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RESEARCH

Functional Markets in Yemen's War Economy

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Our article explores the economic activities of households operating in Yemen's protracted conflict. We examine the growth and maturation of what we call the 'Functional Economy' in Yemen, in which Yemenis engage in economic transactions away from standard regulatory bodies through agreements of 'how to do business' with a range of authorities that are not internationally recognised. We distinguish this from 'black markets' and 'illicit' economic behaviours because most of the transactions would take place in a controlled environment in normal times or under peacetime governance, but the civil war has displaced them. In Yemen, the functional economy has come to serve Yemeni households providing essential goods and income, and for some activities, such as currency exchange, are preferred to any official regulated markets. On the other hand, alternatively regulated markets may be less functional as they also present opportunities for rent-seeking and, more importantly, can reinforce the political and economic bonds between Yemenis and non-recognised authorities, weakening the internationally recognised central state. Further, such activity has an impact on the potential for peaceful resolution of the conflict. The paper proposes that the 'good' of such activity, and hence the extent to which it is 'functional', should be judged by whether it provides access to essential goods and income, and whether it helps promote peaceful resolution. This evaluation framework enables better international policy responses to the economic situation that arises in protracted conflict. We use household surveys, focus group discussions, and key informant interviews to explore these developments from several angles.

Keywords: Yemen; war economy; civil war; shadow economy; illicit economy; rebel governance; political economy; new wars; protracted social conflict

Introduction

As conflict has racked Yemen since 2015, fragmenting the country, displacing thousands, and wrecking huge swathes of the economy, Yemenis have had to adapt to an environment of perpetual uncertainty. A new economic reality has emerged, one in which the rules of transactions are unclear, with Yemenis required to negotiate competing regulatory efforts by state and non-state actors. What has emerged is a range of activities, which we ascribe to a 'functional economy', comprising agreements on 'how to do business' between Yemenis and authorities that are not internationally recognised. The functional economy represents a dichotomy for the international political and economic community. On the one hand, it is an economic lifeline for many Yemenis, both for acquiring the goods and services they need and for providing new opportunities for businesses and employment. On the other hand, their recognition and enabling can reinforce the political and economic bonds between Yemenis and non-recognised authorities, weakening the internationally recognised central state. Further, the nature and form of functional markets have strong implications for the potential to achieve a peaceful settlement, as they can either restrict or enable moves towards peace.

This article draws from work on illegal markets (Beckert & Dewey 2017), governance by rebel groups (Arjona, Kasfir & Mampilly 2015; Loyle et al. 2020), and new wars and war economies (Collier 1999; 2007; Collier and Duponchel 2013; Goodhand 2004; Kaldor 2012; 2013; Wennmann 2009) to develop a framework

for analysing the changing relationship between Yemeni civilians, their economic activities, and the governing authorities. To investigate both Yemenis' reliance on functional markets and the cross-country divergence in perceptions of their influence on prospects for peace, we utilize surveys, focus groups, and key informant interviews from across the country. This data came from a stratified sample of 801 Yemeni households, designed to represent areas held by the *de facto* authorities (Dfa) and the internationally recognized government (IRG), as well as to capture variation in areas of high and low violence and high and low development. The focus groups and interviews took place in Dfa and IRG areas, as well as outside the country. This combination of a bird's-eye view of the economy and detailed personal accounts of experiences in the marketplace allows us to present a thorough account of the changes Yemen's economy has undergone, with special emphasis on areas under Dfa control.

Our article proceeds as follows. First, we outline how our analysis is informed by three relevant literatures that usually do not overlap. Then we provide a brief overview of the Yemeni context and the research design. We use the survey and focus group data to demonstrate in detail how Yemen's economy has been displaced, dismantled, or disrupted by conflict and the consequences for individual Yemeni households. Next, we continue our analysis to explain the functional economy—what it is, how it affects Yemenis, how it may be exploited by parallel authorities, and what it implies for policymakers. Finally, we provide several suggestions on future academic and policy work.

Illicit Economies in Conflict

Research on 'illegal markets' or illicit economies has tended to focus on two dimensions: the nature of the product or service itself, and the legal status and strength of its enforcement. A product (hard drugs), its possession (stolen goods), or its exchange (counterfeit goods; organ transplants) may be undesirable, but its illegality is determined by the state's creation and enforcement of laws. Law and culture underlie the dimensions that scholars of illicit economies focus on: social desirability of a given transaction, secrecy surrounding it, the legitimacy of the law, and the strength of the law's enforcement. In this way, the state has been a key actor of focus in the study of illegal markets: how selectively it enforces its laws, its capacity to enforce those laws, how much those laws conform with or diverge from public conscience. Beckert and Dewey (2017) call this the 'two-sided character of the state'.

The policy debate springing from this research has been to determine how harmful (Naim 2012) or productive (Arias 2017; Gillies 2018) illicit economic activities can be to a stable, capable state. The presence and assertiveness of the state play a clear and important role in understanding the broad variation in the types and perceptions of local illicit markets. State capacity over far-flung territories is often only nominal (O'Donnell 1993; Soifer 2016), leading to local orders that function differently from urban centres due to divergent practices and norms around economic behaviour (Das & Poole 2004) away from the state's oversight. Localized markets can produce behaviours that are 'illicit' according to a state standard, but productive and stabilizing for the communities they serve. For example, Heuser argues that drug production and trafficking in the 'marginal' VRAEM region of Peru has produced a level of security lauded by locals, who decry popular portrayals of their region as violent and dangerous (2019: 29).

Although work on illicit economies in state margins has focused on areas characterized by physical distance from urban centres, intrastate conflict provides another context where both the legitimacy of the state's laws and its capacity to enforce them are in question. A successful challenger to the state is one that seizes and holds the monopoly on violence, and therefore the capacity to regulate local markets. To understand the rise of powerful nonstate sovereigns, it is useful to turn to works on 'rebel governance' (Arjona, Kasfir & Mampilly 2015; Loyle et al. 2020; Mampilly 2015). Broadly speaking, this vein of conflict research explores the state-building projects that 'rebel' groups take on as part of their challenge to the state, providing public services like health and education (Stewart 2018), constructing legal systems (Loyle & Binningsbo 2018), and building diplomatic capacity (Huang 2016; Huddleston 2019), as well as their efforts to build domestic and international legitimacy. Heger and Jung (2017) find that the provision of these public goods by parallel authorities can even augment the likelihood of successful peace negotiation, both by lending an air of legitimacy and by decreasing the threat of spoilers.

These works highlight a conceptual overlap of the illicit activities of 'marginal' economies and the governance styles of parallel authorities who challenge the state while still in the process of building their own capacities. Arjona (2016) distinguishes between 'rebelocracy', an order where 'rebels intervene broadly in civilian affairs', and 'aliocracy', where they enact minimal rule, leaving local affairs to state officials, businesspersons, traditional leaders, or other actors who volunteer to organize society (Arjona 2016: 3). Other work also shows the broad range of civilian reactions—ranging from resistance to proactive support and

collaboration—towards parallel authorities who supplant the state, as well as their own apparent strategies of political survival—acquiescing, making demands, and striking deals (Barter 2015; Forster 2015; Hancock & Mitchell 2007; Kaplan 2013).

Civilians in conflict are agents of their own welfare. They cannot be assumed to passively accept the conditions set out by the parallel authorities that supplant the state. They respond to the quality of institutions—educational systems, food distribution, health facilities—set up or taken over by these nonstate actors, and their compliance and participation determine both their effectiveness and legitimacy (Arjona 2015). Two common expectations have come out of works on rebel governance and civilian response. First, challengers to the state with long-term aims to seize and hold power will work to intervene more heavily in civilian life. Second, those aiming for international recognition of their rule will invest more in high-quality institutions that foster legitimacy among the population, both so that they have innate local support (Kalyvas 2006) and so they have something to showcase before international audiences (Mampilly 2015).

