 (61%) had also experienced more serious armed conflict involving fatalities at some point during that period.[78] 38 (48%) of these countries had experienced some form of armed conflict in the 2008-2011 period, which saw the sharpest international food price spikes. Even though, as noted earlier, there is little cross-national evidence that food riots tend to escalate into armed conflict, social unrest related to food price grievances can be associated with conflict-prone societies more broadly. In addition, as others have found, rises in food prices – whether domestic or international – correlate with or possibly contribute to increases in social unrest more generally (not just 'food riots'). Thus, the data here demonstrates that food related unrest is associated with partial democracy, social inequalities, and state fragility, key drivers of contentious politics more broadly. Food riots are more likely in urban settings – generally the better-off locations – and not necessarily in the poorest societies, again suggesting that such events need to be understood in the context of broader grievances, rather than anger towards absolute poverty in a narrow sense. More controversially, this suggests that social unrest related to food – including 'food riots' – is not necessarily about hunger, contrary to popular perception, but about contentious politics in a variety of settings. Future research in this area, therefore, could focus on the nature of political institutions – including the 'quality' of democracy – in relation to food protests, as a means of exploring how social and economic grievances trigger broader political instability.

Figure 1. Frequency of food protests/ riots by Country

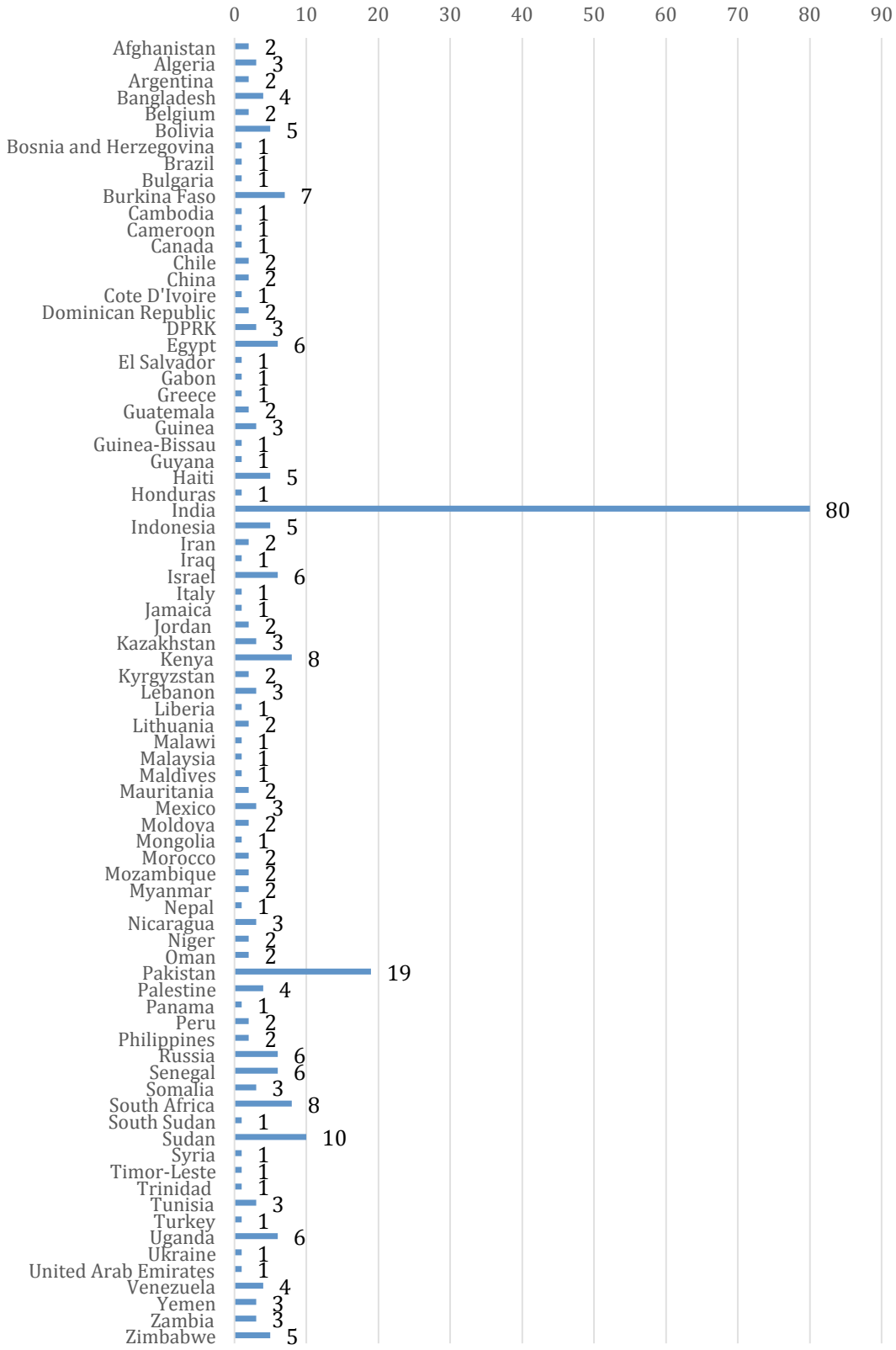
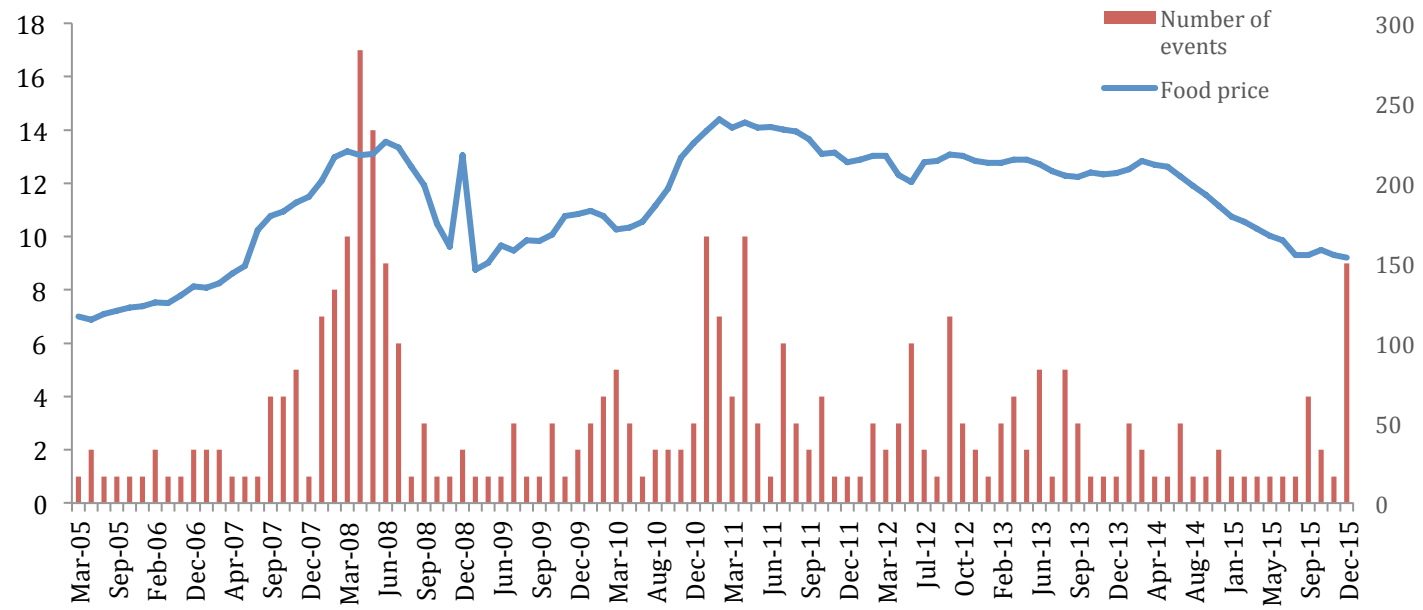


