

# Research Newsletter



# Research across the CBLG

## What has been going on across the college?



### FDI, Natural Disasters and Economic Growth of Host Countries

This study examines the impact of foreign direct investment (FDI) on a host country's economic recovery following the occurrence of a natural disaster. An assessment of the extant literature shows that little has been done to assess the nexus between FDI and natural disasters, with most FDI-based studies examining the determinants of FDI inflows (Dunning, 1993; Singh and Jun, 1995; Resmini 2000) and the relationships between FDI and economic growth (Nair-Reichert and Weinhold, 2001; Chowdhury and Mavrotas, 2006). Of those with a specific natural disaster focus, it remains inconclusive whether and how FDI interacts with host country's economy following the occurrence of a natural disaster.

On the one hand, FDI is usually characterised by its 'footlooseness' and is extremely sensitive to the negative shocks in host countries. That is, MNEs are more likely to enter and exit a host country than are local firms (Görg and Strobl, 2003; Bernard and Jensen, 2007).

The negative shocks could destroy local upstream suppliers and, thus, MNEs might find it profitable to leave the host country. While it's unclear whether FDI has lower entry barriers to an industry than the local capital of the host country, it is definitely easier for FDI to exit from the host country than for its local equivalents when facing negative shocks such as natural disasters. In support of such an argument, White and Fan (2006) note that disaster events could initiate or trigger changes in attitudes or perception of disaster risks by raising the level of risk aversion and therefore the likelihood of an avoidance response. Such sentiments are shared by Escaleras and Register (2011). Empirically, Anuchitworawong and Thampanishvong (2015) find that major natural disasters reduce FDI inflows. On the other hand, FDI, presumably from developed to emerging countries, can contribute to the state of the local economy by boosting average productivity and employment opportunities. In the context of a natural disaster, after a negative shock occurs, multi-national enterprises (MNEs) may sustain their physical capital capabilities through the

support of parent companies located in their respective home countries. In this instance, parent firms can immediately provide much needed capital to their foreign affiliates so as to ensure a quick recovery, thereby also contributing to the recovery of the host country. In line with such a logic, Oh and Oetzel (2011) find that there is no significant impact on the number of MNEs in a host country following a natural disaster.

In addition, natural disaster may be a disruptive creation in readjusting the industry configuration of MNEs and local firms in a host country. There is a concern that high levels of FDI may crowd out local firms and deter the entry of local entrepreneurs (Caves, 1996). Following a natural disaster, more physical capital replacement will be needed and economy will be readjusted to a new equilibrium. In this readjustment process, FDI may play some important role in strengthening or weakening the local value chain. Kato and Okubo (2018) show that when natural disasters seriously damage capital, the industrial configurations in the host country switch from domination by MNEs to domination by local firms. With these different strands of literature in mind, we conclude that whether and how FDI helps to revive the host country's economy after natural disasters remains an imperative empirical question. We therefore plan to provide evidence on the impact of FDI on a local economy following a natural disaster using a multinational dataset of natural disasters, FDI inflow and economic growth. More specifically, this chapter addresses the following research questions:

1. Does a natural disaster lead to a withdrawal of FDI from the local economy?
2. Does the stock of FDI moderate against the potential negative impact a natural disaster has on the economy growth of the local economy?
3. How does a natural disaster reconfigure the state of FDI and the

ways in which businesses operate in the local economy?

### Methodology

In order to examine these questions, we will estimate a panel regression model with the following specifications:

$GDPg_{i,q} = a + b1 \times ND_{i,q} + b2 \times ND_{i,q} \times FDI_{i,q} + b3 \times FDI_{i,q} + controls$   
 $GDPg_{i,q}$  is the GDP growth of country  $i$  in quarter  $q$ ,  $ND_{i,q}$  is the number of natural disasters in country  $i$  in quarter  $q$ , and  $FDI_{i,q}$  is the dollar amount of FDI (may in logs) to country  $i$  in quarter  $q$ . We can also categorize countries into low, medium, and high FDI groups and use the dummy variables to define  $FDI_{i,q}$ . If FDI affects the host country's economic revival, the coefficient of the interaction term,  $b2$ , will be significantly different from zero.

The model utilizes natural disaster data from 1980 to 2019 and is obtained from the International Disaster Database which is available at:

<https://www.emdat.be/>.

Moreover, data of Net FDI inflow, GDP and other control variables from 1980 to 2019 is obtained from the World Bank.

## Cairns

*Ms. Trang Nguyen*

### The impacts of natural hazards on stock market return and volatility

Ms Trang Nguyen and Dr Taha Chaiechi are currently working on a project that analyses the impacts of natural hazards on stock market return and volatility.