The 'new wars' literature (Chinkin & Kaldor 2013; Kaldor 2012; 2013; Kalyvas 2001; Malešević 2008; Mello 2010; Shaw 2000) does much to supplement the focus on rebel governance by tallying just how many interests can be present and organized to engage in conflict, complicating both the trajectories of conflict and prospects for peace. 'New wars' scholars focus on coalitions of non-state actors that may additionally challenge the state (Kaldor 2013), the activated identities of groups (Chinkin & Kaldor 2013), the globalization of the war economy (Kaldor 2012), and the role of terrorism in these multi-faceted conflicts (Münkler 2010, cited in Mello 2010). The crucial point that comes from these works is that today's conflicts have many more actors competing for power outside the 'state vs. rebels' framework, as well as a multiplicity of funding sources for each unique actor (Kaldor 2013).

In conflict contexts, the simple fact of armed conflict does not erase economic activity. On the contrary, and often to the further detriment of the state, conflict changes the rules of economic behaviour in ways that benefit some actors. Goodhand's analysis (2004) of the war economy of Afghanistan provides a good basis for exploring the relationship between economic activities and violence in protracted social conflicts. He identifies three important subcategories of economic activities manifest in a civil war economy. The 'combat economy' comprises the production, mobilization, and allocation of resources to sustain fighting, including the looting of natural resources, production of illegal substances, trafficking in goods, and diversion of aid.¹ Second is the 'shadow economy', regular activities conducted outside of state-regulated frameworks. The activities would be legal, monitored, and regulated in peaceful economies. Finally, there is the 'coping economy', the economic decisions people make to cope with conflict—spending down savings and selling off assets and heirlooms in order to have the means to live and increasing reliance on international aid. For our purposes, a needed addition to Goodhand's typology is the concept of the 'legitimacy economy'—when authorities mobilize economic resources to enhance local legitimacy, rather than for military gain. Moreover, it provides for better understanding of how the population thinks about who has the legitimacy to regulate and what they do when 'non-legitimate' actors play this role and provide essential services.

As a conflict becomes protracted, the combat and legitimacy economy may grow to the detriment of civilian economic activity as security and political actors take a greater and greater stake in it. During periods of violent conflict, as the strength of central institutions weaken or are contested, economic activities increasingly fall into this category. Combat and shadow economies often overlap; as civilian governance capacity weakens, there is more room for security and political actors to take over economic activities. Conflict alters preferences over assets, affects governance of financial institutions, and opens space for private suppliers of currency and financial services to surface. As Collier and Duponchel (2013) explain, conflict also drastically changes individual firms' behaviour, as product demand decreases with declining average incomes, their employees' skills atrophy, and prospects for firm recovery dim. Moreover, conflict generally causes a flight of capital as people move their assets abroad, and reversing the trend is a major challenge (Collier 2007: 10).

War economies can easily lay the path for further destruction. The scarcity of resources and opportunity and the destruction of infrastructure that result can themselves create new sources of conflict. Violent conflict may alter many elements in the economy: who is vulnerable, who has influence, what has value, and how basic decisions are approached. These phenomena represent a much greater challenge, as they often represent a new status quo that changes who has access to economic resources, and how these resources are managed. Actors who find new opportunity in this environment may also eventually act as spoilers in negotiations. This can include direct parties to negotiations, as well as those outside of negotiations but who

¹ Collier (2007) and Wennmann (2009) both explore modes of conflict used by armed groups.

still have a way to threaten the outcome or the peace process. This is evident in Libya, where armed groups dominate black market currency speculation and put pressure on central state institutions to stop policies or regulatory frameworks that would reduce their income (Harchaoui 2019). Conflict also creates huge markets that may be detrimental to stability. For example, Ahmad (2014) explores the effects of 'security bazaars', which have led to the proliferation of smuggling operations and protection rents extracted by warlords.

One of the major challenges, from a peace promotion perspective, is dealing with the fracturing of 'the economy' into an array of partially connected 'economies' (Eaton et al. 2019). Cohesive economic institutions are highly important for reaching sustainable peace (Humphreys 2005), but when economic activities happen in isolated pockets, with divisions running along the lines of interest, identity, or worldview, important opportunities for trust-building between parties are lost. During violent conflict, groups can be in competition to control economic institutions, and this process further weakens the structure of the state, increases a perception that groups need to control state institutions and locally monopolize violence, further damaging the prospects for peace agreements.

At the same time, the context of the war economy presents the double-edged sword of localized self-sustainment. In regions affected by conflict, important building blocks of the state are often constructed: tax frameworks and regulatory regimes are established, financial institutions form and businesses arise and fill in needs, new local elite networks are empowered, and the new rules and practices that help people cope may proliferate. These parallel economic institutions, which are effectually complex coping mechanisms, can become sophisticated enough to be quite difficult to dismantle, and can even contribute to state fragmentation. For example, multiple versions of national currencies may circulate simultaneously or local warlords may issue their own currencies (Addison et al. 2005); or state institutions destroyed by insurgent groups may be quickly replaced by local institutions (Bellows & Miguel 2006). Economic actors may take up the mantle of the state in market function, even when the parallel authorities neglect it. For example, 'illegal' traders have provided security to certain parts of the Democratic Republic of Congo to ensure their networks continue to function (Kabamba 2013). Business interests often spearhead dispute resolution processes and peace agreements (Miklian & Schouten 2019), including recently in Liberia (Cheng 2018), Guatemala, and El Salvador (Bull & Aguilar-Stoen 2019). They may even directly lobby conflict actors to establish the stability needed to foster trade (Musa & Horst 2019). For example, Rolandsen (2019) describes the marketplaces that have emerged in the hinterlands along the Sudan-South Sudan border, where an ad hoc body formed to establish and enforce simple rules of exchange for traders and limit the presence of arms.

This context—characterized by an incapable state, a viable challenge (or challenges) to its authority, violence, and a population working to cope with the myriad economic challenges that accompany these facts—in many ways resembles the state 'margins' described by Heuser (2019). The difference is that the conflict context allows for these conditions to arise in areas that are urban, developed, and formerly under strong influence from the state. The contestation brings about marketplaces that are largely ungoverned by any internationally recognized authority, although regulation comes from other sources. We place these marketplaces in a category we call the *functional economy*. There are three basic components that set functional markets apart from illicit, illegal, black, and grey markets. First, functional markets host the exchange of goods and services that would not be considered illicit or 'repugnant' outside the conflict context: cooking gas, fuel, food and water, currency, and other life essentials. Second, they are notable for a general lack of clarity among citizens about the law or rules of trade and regulation. Questions of the legality of an exchange are ignored in light of the economic pressures of conflict and competition between authorities. Third, although there is knowledge that the authorities can intervene in economic transactions, there is still a lack of clarity about which authority has the right and ability to do so, and under what circumstances. This framework explains how they fall outside international recognized regulatory frameworks but are essential for the livelihoods and resilience of populations in conflict contexts.

Two important questions immediately inform policy response to these markets, as well as demonstrating why they ought to be considered a crucial input of the legitimacy economy. First, do the authorities in a given situation tend more to foster markets to help citizens adapt, or do they exploit them to extract rents and coerce public behaviour? The second is, to what extent do they empower people to profit from conflict and engender patterns of public behaviour that make peacebuilding efforts less successful? For the purposes of this paper, we hold these as separate elements from our core definition of functional markets, but a narrower definition of 'functional' may take into account the extent to which activities are useful for citizens, free from exploitation, and not prone to exacerbating incentives for conflict. We continue this policy discussion in our closing section.