Figure 2. Food protests/riots and the FAO International Food Price Index



International Food Price Index source: http://www.fao.org/worldfoodsituation/foodpricesindex/en/

Figure 3. Food protests/riots (by severity) and the FAO International Food Price Index.

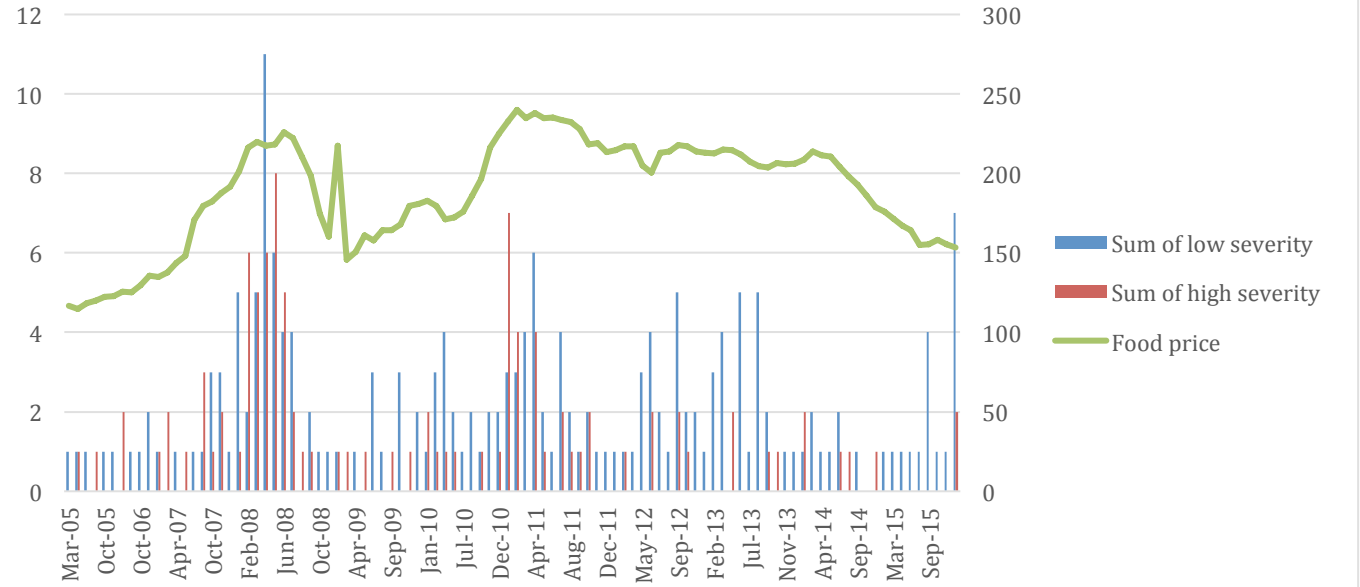
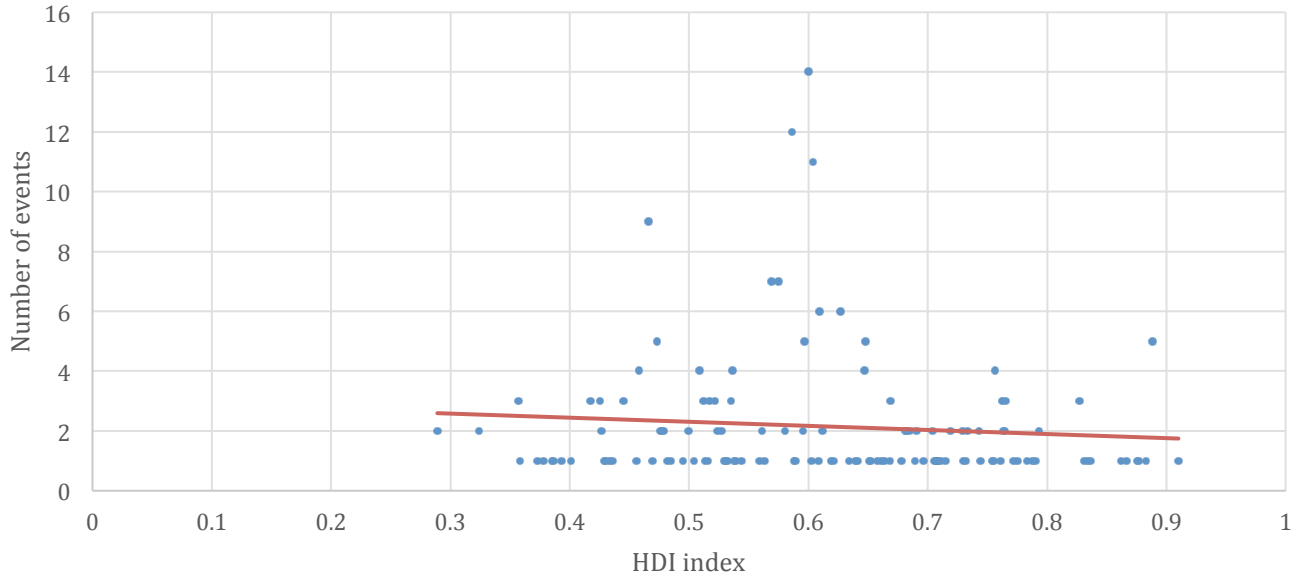
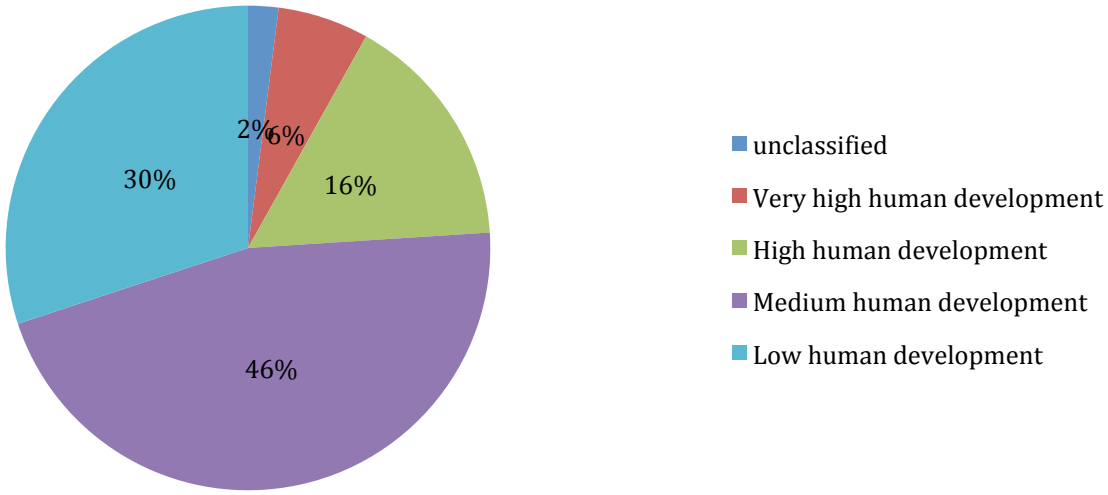