Stock market return and volatility can be heavily influenced by environmental factors such as extreme weather conditions. In Australia, the research suggests that extreme weather events such as bushfires and cyclones have much stronger effects on the equity market returns, than severe storms and floods. However, this scenario changes in other parts of

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the world, for example, the US stock returns are more than doubled when hurricanes, floods, winter storms and episodes of extreme temperature occur. The global capital market seems to be unaffected by earthquakes in most places, except for Japan.

Furthermore, post-disaster impact analysis that focuses on only a very short period of time after the event, may not reveal the true effects of disasters on stock market due to lag effects. First, it usually takes longer than a few days to gather accurate information on catastrophe-related losses and consequences. The precision of estimated damages in the early stage can be also considerably low, while the estimations are more robust using longer-term data. Second, many of the extreme weather events are relatively long-lived. Floods and droughts may last several months, thereby restraining the event window to just a few days would likely underestimate the consequences of such extreme events. Third, the interruption of production in the short-run can be derived from indirect causes such as supply-chain breakdowns as the consequence of disasters.

Therefore, the main objective of our study is to explore the impacts of natural hazards on the returns and volatilities of stock markets investigating a wide range of extreme events using post-disaster data from one day to six months. The scope of our investigation will be on the stock markets of selected Asia-Pacific countries such as Hong-Kong, Malaysia and Thailand that are not only recognised as primary sources of funding and main drivers of economic growth in the region, but also found to be most vulnerable to disastrous events.

We will use an Autoregressive Moving Average with Exogenous Regressor (ARMAX) model and the extended Generalized Autoregressive Conditional Heteroskedastic (GARCH)

model to conduct an event study. Accordingly, dummy variables or intervention variables representing disaster events will be integrated into the model structure to examine the impacts of those events on stock market returns and volatilities. The outcomes of this study are likely to be relevant for policymakers in scheduling the post-disaster reconstruction programmes. In addition, this study will assist investors in rethinking their insurance coverage and protection.

## Townsville

*Dr. Diane Jarvis*

### **Building the Traditional Owner-led Bush Products Sector across northern Australia**

The Traditional Owner-led Bush Products sector continues to grow across northern Australia. The sector includes a wide range of enterprises including bush foods, native plant derived industries and the development of botanicals-based products, all derived from the wild harvest, cultivation and/or enrichment planting of select native plants.

The Sector is predominantly comprised of small to medium businesses who are challenged by the well-known problems of fledgling new crop industries, including matching supply with demand, market development, development of production capacity, and education and awareness.

However, there are also great opportunities, as community-based enterprises are likely to find durable "comparative advantage" where they link culture (that cannot be easily imitated by others) with access to plants unavailable outside Aboriginal lands, and promote the attractiveness of products grown in "clean and green" lands free of pollution and development.

In addition to providing direct economic benefits via the creation of jobs, incomes and profits, development of the Sector is also likely to support significant social, cultural and environmental benefits generated from working on country; knowledge sharing, and partnership development. The development of successful Indigenous-led bush products enterprises can create a 'multiplier effect' that can foster further economic development and wealth creation: Indigenous businesses use other Indigenous businesses within their supply chain and invest back into their communities. It can also lead to a



greater culture of employment and social contribution within Indigenous communities, and foster an environment that supports further innovation and opportunity by inspiring the next generation of Indigenous business owners. Many bush product-based enterprises fit within the 'hybrid economy', providing products that can be sold within commercial markets whilst also contributing to the customary economy and assisting Indigenous communities to fulfil their aspirations. Such aspirations include achieving both economic and social goals, and cultural and environmental benefits, for example, by ensuring that traditional knowledge and techniques are not lost and that Country is cared for. As such, development of the Traditional-Owner led Bush Products sector is likely to produce incredibly

diverse enterprises operating at multiple scales.

The research team, comprising Dr Kirsten Maclean and Emma Woodward of CSIRO and Dr Diane Jarvis of JCU, are supporting an Indigenous Steering Committee comprised of representatives from the Kimberley Land Council, the Tropical Indigenous Ethnobotany Centre, Girringun Aboriginal Corporation and IN-Group Investments, in research funded by the CRCNA and CSIRO with in-kind support from project partners. The research seeks to contribute to the Sector's growth, whilst ensuring this occurs in a culturally appropriate and sustainable

manner by:

- identifying the baseline condition of the Sector;
- determining development priorities needs and opportunities;
- determining further research needs; and
- facilitating the development of contacts, links and network building, between Indigenous businesses within the sector and between Indigenous and non-Indigenous potential partners within the supply/value chains.

