Opportunities in times of tempest: Business recovery post Hurricanes Irma and Maria in the Caribbean. The case of Sint Maarten.

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Abstract
Hurricanes Irma and Maria have devastated the Northeastern ridge of the Caribbean (encompassing, among others, the islands of Anguilla, Antigua and Barbuda, Dominica, Puerto Rico, Sint Maarten and the U.S. Virgin Islands) in September of 2017, and left the islands with an enormous gap to fill in terms of reconstruction. The mechanisms that motivate post-disaster business model adjustment in Small Island Developing States (SIDS), are largely understudied. With Sub National Island Jurisdictions (SNIJs) standing out through political relationships with larger metropole nations, it is expected that they have access to resources to promote recovery. This paper describes the process of recovery and/or adjustment of businesses on the Caribbean island of Sint Maarten which fell prey to Hurricane Irma in 2017.

Introduction
Studies of resilience with regards to disaster recovery in the Caribbean region are not as ubiquitously conducted in proportion with the damage and prevalence of these storms. Considerable attention needs to be given to the risk these storms will continue to pose to these island nations, in light of the increasing intensity of hurricanes as a result of climate change. Chiefly overlooked are the private sectors despite the elevated risk of hurricanes on the survival of businesses, specifically for those prone to suffer physical damage (Basker and Miranda 2014). Evidence suggests that the recovery process is therefore also a transformation, whereby certain segments permanently adopt new business models (Groen et al. 2016) (Marshall and Schrank 2014). Additionally, the political status of the islands also adds a layer of complexity in the process of recovery. For example, SNIJs hold distinct relationships with (mostly European) shelter providing nations, and as a consequence have particular frameworks which can allow for alternate responses in the recovery process. Often overlooked, these islands allow unique contributions to the body of knowledge of recovery.

This paper aims to identify business model adjustments as a result of impacts caused by hydro-meteorological events in the Caribbean. It provides recommendations for policy responses towards resilience in natural disaster-prone Caribbean Small Island Economies (SIEs) by asking the question: What was the adaptive process of businesses in the aftermath of Hurricanes Irma and Maria?

Theoretical approaches to business recovery
Natural occurrences, such as the impacts of climatic disasters can have negative impacts on economic development (Karim, 2018). Studies in the Caribbean region show that “...the average hurricane strike caused output to fall by at least 0.83 percentage points...” (Strobl 2012, p. 130) depending on local characteristics (Felbermayr and Gröschl 2014) (Strobl 2012). The mechanisms to cope with these storms also differ starkly from larger nations, which motivates the present case study as a means to provide more insight and lead to policy solutions. Of particular interest are businesses that sustain physical damage.
In general, there is a lack of understanding of the business recovery process after disasters. What is known is that it is not orderly, it is non-linear and complex on multiple dimensions, and focuses primarily on how to continue life (Chang 2010) (Jordan and Javernick-Will 2013) (Marshall and Schrank 2014). However, disaster recovery for (small) businesses is an iterative process set in the context of individual, family/household, and community recovery over time. Recovery might be a process that is never-ending because of the difficulty to fully capture the nuances, interactions and effects of time (Brown et al. 2008). This process consists of interconnected contextual decisions that are made by the aforementioned players, which in turn affect the decisions and recovery of all players. These “…decisions include rebuilding, replacing, repairing, resuming, and restoring…” (Marshall and Schrank 2014, p. 597) everything from income sources to buildings to social networks to businesses to infrastructure. Disaster recovery takes time and depends heavily on the available infrastructure and overall business resilience (De Silva et al. 2006) (Rose et al. 1997) (Rose and Lim 2002).