Figure 4. Human Development in countries experiencing food protests/riots



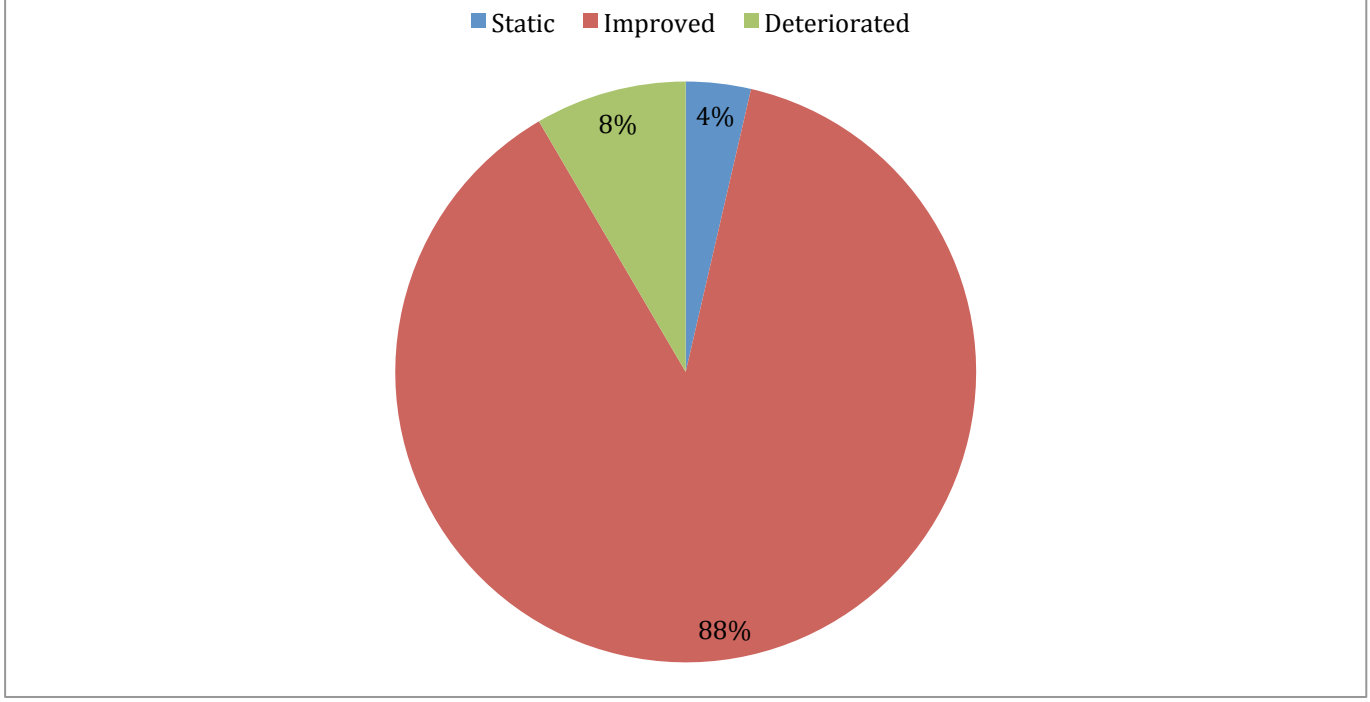
HD data: UNDP - http://hdr.undp.org/en/data

Figure 5. Human Development ranking of countries which experienced food protests/ riots, 2005-2015



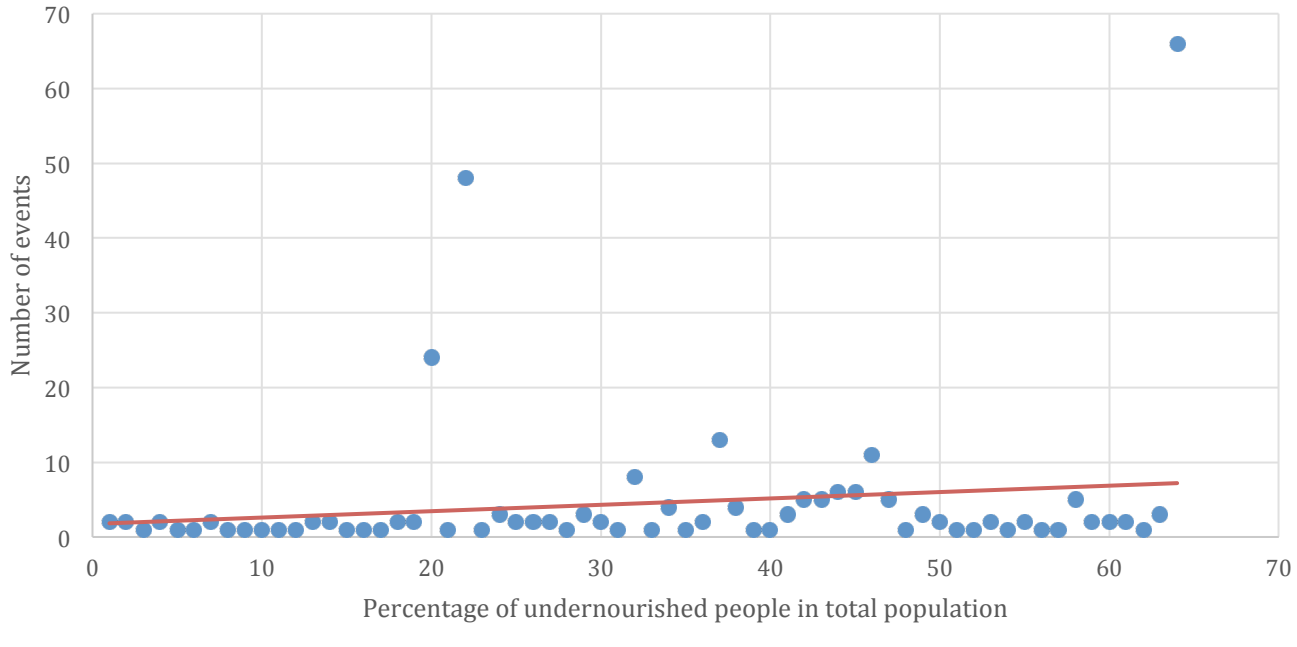
Source: http://hdr.undp.org/en/content/human-development-index-hdi