The functional economy has no apparent place within Beckert and Dewey's (2017) taxonomy of 'illegal markets' and 'shadow economies' because legality itself is uncertain, and violations of rules are impossible

to determine. They differ from black markets and illicit economies because the primary goods and services being transferred are neither stolen, counterfeit, nor 'repugnant'. Instead, a functional market (within a larger functional economy) is marked by a set of compromises over who has political and legal authority to regulate, in order to ensure critical goods and income. In this context, under extreme economic pressure born of conflict, a population struggling to cope enters into agreements with non-state actors to exchange goods and services needed for their survival and adaptation. Some of the features of illegal markets may still be relevant as instruments of transaction risk reduction: the importance of reputation to successful market action, the threat of violence as a means, and even some selective cooperation with the state (Beckert & Dewey 2017: 20), although the 'state' is now the insurgent group challenging the *de jure* state. Most importantly, the functional economy overlaps with attempts by political and other parties to a conflict to reinforce their legitimacy; by enabling economic activities that are most beneficial for community groups, over time they can win support as they are more relevant than 'far away' formal regulatory bodies.

Protracted social conflict (Azar 1990) changes the architecture of the market. The rebel governance literature demonstrates that the interventionist and regulatory role of the state is quite different when that 'state' is a competing non-state actor with the multi-layered goals of ousting the *de jure* authorities, maintaining a strong enough military to locally monopolize violence, and earning the trust—or at least cooperation—of the population under its control. The literature on illegal economies provides an apt framework for understanding economic decisions in these underregulated markets, even if the stated focus on undesirable transactions needs modification. The concept of functional economies is useful in protracted social conflicts, as it shifts the analytical lens of what comprises 'good' economic activity, from whether it is legal, to whether it provides access to essential goods and income, and whether it helps promote peaceful resolution. This helps policymakers in difficult decisions on how to approach economic activity outside the regulation of recognized entities. Yemen provides an important case study in applying the concept of functional economies; while economic activity outside regulation by internationally recognized authorities does provide essential goods and income, it may be making peace less likely.

Background and Research Design

Yemen has been beset by social conflict since the unification of the People's Democratic Republic of Yemen and Yemen Arab Republic in May 1990. However, the present period of armed violence has its roots in public uprising in 2011, as the 'Arab Spring' spread to Yemen, and was triggered by the results of the 2015 National Dialogue Conference (NDC), which was viewed as providing an unfair political settlement by a range of interest groups (Elayah, van Kempen & Schulpen 2020; Paffenholz & Ross 2016). The conflict in Yemen is complex, involving a range of conflicting issues and aspirations. However, for the purposes of this paper it is useful to reduce it to three principal conflicts. First is the conflict for national political authority between the Internationally Recognised Government (IRG), as established by the NDC and headed by Abdrabbuh Mansour Hadi, and the *de facto* authorities (Dfa) centred around the Zaidi-Shia political movement of Ansar Allah (most commonly referred to as the 'Houthis'). Second, there is a conflict for greater autonomy and even independence for 'Southern Yemen', both a cultural and geographic concept, with the Southern Transitional Council (STC) as its most visible advocate. Third, there is conflict between central and local authorities, as to who has the legitimacy to regulate society and control economic activity. This challenge to central authority comes from secular institutions (such as the Hadramout or Marib Governors), tribal groupings, military-economic groupings, and Islamist groups such as Al-Qaeda in the Arab Peninsula (AQAP). The existence of these three orientations of conflict mean that there are multiple challenges to the regulatory primacy of the state over economic activity.

As conflict escalated, more and more Yemenis were cut off from their jobs, education opportunities, global markets, and even basic foodstuffs. According to Human Rights Watch, areas held by the Dfa have been bombarded by at least 90 Saudi-led coalition airstrikes since 2015 (HRW 2019), and the Dfa has fought the IRG on the ground and through extensive bombing campaigns using inexpensive drones (Stein 2019). In parallel, there has been increasing use of violence by the STC as it contests the IRG's authority; while tribal, military, and radical Islamist groups have used a mix of violence and incentives to project their authority. One hundred thousand people have been killed since 2015 (ACLED 2019), 4 million have been displaced, and according to the UN, out of Yemen's population of 29 million people, 24 million are now dependent on food aid to some extent (CFR 2020). Social and economic infrastructure—markets, schools, hospitals, electrical grids, gas distribution—have been neglected or destroyed, and many Yemenis have been left on their own to cope with the extreme pressures of widespread violent conflict.

Yemen's functional markets have formed across the country in different ways, as central authority has been contested. In Dfa-held areas, Ansar Allah has replicated government institutions and issues decrees to

control economic life. Similarly, in areas nominally controlled by the IRG, a range of local actors have taken on regulatory roles, such as AQAP's financial exploitation of Mukalla's ports (Edroos & Al Batati 2018), or the STC's increasing levels of taxation of economic activities around Aden (MEE 2020). Even when the IRG's overall authority is not in dispute, local authorities at the governorate, district, and village levels have also taken on some regulatory responsibility over business activities.

To understand the nature of Yemen's functional markets, their role in the daily economic life of most Yemenis, and the effects they may have on the conflict itself, we utilize data gathered for a recent report from the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH (Wood & Huddleston 2020).² From that study, we have a stratified sample of 801 household respondents. The sample was stratified to represent three variables: authority, whether the de facto authorities or internationally recognised government; levels of development (more and less economically developed); and levels of violence (those living closer to and further from ongoing violence). **Table 1** displays the sampling sites.

At each location, the responses were randomised using a systematic sampling method, in which enumerators began at the town centre and then approached every n^{th} house and requested an interview with the head of household. The enumerators approached 877 households in August to September 2019, of which 76 (or 8.7%) refused to participate, leaving an effective sample of 801 households. The household survey was supported by eight focus group discussions in November–December 2019: four in IRG areas and four in Dfa areas, respectively focusing on the opinions of youth (to age 33), businesspersons, people with high levels of education, and people with low education. Seventy-two people participated in these discussions: 54 men and 18 women. In addition to the focus group discussions, the local research partners conducted 15 interviews, six in IRG areas, and nine in Dfa areas, with academics, businesspersons, public administrators, and security officials. The researchers also conducted ten validation interviews with international experts on peace and conflict issues in Yemen in early 2020.

Economic Crisis and Conflict

Yemen's protracted conflict has seen the intertwining of violence with a severe economic crisis. The country's industrial and agricultural sectors have been decimated, many Yemenis have lost their jobs in the private sector, those in the public sector are inconsistently compensated, the currency continues to tumble in value, and many Yemenis cannot afford basic food items (Wood & Huddleston 2020). In Dfa areas, Yemenis have come to rely in high numbers on functional markets for cooking gas, fuel, currency exchange and other financial services, and even medicine, water, and electricity. Interestingly, these markets have transformed from a mere natural result of collective coping to a growing 'sector' of the economy that has allowed some Yemenis to lift themselves from the brink and manage to prevent further erosion of their fortunes. At the same time, Yemenis in Dfa areas believe peace is not possible given economic interests that have developed in the region.

To illustrate the degrading economic context, especially in Dfa areas, we provide a few descriptive statistics from the survey data and focus groups. Of the 801 households surveyed, 18% had been displaced since August 2015; 63% of those had been displaced from Dfa held areas. However, respondents in IRG areas were substantially more likely to report 'fleeing trouble' as their reason for leaving their last abode. Another 26% in IRG areas and 53% in Dfa areas reported finding work or leaving areas where it was 'tough to get by'. In

Table 1: Sampling sites in Yemen.

	More developed		Less Developed	
	High-violence contexts	Low-violence contexts	High-violence contexts	Low-violence contexts
Internationally recognised government (IRG)	Group 1a 12.73% (102)	Group 1b 12.73% (102)	Group 1c 11.49% (92)	Group 1d 12.98% (104)
De facto authorities (Dfa)	Group 2a 10.24% (82)	Group 2b 13.98% (112)	Group 2c 13.48% (108)	Group 2d 12.36% (99)

² See the appendix for more information on the study and its ethical approval process.

total, 82% of IRG respondents and 73% of Dfa respondents reported either economic factors or 'trouble' as causes of displacement.³ **Figure 1** illustrates.