To assess its likelihood of survival, one must start to assess the resources needed to recover and the conditions under which those firms that recover progress over time, as well as how much money and time it will take to stabilize the community. Few studies have been able to fully capture how businesses manage loss of property (for example, inventory and furniture), loss of customers, their supply chain and business models (Marshall and Schrank 2014). “What happens after the disaster, that is, during the recovery period, including the decisions an owner makes at that time may well have more impact on survivability of the business than the preparations done in advance.” (Marshall and Schrank 2014, p. 603) Alternatively, it may also be that businesses gain market share at the expense of other businesses during the ‘unstable’ phase thus increasing the likelihood of survival (Marshall and Schrank 2014). Businesses, for example, prefer to use their own capital, as opposed to loans or other forms of credit to fund their recovery. This points to the importance of an active reserve requirement policy (Brei et al. 2019), especially in considering forecasts of hurricane seasons.
Businesses vary in recovery time, rate and method due to the differing levels of the aforementioned factors, such as loss of customers, across different business ownership structures and business size (Zhang et al. 2009). When assessing recovery of small businesses, it is imperative that this assessment is of longitudinal nature, enabling examination of all decisions made by business owners, business operators, the self-employed and entrepreneurs before and after disaster strikes, and if possible, during the disaster itself (Marshall and Schrank 2014). In this case several waves can be observed that influence the decision to continue operations or to exit and have the business demise. Non vital business might continue operating directly after the storm due to their nature, whereas others would need to recover first. This is a characteristic of Measurement Period 1 in Figure 1.

Basker and Miranda (2014, p. 1285) “...find very low survival rates for businesses that incurred physical damage, particularly for small firms and less-productive establishments.” They further provide evidence that financial constraints rise as a consequence of storms and can lead to exit by small businesses. These market conditions, particularly in smaller markets, may be issues that induce exits to a greater extent, and represent factors behind the recovery or demise of businesses in Measurement Period 2 of Figure 1.

A study by Sheller (2018) argues that recovery should not just encompass the idea of ‘building back better’, but that a better account for the root causes behind recovery is necessary. The loss of output, for example, is attributed to a standstill of economic activity to allow reconstruction of both physical and economic infrastructures, and that recovery depends on the severity of the occurrence of the storm. To illustrate, factors such as loss of market as a result of dependency on foreign ones may continue to plague businesses over the course of time in their process of recovery. Measurement Period 3 in Figure 1 captures these factors as it allows for recovery of businesses that have been rendered inoperative during periods 1 and 2.

Fundamentally this gives rise to the question: How do (small) businesses in SIDS recover as a result of disaster? In this respect it is paramount to explore to what extent formal mechanisms interfere with the process of recovery, as well as how perceptions of business owners influence their process to lead recovery of their businesses.

▶ Background

SIEs are economically vulnerable because of their small size, consequently making them dependent on foreign market developments (Briguglio 1995), which national governments have little control over. SIEs in the Caribbean can also be substantially dependent on tourism, and physical damages sustained by small businesses have a compounded effect in the offerings delaying the recovery process. These effects can be much deeper when key businesses such as (air) ports suffer damage which essentially brings the entire industry at a standstill, as it was in the case of Sint Maarten in 2017.

The Caribbean remains understudied despite its elevated vulnerability to natural disasters, where a year without deadly storms is considered an anomaly. Evidence suggests that the diversity in the Caribbean may render mechanisms of growth as unobservable (Mohan et al. 2018). As islands may be similar in challenges they face,
they can critically differ in terms of mechanisms by which they react to economic issues. SNIJs, for example, might be more dependent on linkages with shelter providing metropoles which are perceived as advantages as opposed to sovereign islands. In this respect SNIJs are even more so underscored in research, and allow for a unique case study for post-disaster recovery.

With regards to Hurricane Irma, the island of Sint Maarten was dealt a devastating blow in terms of immense physical damage at the island's only international airport. The damage with regards to lodging properties was substantial for both sides of the island, with the Dutch side completely losing a 257-bedroom hotel, and another 500 rooms destroyed in part. Additionally, the port of Sint Maarten, receiving over 500 cruise calls and millions of cruise tourists, was severely damaged one month ahead of high season. The French side has suffered substantial loss of the regional Grand Case airport, rendering it inoperative as well as physical damage to many villa-style hotels and about 40-50 small tourist-oriented businesses, essentially, losing all property in the process. Economically this represented a 4.8 per cent decline in 2017 and 8.1 per cent contraction in 2018, and the loss of jobs is estimated at around 1300 or 18 per cent, opening a two to three year recovery term, similar to the experience with Hurricane Luis in the 1990s.