Figure 6. Trends in Human Development in countries which experienced food protests/riots



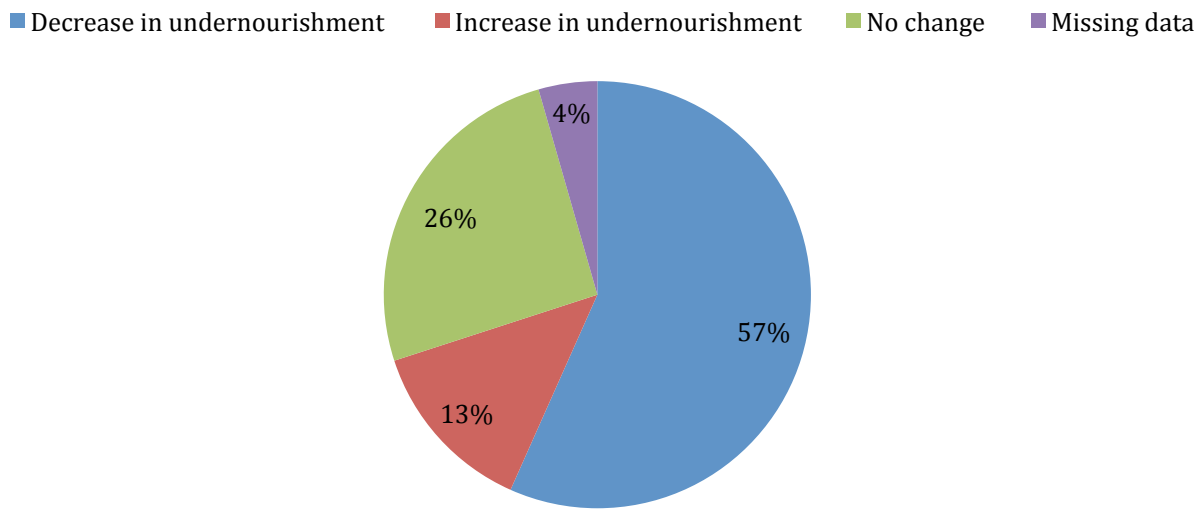
Source: http://hdr.undp.org/en/content/human-development-index-hdi

Figure 7. Undernourishment and food protests/riots



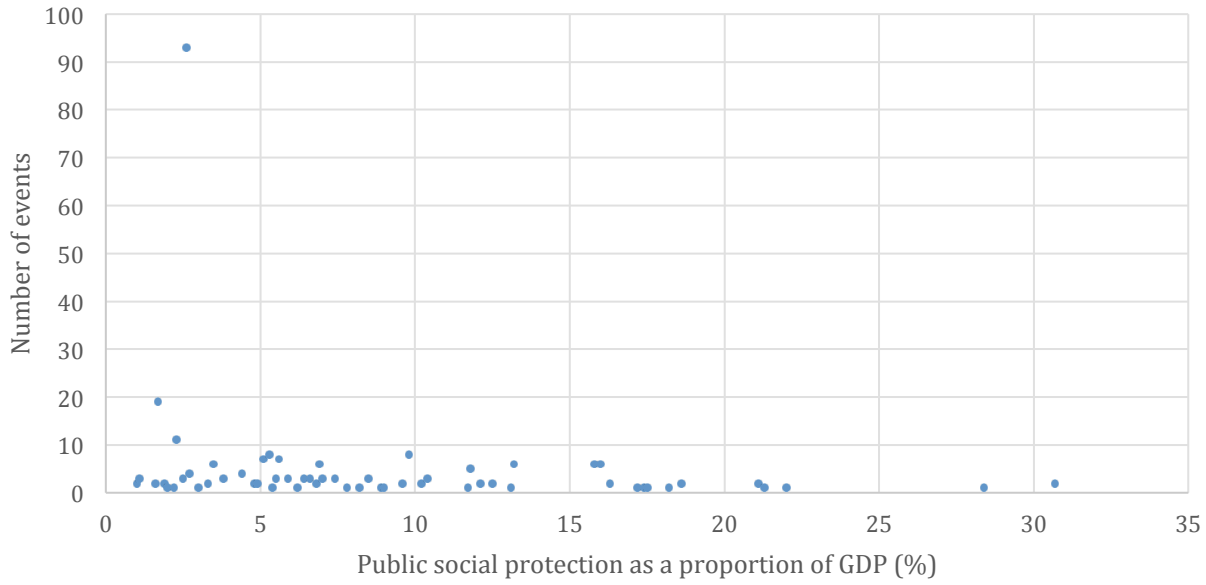
Source: "2015 The State of Food Insecurity in the World" by Food and Agriculture Organization of the United Nations, International Fund for Agricultural Development, World Food Programme.