Since 2015, 62% of the sample had sold off possessions to be able to afford food and water. This rate is slightly higher in Dfa areas, at 65% compared to 59% in IRG areas. Yemenis living in more developed areas sold their belongings more than those in underdeveloped areas: 69% compared to 54%. However, only 49% in more developed Dfa areas with high levels of violence reported selling off their possessions. Removing these respondents from the sample sees the rate jump to 75%. This seems to indicate that formerly wealthy families are able to sell items to survive, but only when local markets are open and functioning.

Figure 2 shows the rates of possession sales in IRG- and Dfa-held areas. Dfa respondents sold items in every category at higher rates, on average. They were notably more likely (at 28%) to have used savings to cope. And Dfa focus group participants repeatedly described selling off assets to fund their displacement: 'Most people had to sell their belongings and others were forced to migrate to other regions of the country.'⁴ One participant sold his modern car to buy and older one to pay tuition fees for his four children, as the public education system had collapsed. Another participant's female relative sold her jewellery to fund her family's displacement from Hodeida to Sana'a.⁵

Further evidence of the deteriorating economic situation for Yemeni households is illustrated in their reported reliance on aid. As seen in **Figure 3**, 65% and 49% of respondents in Dfa and IRG areas respectively reported relying on food aid in the past month. It should be noted that aid organizations have had an easier time with distribution in IRG areas; 74% in high violence Dfa areas had not received food aid.

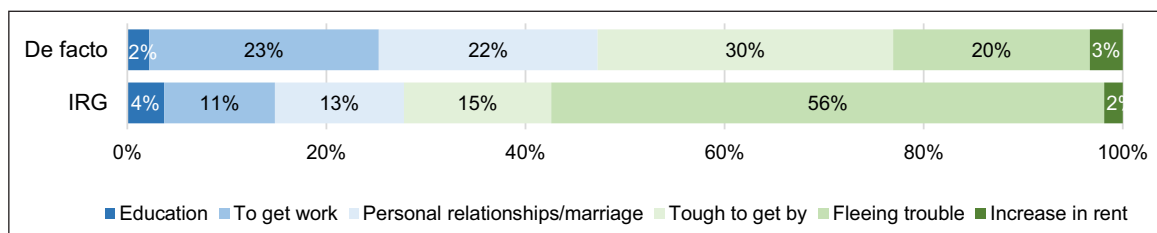


Figure 1: What is the reason you moved to this area?

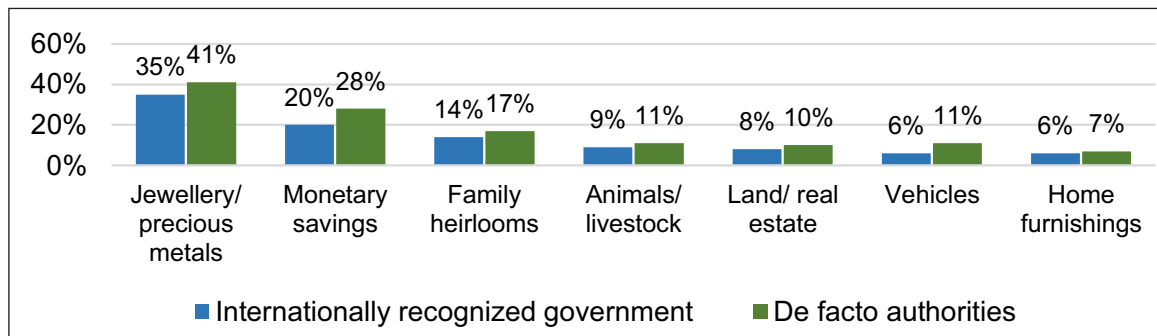


Figure 2: What kind of possessions have you had to liquidate or sell?

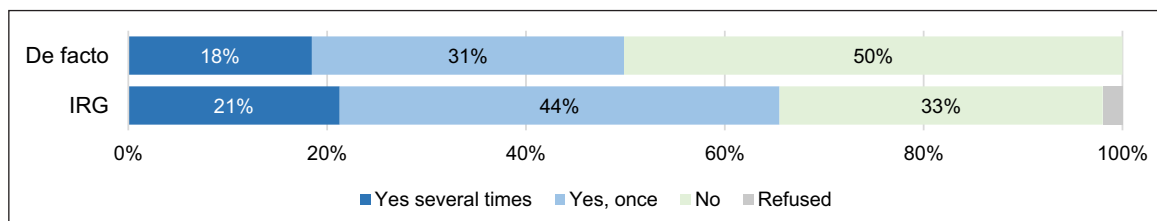


Figure 3: In the past month, did you receive food aid free of charge?

³ The survey probed many sensitive topics. Violence, politics, legitimacy, and other sensitive topics were probed using questions workshopped to minimize risk to respondents. The full survey instrument is in the appendix.

⁴ Dfa area interviews, December 2019.

⁵ Dfa focus group discussion, Ma'een, businesspersons, December 2019.

Comparing spending on food to other commodities (**Figure 4**) clearly demonstrates the devastation on food markets across the country. Yemenis in Dfa and IRG areas spend far more on food than anything else, especially in Dfa areas, where families spend nearly 100,000 YER per month on average. The focus group participants lent further credence to the evidence of the burden of food provision for many families: 'We dispense with some foods such as sweets, cheeses and fish. We rarely eat meat, maybe once a week. Everyone is trying to earn money in ways that were not present in the past,'⁶ 'We used to eat three meals, and now we eat two. We live by austerity and being economical.'⁷

One last illustration of Yemen's devastated economic situation, especially in Dfa areas, is evident in the crumbling infrastructure and public services. **Figure 5** shows that over 50% of Dfa residents report roads, health facilities, transportation, education, policing, licensing, and sanitation services as 'poor' or 'very poor'. For each service, Dfa areas fare worse than IRG areas. The apparent exception of electricity quality is in fact, driven by 98% of Dfa respondents answering 'NA' to the question. This is because the state power supply in Dfa areas has been entirely cut off, with continuing supply issues for public services like schools (UN 2019), and household electricity replaced by privately sold solar panels and diesel generators for those who can afford it (al-Ansi 2019).

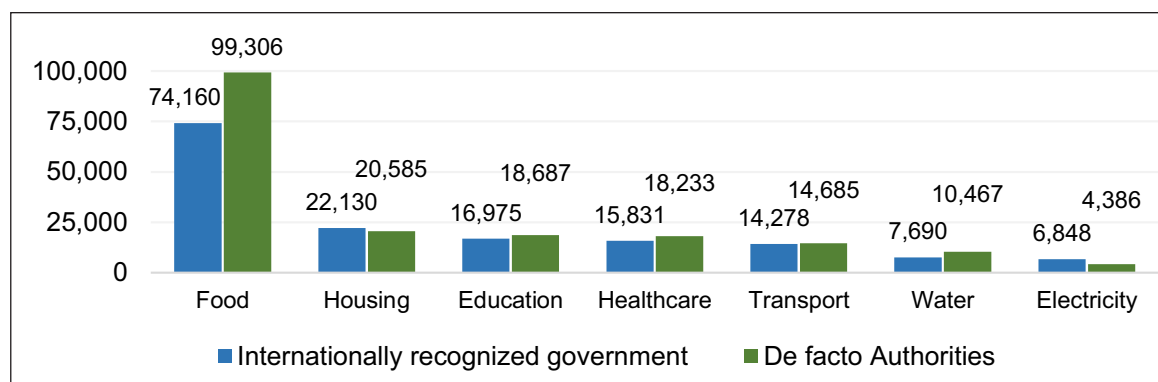


Figure 4: Average respondent-estimated monthly spending per category, in YER.