### Methodology

Studies on the recovery of small businesses have mainly focused on interviewing on a local level about planning and mitigation, yet does not help answer the how and why of business recovery (Rodriguez et al. 2007) (Runyan 2006). As predicted by Marshall and Schrank (2014, p. 607), "...small business recovery is likely to be characterized by indicators that can only be reported by business owners; therefore, secondary data may not capture the true nuances and essence of recovery states." Hence, this encompassed in-depth semi-structured interviews and focus groups with a sample of business owners, business operators, the self-employed and entrepreneurs on the respective islands. Due to the complexity of construing a representative sample, the sampling method most appropriate for this study was snowball sampling method to increase response rate for participation in the focus group. The approach began with the largest insurance company, which enabled direct contact with business owners that went through the process of recovery. Participants in the focus groups included entrepreneurs, representatives of the National Disaster Management Team, representatives of the island's largest insurance company, representatives of the Port Authorities and representatives of the hospitality industry.

### Findings and analysis

**Adaptation and its causes**

With regards to recovery, most participants indicated that it took a lot of effort to access properties and assess damage due to profound interruptions in many utility services as a result of infrastructural damage. This process was also compromised as Hurricane Maria was also well on its way, further disrupting any response coming from abroad. The period after the passing of Maria, which extended the first measurement period, finally allowed for full attention for recovery, and it was noticeable that very profound efforts were being made by the private sector to assist their employees independently.

Having both airports on the island and the cruise terminal inoperative for several weeks after passing of the storms, also contributed to the loss of (tourist) market which further drove many businesses that could be resilient otherwise to adapt at a slower pace. As a consequence, substantial amount of business owners had to deal with loss of market, with tourism being the main economic pillar. Business owners confirmed that even though matters with insurance and financial institutions were being solved to facilitate recovery, there was no market to serve in this situation indicating they were businesses depending on foreign markets, as they were able to “recover”.

**Economic impact of storms**

Participants indicated that the government was perceived as very slow in preparing for the storm through the late announcement, which was made hours before the first hurricane making landfall. As a consequence, many were not able to acquire basic needs in order to build the required two-weeks-supply. With the devastating effects of Hurricane Irma, even those in Emergency Response Services were left at risk, subsequently disabling the same government tools to provide safety after the hurricane’s passing. These disruptions depressed many business owners’ abilities to appropriately respond to business needs, post-disaster which moderated the period by which they could recover. This process coupled with the need to support employees in order to return to business, and
the loss of market due to the standstill of the main economic pillar of tourism, had substantial impacts on profitability.

Respondents indicated that business owners struggled with business recovery due to the severe impacts of the storm on personnel property, and felt a responsibility towards their employees and their needs. Respondents indicated, for example, that there is no policy on payroll insurance which influences their recovery process. As a SNIJ of the Netherlands, Sint Maarten is familiar with several secondary benefits and referred to the need for a mechanism that enables payroll to be substituted in periods of disaster in the form of an insurance, such as the accident and disability insurance currently in force. As it stood, business owners have taken it upon themselves to search for and care for employees; hoping to get them on their feet in an effective manner in order to accelerate the chances of survival of their businesses.

These challenges, and in particular the slow recovery of the (air)ports reaching only 70 per cent pre hurricane capacity after two years, have led to some business owners to decide to exit and report business demise according to the framework central in this study. Paramount in the consultations is the perception that business owners in Sint Maarten saw governments of the sovereign islands as more active in response to the disasters. Those business owners operating in multiple markets on the contrary pointed out that this perception was not always founded on objective factors. Economically their operations show evidence of more resiliency in SNIJ markets as opposed to others.