Figure 8. Trends in undernourishment in countries which experienced food protests/riots, 2005-2015



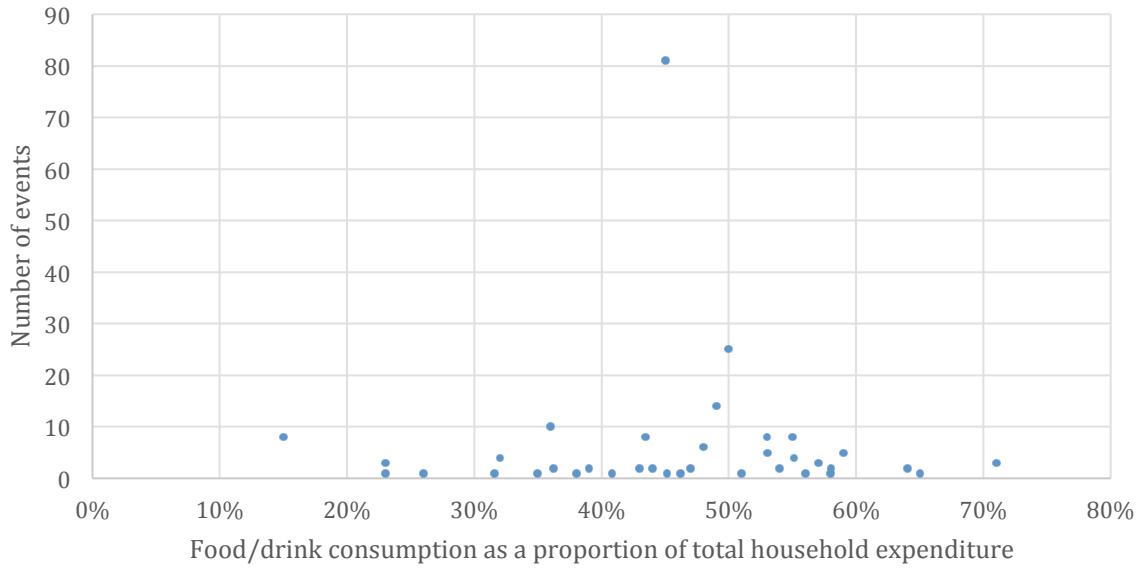
Source for undernourishment: "2015 The State of Food Insecurity in the World" by Food and Agriculture Organization of the United Nations, International Fund for Agricultural Development, World Food Programme.

Figure 9. Public social protection in countries which experienced food protests/riots, 2005-2015



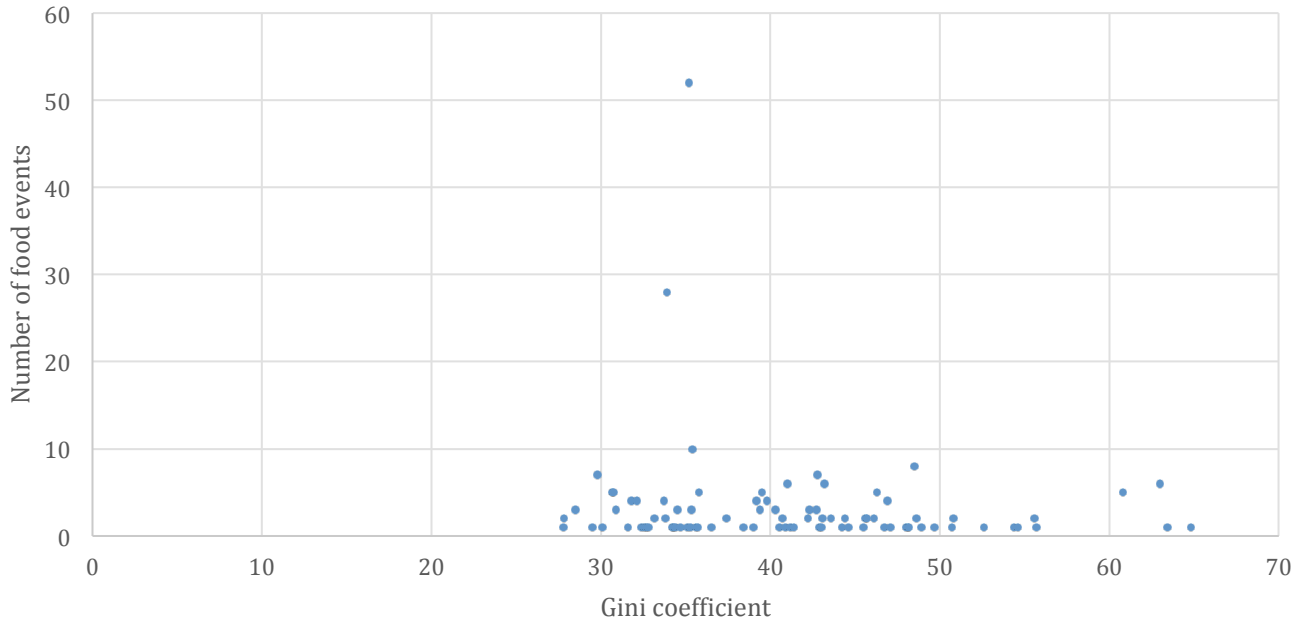
Social protection data: ILO - www.ilo.org/ilostat/