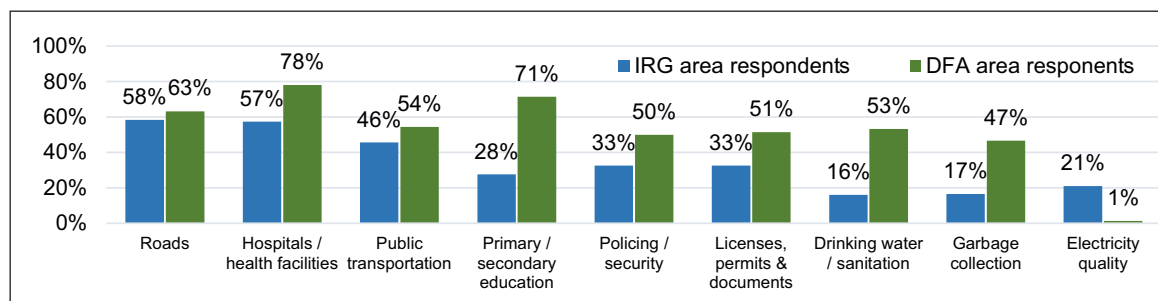


Figure 5: Proportion of respondents reporting each service to be 'poor' or 'very poor'.

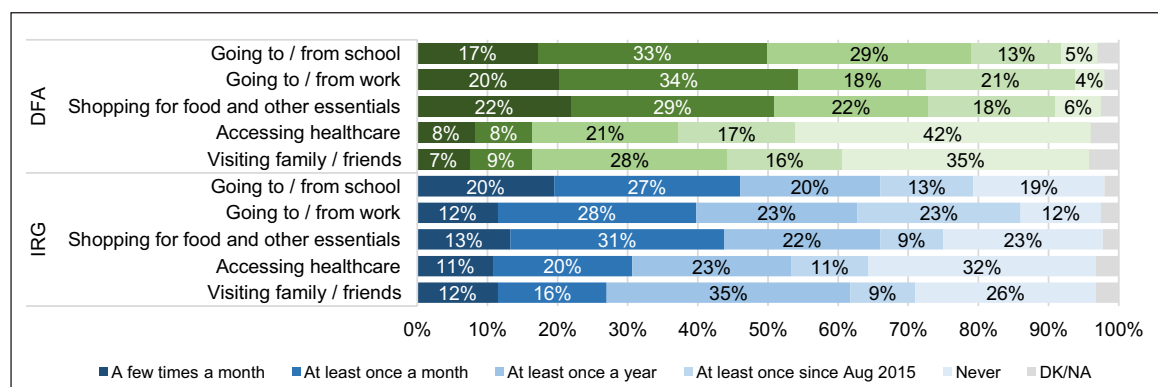


Figure 6: How much has each been prevented or interrupted by circumstances beyond your control?

⁶ Dfa focus group discussion, Shu'aub, young people up to the age of 40, December 2019.

⁷ IRG focus group discussion, Al Selw, lower education level, December 2019.

Further, **Figure 6** shows the constant disruption this poses to the everyday activities of Yemeni families: Dfa respondents report that school, work, and shopping were interrupted at least once a month by circumstances outside their control at the respective rates of 50%, 54%, and 51% (47%, 40%, and 43% for IRG respondents). While Dfa respondents reported fewer disruptions for accessing healthcare, there were much more likely to respond that health facilities are of 'poor' or 'very poor' quality.

The erosion of public services coupled with the destruction and neglect of infrastructure has led to a general 'undergrounding' of parts of Yemen's economy, characterized by the dissolution of public sector jobs or indefinite suspension of their salaries, the disappearance of private sector firms, and an increased reliance on irregular work, especially in Dfa areas. 36% of the sample reported changing sources of income since August 2015, and **Figure 7** shows how those changes have unfolded across different sectors. While most saw relatively little change, the 11% drop in public sector employment among Dfa respondents is striking. Overall, the search for new employment has become a common feature of Yemen's economy. As one focus group discussant stated, "There is no doubt that five years under war forced people to change their jobs...For example, when the salaries of the teachers stopped, they went to look for another job to live."⁸

The experiences of these changes and available opportunities differ between Dfa- and IRG-held Yemen. 43% of Yemeni households in Dfa areas have changed their primary source of income since 2015, compared to 29% in IRG areas. Dfa households were more likely to lose public sector jobs and more likely to turn to irregular work. **Figure 8** illustrates further divergence: military work presents the main opportunity for young men in IRG areas, but in Dfa areas, emigration is the most promising option for upward mobility. Dfa

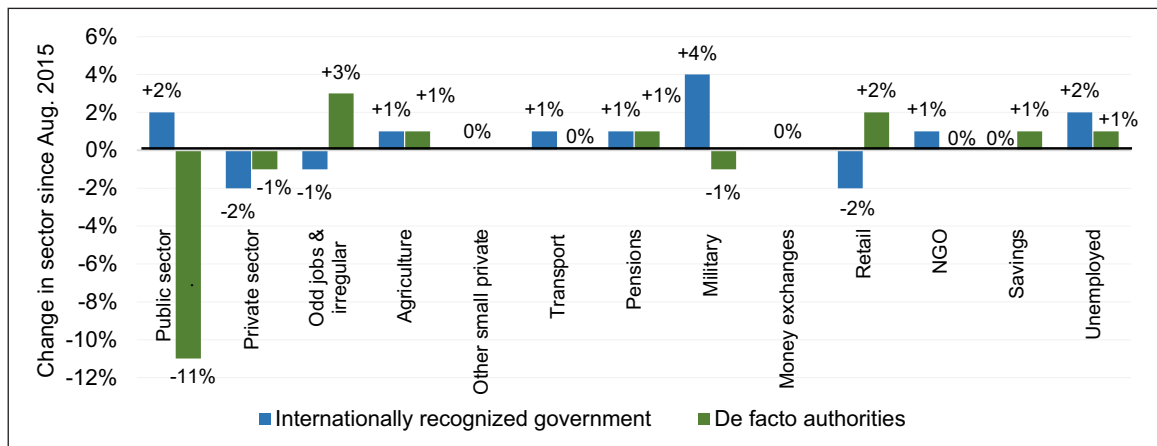


Figure 7: Changes in employment sector since August 2015, by governing authority.

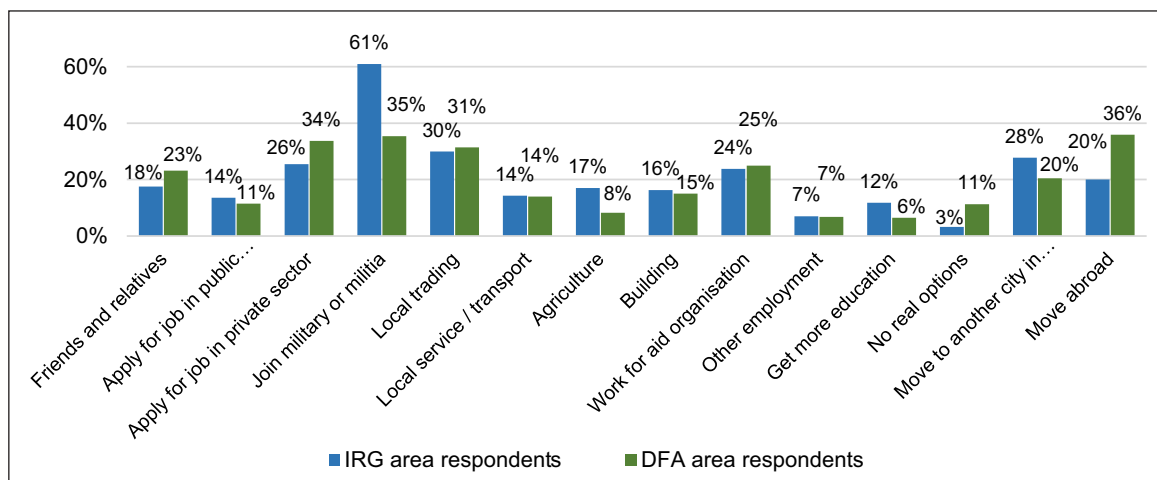


Figure 8: What are the best opportunities for a 25-year-old man to earn some income for himself and his family?