The consultations with disaster response and insurance professionals reported a disregard for disaster preparedness over time as one of the factors in determining the underinsurance of property. For a region that systematically deals with storms, it is a necessity to adopt policies towards building resilience, in order to facilitate the recovery process and corroborate the business owners’ perception that recovery can benefit from centralized plans championed by governments.

Regional evidence

Concerning Hurricane Maria which affected the islands of Puerto Rico and Dominica, a similar experience has been recorded where islands suffered substantial damage, and loss of property, forcing citizens to migrate.

With regards to Puerto Rico, findings indicate that in terms of surviving, often larger, businesses performed better in these periods, and overcame the impact (Hamdani et al. 2018). This is despite the long-standing interruption in utilities that have slowed down the island for months after the storm’s passing (Martín et al. 2020). With the market evolving as a result of the disaster, business owners acquired a feeling of perspective, while newly founded businesses perceived better than expected performance in a post disaster environment (González and Martínez 2018).

In Dominica, whose tourism industry is still in development, physical damage to two hotels caused a complete cease of operations as a result of underinsurance, as gathered from interviews sustained with business owners and members of the press as well as reports (Briones 2019). Otherwise respondents in this market indicate that the central recovery plan championed by government has been of substantial value in their process of recovery, which is supported by studies done to evaluate response (Ali-Browne 2018). Dominican businesses also suffered from underinsurance and lack of support from government for employees, however the economic construct was not dependent on foreign markets in such a way that it could not sustain an interruption. Dominica can be very self-sufficient with regards to agriculture and has been able to absorb the impact as a result thereof. Though business owners feel they may have not recovered fully from the shock, the perspective offered by a public agency indicated a feeling of acceleration and change even though this process is still perceived to be impacting the island (Price Waterhouse Coopers 2019).

The experience in Antigua and Barbuda, where the storm essentially wiped out any standing structure on Barbuda, renders similar findings to Dominica. Interviews sustained with entrepreneurs indicated that the impact on business was felt more so due to interruptions in tourist arrivals, and some physical damage sustained to businesses in Antigua. Losses incurred in Antigua were addressed by authorities which gave business owners trust in the future, allowing for an environment where investments could continue to be made. The support provided for citizens of Barbuda was absorbed on a central government level allowing for a recovery, which at time of this investigation is still ongoing (Gould and Lewis 2018).
Participants’ suggested policy implications

In the case of Sint Maarten, attitude towards hurricane preparedness is reported as decreasing in importance with the passing of time. At the time of the consultations, participants indicated that they have already observed signs of disregard for disaster-related risks and feel that this will only return when a new storm makes landfall. Participants stated that government must be stringent in promoting hurricane preparedness and recovery mechanisms as well as funding for recovery. Moreover, participants felt that a clear strategy for hurricane preparedness and recovery must be put in place for local, national and regional levels, rather than per island due to the proneness of disaster.

Respondents suggest that a strategy must be adopted to encompass how to deal with disaster-desensitized civilians; a workforce with elevated mobility; the realities of the domestic ecosystem for business; and incentives for businesses to engage in disaster preparedness while an overarching entity absorbs risks that are different per business size. This includes a plan on how government should deal with migrants that come to the island to work in order to remit back to the migrant’s home countries. The workforce in general responds very favourably towards any industry that presents job opportunities, which is not functional for the economy due to work flow imbalances and lack of sustainability. One participant mentioned the following: “We need to capture the energy from the storm, not run from it.”

These findings specifically indicate the need to recognize the threat of disasters by means of erecting or empowering an agency with the authority to enforce and facilitate disaster response for business owners. The introduction of a fund to deal with disaster issues such as income substitution is highly necessary to facilitate business recovery. In this, authorities should recognize the mobility aspect of citizens, and the impact this may have on businesses altogether by providing social protection that discourages post-disaster economic migrations. Additionally, the issue of migrant workers needs to be addressed, in that remittances could also be taxed in order to fund domestic disaster preparedness.
References