Figure 10. Household consumption and incidence of food protests/riots



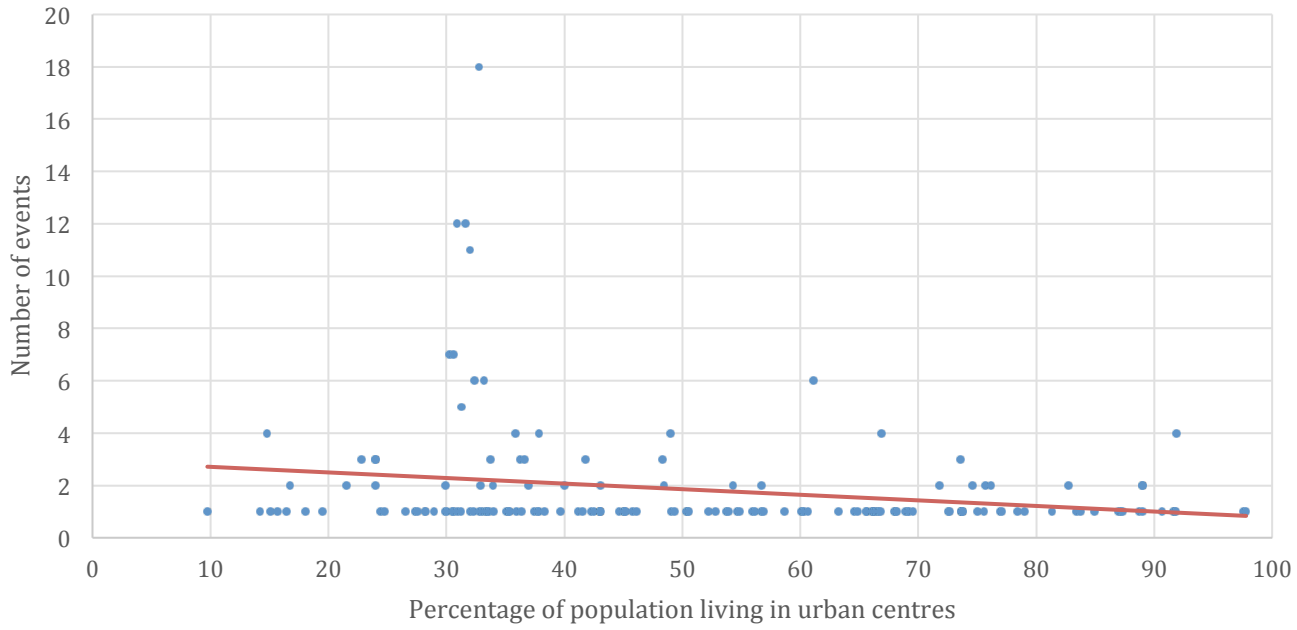
Food consumption data: http://datatopics.worldbank.org/consumption/