⁸ Dfa focus group discussion, Al Thawra, more educated, December 2019.

focus group participants expressed concern that 'Many businesses have closed, and job opportunities are rare. People cover their basic needs through aid received from different agencies and by selling this aid on the black market.'⁹

In Yemen, particularly in the Dfa-controlled areas, conflict has crushed the economy. This can be seen in our reported indicators: employment, service provision, disruption of daily activity, levels of perceived opportunity, household sell-off of precious assets, and spending on essentials. Moreover, large industries like manufacturing and 'legitimate' economic activities have transferred to IRG areas. This is felt to be especially the case for port cities such as those in Aden¹⁰ and Hadhramaut.¹¹ One businessman estimated that the war had caused IRG areas to lose 250 businesses, but they had been replaced by 1000 new ones. In Dfa areas however, large enterprises like the Al-Aqel Factory Al-Nahda, the iron and steel factory in Bani Al-Hareth, and a plastics factory in al-Thawra had all closed under the violence and economic pressures of the conflict.

Development of Alternative Regulatory Actors

These data point to a collapse of the formal IRG-regulated economy, especially in Dfa-controlled areas, with their replacement by functional economies. In their place have risen three main alternative regulatory bodies; the Dfa in areas under its control; local level governments in areas distant from both Sana'a and Aden; and local military forces throughout many IRG areas, as the IRG's ability to monopolise the use of force is absent. These military forces can have a range of political allegiances, including to the STC or Salafi groups.

Yemenis report general ignorance of whether their economic activities are regulated, or even legal. Our participants explained that the legality of economic activity is not of any concern to most Yemenis. What matters is whether such activity helps them survive: 'We become confused and can't distinguish between what is legal and illegal anymore. The arrogance, violence, and injustice of the conflict parties have turned the citizens into victims who are just looking to survive.'¹² **Figure 9** shows the extent to which Yemenis in IRG and Dfa areas rely on 'black markets' to get the supplies and services they need.¹³ This figure shows the first, and perhaps starkest, way in which the economy in the Dfa areas under the control of the parallel authorities has diverged from that of IRG areas. Twice as many Dfa respondents reported using informal exchange to get water, electricity, and medicine; and the difference for currency exchange was also large.

Nearly all Yemenis rely on black markets to acquire cooking gas cylinders, which are an essential commodity across the country. Dfa respondents reported transferring what wealth they have from financial markets to real estate as the country's currency split in two. Proper fuelling stations have closed, to be replaced by an informal fuel economy of unknown sourcing. Of particular note among respondents was the functional market for currency exchange, especially in rural Dfa areas. This market is widespread and regulated, but perceptions about the legality of such activities are so confused that a full 40% of the sample said they 'don't know' whether they are using black markets for currency exchange. Electricity generation had similar widespread confusion about regulation, since many households have moved to using solar panels and diesel

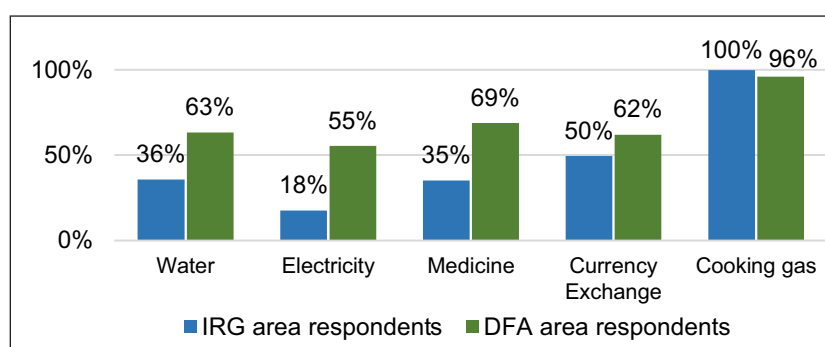


Figure 9: Reliance on black market, 'often' or 'all the time'.

⁹ Dfa area interview, December 2019.

¹⁰ IRG area interviews, December 2019.

¹¹ IRG focus group discussion, Mukalla, businesspersons, November 2019.

¹² IRG area interviews, December 2019.

¹³ Our respondents generally understood 'black market' to mean informal transactions outside of businesses known to be regulated. This means black and functional market activities are lumped together in this question.

generators for home provision (al-Ansi 2019). Dfa respondents also reporting growing unregulated activity in food and aid distribution, transportation, and communications, as well as yearly growth in the trade of qat, a widely consumed drug made of a leaf that acts as a stimulant and appetite suppressant.

The rise of this informal activity has brought about a rising class of newly moneyed elites. In Dfa areas, reputation and connections to the authorities are considered essential ingredients to starting a new business. One focus group participant explained, 'It is business as usual for merchants who are close to the leadership on both sides, as long as they are paying commissions and bribes.'¹⁴ This statement encapsulates the general finding on the way the de facto authorities treat functional markets. They do not so much 'regulate' them with evenly applied rules and licensure as they do exploit the profits that flow through them. This sort of rent-seeking is much higher in Dfa areas, where the authorities have monopolized taxation and fees collection (but is present to some extent across the country).

A particularly striking example is the difference between IRG and Dfa areas concerning cooking gas. The de facto authorities use two rates for cooking gas, a lower formal rate for households with family members who have joined the Dfa's fighting efforts, and a higher informal rate for those without. One focus group participant noted that there can be more than a tenfold difference in price between these two rates, with a formal rate (per gas cylinder) of YER 1,200 (\$2) and an informal rate of YER 14,000 (\$25).¹⁵ The higher rate includes many additional Dfa fees collected during bottling and distribution. Moreover, these 'non-contributing' households also have a greater of risk buying partially emptied cylinders.

In the areas they control, the Dfa have nearly monopolized on this kind of market exploitation. As one youth put it, '...companies are paying taxes and customs twice, once to the authorities of Sana'a and once to the authorities of Aden, in addition to paying royalties at [check]points. Ansar Allah or Houthis are ruling the country and they are taking taxes for everything.'¹⁶ Figure 10 shows the wide divergence between Dfa and IRG area respondents concerning business regulation.¹⁷ Seventy-two percent of Dfa respondents said they thought the authorities regulated businesses.

As a point of stark contrast, in IRG areas, only 11% of respondents credited the central government. In this part of the country local councils (54%), governorates (46%), the community itself (35%), and even local businessmen were all more likely to be credited with regulation. The IRG, however, does not have a strong presence in these markets, and regulatory authority has largely been ceded to other local actors. For example, the focus group in Hadhramaut stated that most sectors aside from telecommunications had very little influence from either Sana'a or Aden: 'The government in Sana'a is far away and there is no communication, so there is no competition...Aden entered into partnerships in the oil sector, [but] nothing is clear.'¹⁸ One respondent also explained that the local authorities in Hadhramaut mobilized against corruption in a 'number of government institutions', dismissing contracts they deemed illegitimate and combatting increasing

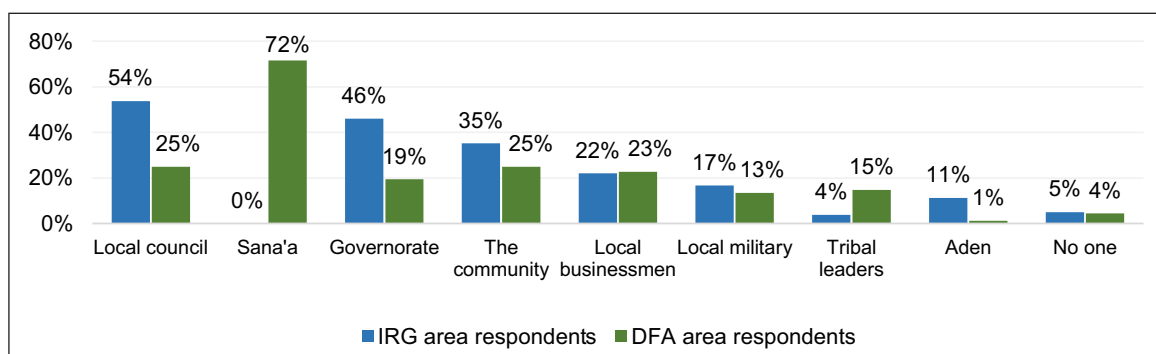


Figure 10: 'Who regulates businesses in your community?'