Figure 11. Food protests/riots and inequality



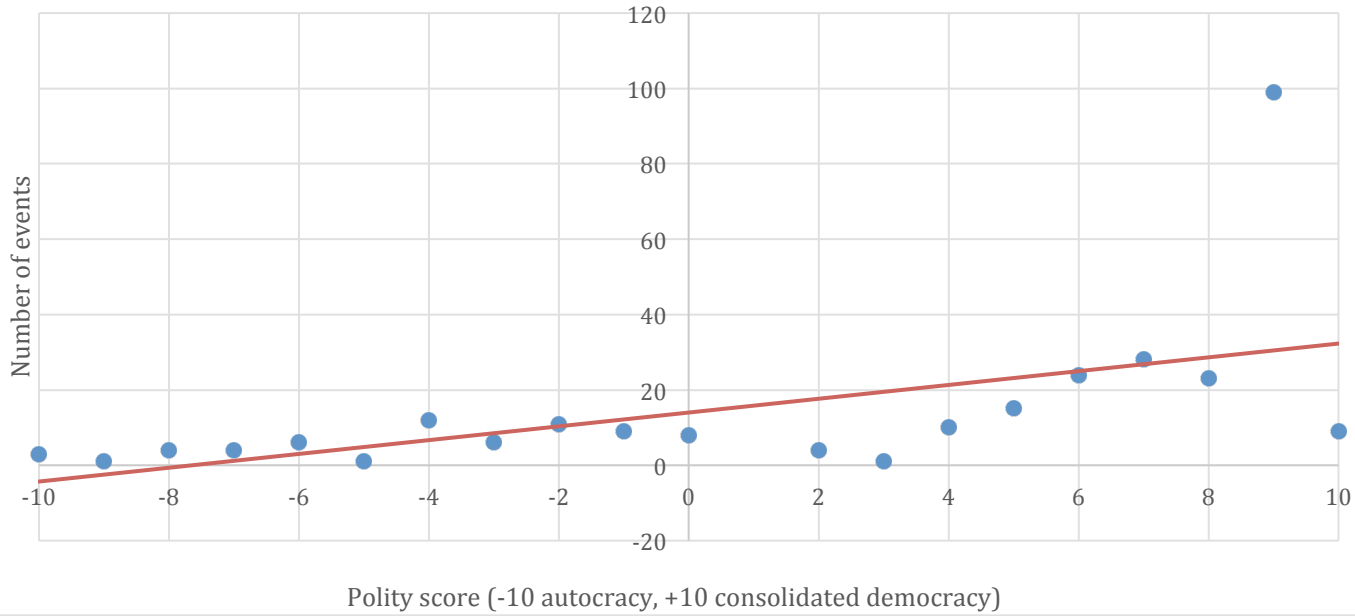
The statistical dispersion represents the income distribution of a nation's residents. A Gini coefficient of zero expresses perfect equality, while a Gini coefficient of 1 expresses maximal inequality. Inequality data source: http://data.worldbank.org/indicator/SI.POV.GINI

Figure 12. Level of urbanization and food protests/riots



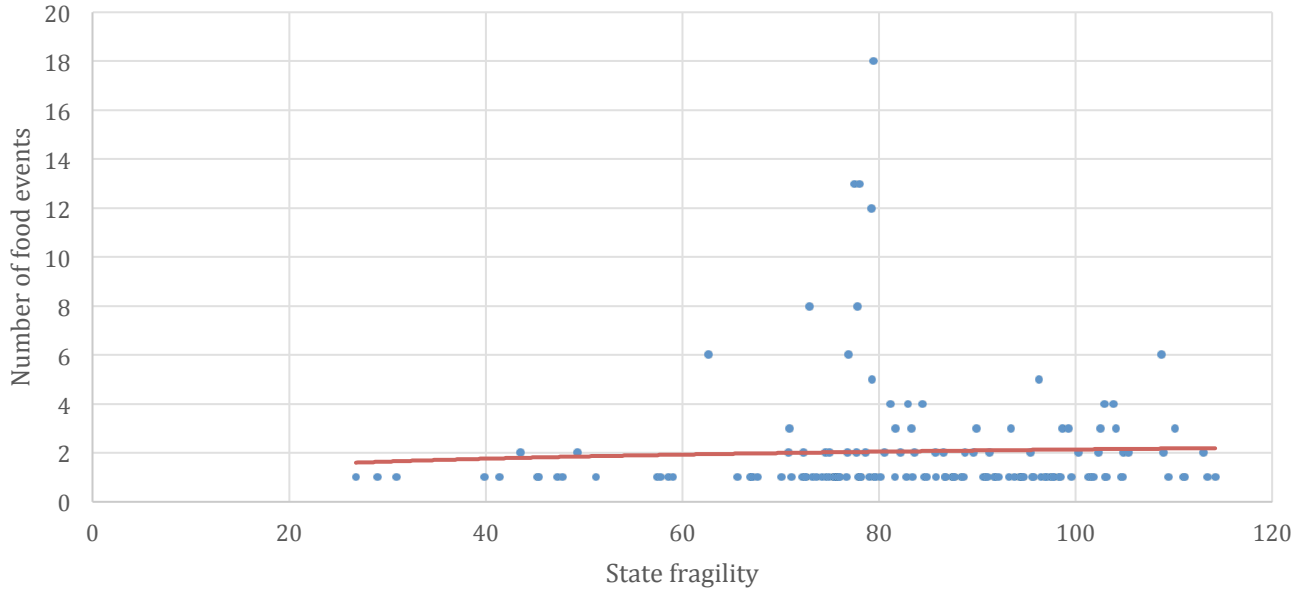
Source for urban population: World Bank - http://data.worldbank.org/indicator/SP.URB.TOTL.IN.ZS

Figure 13. Strength of democracy and incidence of food protests/ riots



Polity source: Centre for Systemic Peace - www.systemicpeace.org/polityproject.html

Figure 14. State fragility in countries which experienced food protests/riots, 2005-2015



Source for state fragility data: Center for Systemic Peace - www.systemicpeace.org/inscrdata.html

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