¹⁴ Dfa area interviews, December 2019.

¹⁵ Dfa focus group discussion, Shu'aub, young people up to the age of 40, December 2019.

¹⁶ Dfa Focus Group, Youth in Sana'a, December 2019.

¹⁷ It is worth noting that the idea of 'regulation' is ambiguous in this context and, as a concept, may have been interpreted differently between disparate regions of the country. This results in difficulty on our part in distinguishing between rents and typical government revenues.

¹⁸ IRG Focus Group, Hadhramout, December 2019.

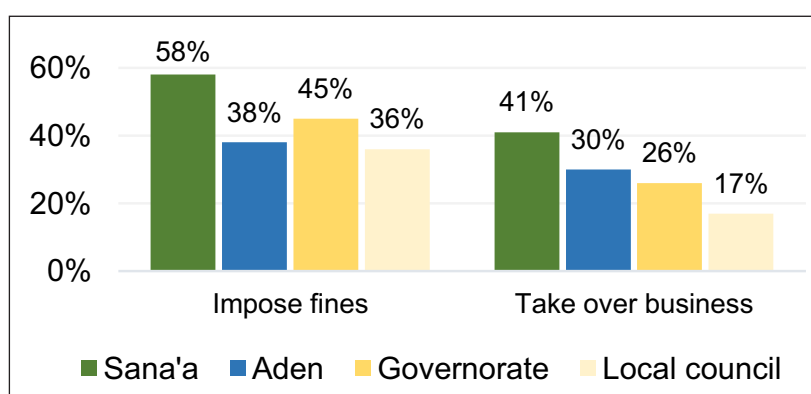


Figure 11: How does each authority respond to violations?

bribery present in the sectors of communications, electricity, water, and real estate.¹⁹ They also explained that the Hadhramaut governorate had allocated 20% of its revenues from oil sales to repairing infrastructure and even building new infrastructure in 'previously disadvantaged areas.'

Moreover, many more thought the parallel authorities in Sana'a would impose fines and take over rogue businesses than any other governing body. **Figure 11** illustrates. Dfa focus groups placed particular emphasis on petrol stations and currency exchanges as vulnerable to extortion.²⁰ They also explained that prior support for the IRG led to risk of takeover by Dfa, which also regularly used threats and demonstrative punishments to compel businesses to pay rents, at one point imprisoning money exchange businesspersons for not adhering to their rules on new bank notes.²¹ Dfa focus groups also spoke of takeover of businesses stemming from political motivations, and the subsequent flight of nervous businesspersons to IRG areas to avoid such reprisal.²² The Dfa has also monopolized certain sectors, such as internet services, and regularly taxes the movement of goods through 'internal customs areas'. 'When imported merchandise moves through one of the ports controlled by the recognised government the businessmen pay the legal taxes. But when the merchandise is transported to the governorates controlled by the Houthis, another tax is imposed which makes for double taxation'.²³ Interviewees emphasised that much of this extraction is directed towards combat economic activities, as well as for building personal fortunes.²⁴

These findings make clear that the gains from establishing a regulatory presence can accrue at multiple levels, from very local to very centralized. The Dfa has managed to establish a tight central grip over functional market regulation and exploitation, with businesspersons who comply with their rules—legal or not—in order to function, or else leave the area. In IRG areas, market regulation comes more from local government and military groups, which may demonstrate a healthy relationship between state and market, but more likely stems from state weakness. Our sample limits our ability to go into great depth with opinion on local councils and governorates in IRG areas, but in general, the same policy considerations apply to every authority: whether functional markets assist livelihoods, promote peace, or are exploited for rents.

Yemen's functional markets have arisen, perhaps inevitably, as a result of the destruction of many parts of the country's economy, the erosion of the public sector, and the transfer of major sectors to IRG areas. These activities may be fostered and regulated, or they may be exploited by the parallel authorities as a source of revenue and a strong incentive to compel Yemeni families to send their sons to join fighting forces. One focus group participant stated, '...The army and security forces...exploit every opportunity to withdraw the largest amount of funds to finance the war effort...Houthis focus on families who do not have a martyr and those who never participated in the fighting and they include them in the blacklist.'²⁵

Enough of Yemen's economic and political activities in Dfa areas have adapted to these changes that new business interests are now perceived as a major impediment to peace. **Figure 12** shows the surprising

¹⁹ IRG Focus Group, Hadhramout, December 2019.

²⁰ Dfa focus group discussion, Al Thawra, more educated, December 2019.

²¹ International validation interview, February 2020.

²² Unless otherwise stated, examples from: Dfa focus group discussion, Shu'aub, young people up to the age of 40, December 2019; Dfa focus group discussion, Ma'een, businesspersons, December 2019; Dfa focus group discussion, Al Thawra, more educated, December 2019.

²³ IRG area interviews, December 2019.

²⁴ International validation interview, February 2020.

²⁵ Dfa Focus Group, Youth in Sana'a, December 2019

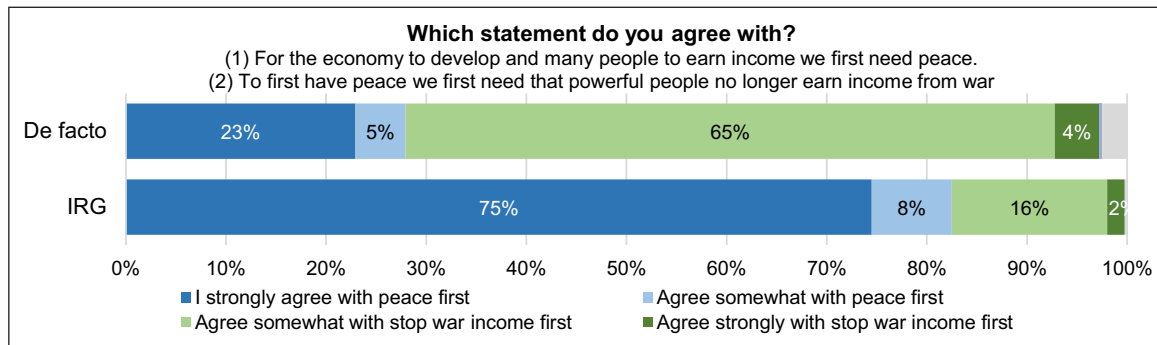


Figure 12: Which needs to come first—peace, or stop war income?

divergence between respondents in IRG and Dfa areas to a simple question of whether peace or halting war income needs to come first. Eighty-three percent of IRG respondents said peace *must* come before economic development is possible; 69% of Dfa respondents thought peace will only come *after* business interests stop earning income from war. As one participant put it, ‘Most economic activities in Sana’a became possessions for powerful people, belonging to...groups linked to the current authority.’²⁶ The ‘two-sided character of the state’ (Beckert & Dewey 2017) is incredibly well encapsulated by the situation in Dfa-held Yemen.

At the same time, many of these activities knit together communities in ways that help local peace efforts. Focus groups pointed to businesses as uniquely placed to constitute bridges between local leaders, central authorities (whether IRG or Dfa), security actors, and local communities. Businesses do not survive without having reasonably well-established connections in all these areas. One focus group participant pointed out ‘Yes, business owners and merchants must build relationships with officials in the local authority and military and security leaders in order to succeed in their trade and investment projects’.²⁷ IRG participants pointed to strong relations with local security forces as necessary, further demonstrating more of a patch-work authority system in IRG areas, compared to the highly centralized Dfa areas. These connections allow for several confidence-building activities that focus groups pointed to: enhancing local human security by fighting movement restrictions; managing crises to stop violence from impeding business; meeting local needs through aid provision and support of education and health resources; and establishing contact across conflict divides directly through collaborative projects and indirectly through trade.

At the same time, they warned that when these activities counter the political motives of the authorities (particularly the Dfa), businesspersons may be personally targeted.²⁸ The parallel authorities have allowed ungoverned marketplaces to emerge, which have provided a lifeline to the many Yemenis who sell belongings and food aid in exchange for other necessities, or otherwise attempt to establish new enterprises in Yemen’s uncertain environment. At the same time, the authorities selectively intervene, seeking a lucrative source of rents, a way to reward loyalists, and a powerful tool to compel Yemenis to join the fighting forces, as well as a method of establishing legitimacy. Much of this occurs in well-developed urban areas with formerly high levels of manufacturing across several industries. While it has provided some relief from the high costs of war, it has also served to perpetuate the war by embedding new business interests within it. ‘Businesses are used poorly, taking advantage of the absence of the state...and insecurity.’²⁹

Discussion and Policy Implications

The conflict in Yemen has undone several pillars of the formal economy: public sector employment has plummeted, to be replaced by more informal work; public service infrastructure like roads and water have been severely damaged; many have been displaced; and still more have sold off valuable assets and parts of their livelihoods. Perhaps most troubling, the bare provision of food for the family has come to consume an enormous portion of most Yemenis’ income. In this environment of severe economic uncertainty, away from the regulatory arm of the internationally recognized government, they have come to rely on the alternatively regulated economic spaces that have emerged to fill the void, which we call the ‘functional economy’.

²⁶ Dfa focus group, more educated, Sana’a, December 2019.

²⁷ IRG focus group discussion, Al Muthafer, higher education level, December 2019.

²⁸ IRG area interviews, December 2019.

²⁹ Dfa focus group, less educated, Taiz, December 2019.

Within this framework, functional markets fit somewhere between being governed by a hands-off 'aliocracy' and a hands-on 'rebelocracy' (Arjona 2016). They do not function as 'illegal', since both the nominal authority and its laws are largely absent from the picture. Neither do they function unimpeded, as a range of authorities may selectively intervene to profit from novel businesses and to exploit families (rendering them less 'functional'). Even a protracted conflict with many competitors can quickly produce an economic reality in which key players stand to lose significantly with de-escalation. The economic—rather than political—stakes are higher in all parts of Yemen than is obvious at first glance.

Our analysis builds on Goodhand's useful framework (2004) to develop an important facet to the literature on rebel governance, which has focused primarily on institution-building and legitimacy-seeking behaviours by nonstate actors but has unanswered questions on the emergence, regulation, and exploitation of local markets under conditions of protracted conflict. Following scholars who have provided excellent analysis on the role of natural resources (Collier & Hoeffler 2005; Humphreys 2005; Ross 2006) or criminal enterprises (Daxecker & Prins 2017) in the origins and trajectories of conflict, we would encourage scholars to better build our understanding of whether, when, and how parallel authorities foster local economies to support citizens, or exploit them to finance conflict and compel participation. Moreover, future research within this framework would benefit from building the field's understanding of 'legitimacy economies,' our complement to Goodhand (2004), which spans the literatures on war economies and rebel governance.

Yemen's functional economy provides a lifeline and source of opportunity for many Yemenis. As international actors search for stabilising and peacebuilding opportunities in the region, they should take careful note of the how Yemen's economic situation has evolved in the conflict. Our findings underscore the importance of understanding Yemen's business networks and reinforcing local functional markets, protecting the assets of these new businesses and focusing on enhancing transparency in taxation and public oversight, rather than on restoring old power structures. It is worth revisiting Collier's policy prescription: 'We need a combination of facilitating settlements—which is an international diplomatic activity that should include military guarantees for settlements—and a financial strategy for squeezing rebel groups of their finances and making governments use their revenues more transparently' (2007: 8). Our findings imply that, in addition to the need to identify and cooperate with key players and induce transparency, two other factors are of crucial importance for policy responses. Functional markets in Yemen—and in other conflict environments—should be enabled depending on the extent to which: (1) they are exploited by security and political actors to reinforce their dominance over society without accountability (which undercuts statebuilding); and (2) they enable activities that promote peace (such as cross-divide bridgebuilding). On both these counts, many functional markets in Yemen are problematic. Nevertheless, they can and do provide essential value to Yemenis, in the form of income and life necessities. They provide an essential 'function' and should not be discarded or weakened only because they are not driven by the recognised regulator (the IRG). **Figure 13** provides a simple illustration of how domestic and international actors might evaluate these markets and

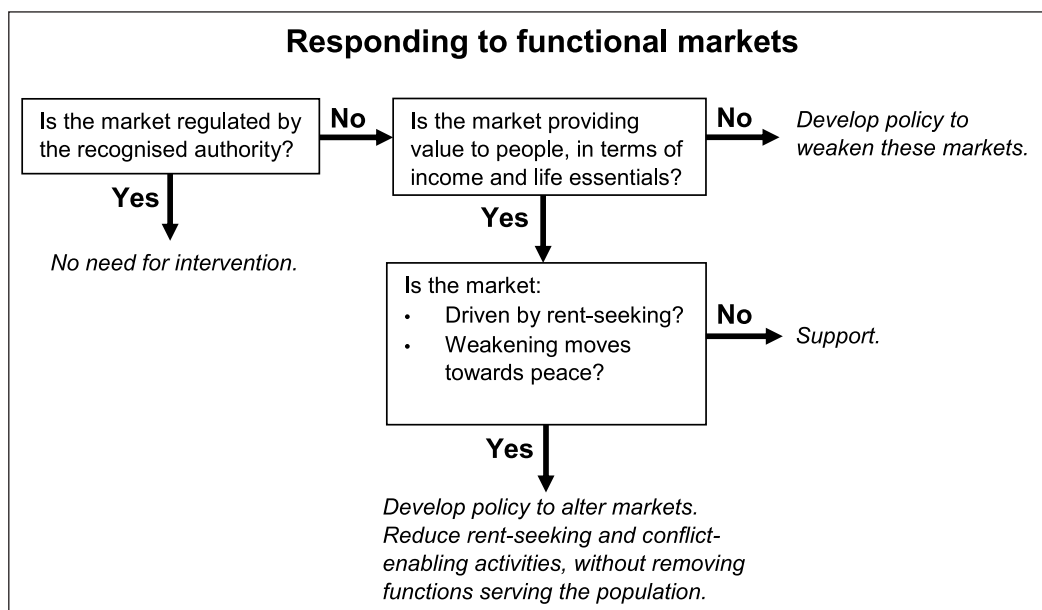


Figure 13: Flow chart for productive policy responses to functional markets.

propose a balanced policy approach that enables activities within the legitimacy economy and curtails them in the combat economy.

Autesserre's (2014) analysis provides poignant guidance on how international actors might respond to the ground-level realities of Yemen's war economy, albeit from a less economic and more violence-specific perspective than the one she offers. International efforts towards peacebuilding that value top-down 'thematic knowledge' of technical experts over the nuanced, area-specific knowledge of locals who may not 'know' peacekeeping often both miss important dynamics and alienate local actors who might otherwise make for much needed partners. Our approach provides a tool for policymakers to use in response to economic activities under the purview of nonstate actors or alternative authorities.

The double-edged sword of Yemen's functional economy presents a similar challenge; the common assumption that 'black markets' are detrimental to regions in conflict is both belied by their evident utility to populations living in conflict and misses important variation within the extent to which adaptive economic activities help or hurt opportunities for peace. Our analysis implies that close attention should be paid to these factors by international agencies committing resources to using economic means to improve the situation in Yemen and incentivize peaceful change.

Additional File

The additional file for this article can be found as follows:

- **Supplementary Material.** Appendices for Huddleston and Wood "Functional Markets". DOI: <https://doi.org/10.31389/jied.71.s1>

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Competing Interests

The authors have no competing interests to declare.

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