Members of the Indigenous Steering Committee, the research team, and workshop participants, at a project workshop held during February 2019 in Darwin.

## Singapore

*Dr. Emiel L. Eijdenberg*

### **Environmental resilience of BoP strategies towards single use plastics: A recipe from an emerging economy**

The industrialized world has seen an increase in the production, consumption and disposal of plastic materials in recent years. The use of plastic has become commonplace in our everyday lives and as such, they can be found just about everywhere including areas of the world's ocean (Lebreton et al., 2018). Less spoken about, however, are the countless number of landfills, drains and choked rivers in emerging countries such as India.

Annual global plastic consumption has reached over 320 million tonnes with the last decade of use is equal to the total amount of plastic production across human history (European Plastics, 2017). India generates 25,940 tonnes of plastic waste every day (Government of India, 2018). Another estimate put forward by the Federation of Indian Chambers of Commerce and Industry, puts these numbers to 16.5 million tonnes of annual plastic use, 43% of it being single-use plastic (Federation of Indian Chambers of Commerce and Industry, 2017). A substantial portion of this single-use plastic figure refers to the class of plastic known as Polypropylene (PP) and Polystyrene (PS), which are either difficult to recycle or cannot be recycled at all because of the relevant material properties and/or the cost associated with the recovery of the material (Miller et al., 2014). These two forms of plastic are most commonly used to make takeaway cutlery and are not only the least recyclable but also the most difficult to trace and recover from a pile of garbage (United States Environmental Protection Agency,

2019).

The lack of India's waste management infrastructure and awareness puts the country at higher risk for environmental contamination and the need to have an increasing number of landfill sites (Government of India, 2018). Given the environmental challenge associated with single-use plastics and the unorganized nature of the production, the study presents an empirical assessment on how India's single-use disposables economy transformed from a biomass-based leaf plate ecosystem to a plastic-based roller. Entrepreneurs—seen as the creators of organisations—are examined on their role in the value chain of banana leaf plates as an alternative of single-use plastic cutlery. It aims to visualize the BoP markets using a top-down focus on producers and the role of the grassroots entrepreneur in bringing new products to the BoP marketplace with a focus on the roles of environmental awareness and related consumer choices.

A theoretical analysis provides the basis of the semi-structured interviews with local entrepreneurs in the north Indian state of Haryana. A total of 16 entrepreneurs dealing with the single-use disposable cutlery participated in the interviews. The interview data is analysed using a thematic analysis inductive approach to build a generative model of factors driving the markets. This information is utilized to validate consumer actions with respect to their environmental implications. This study provides an entrepreneurship perspective of market forces leading to BoP innovation, advancing earlier BoP studies on theoretical concepts (Agarwal and Brem, 2012) and policy impacts (Hall et al., 2012; Nari Kahle et al., 2013).



# CITBA

## **Inclusive and sustainable economic development**

CITBA is proud to have partnered with the Cairns Institute in organising the “Inclusive and Sustainable Economic Development” Symposium which was held on Tuesday 23 July. Scholars from within JCU, the local community, and members of the public attended the symposium. The Symposium addressed some of the key issues facing economies in the tropical world.

Professor Hurriyet Babacan opened the symposium and was our amazing MC of the day. Professor Stewart Lockie, Director of the Cairns Institute, delivered a warm welcoming address and opened the Symposium. Dr Taha Chaiechi, Australian Director of CITBA, talked about CITBA’s mission, and its role in providing research leadership, and efforts in creating partnerships with the whole of the community, Taha also promoted CITBA’s upcoming events in 2019. Professor Biman Prasad who is a leader of the National Federation Party, Shadow Minister for Finance, Planning and National Statistics in Fiji talked about the characteristics of Inclusive Growth and its diverse subjective and objective measures. A/Prof Adrian Kuah from JCU Singapore who is also a Senior Research Fellow in CITBA gave a fascinating presentation about Circular Economy. Professor Allan Dale, talked about community projects in Northern Australia with a focus on Inclusive and Economic Development, and Mr Nick Trompf, the CEO of Advance Cairns, discussed various aspects of regional economic development in Far North QLD.

The symposium was then followed by a research roundtable discussion at the Cairns Institute, which was led by Professor Hurriyet Babacan and A/professor Riccardo Welters who is the Theme Leader: Sustainable Development in the Cairns Institute. The forum was attended by JCU scholars from different disciplinary backgrounds with a shared vision about inclusivity, community

empowerment and sustainable development goals. The forum’s conversation resulted in a collective expression of interest about developing a research agenda on Inclusive and Sustainable Economic Development within JCU. Following the event, CITBA has decided to continue its strong commitment to this cause. As such, it has plans to be involved in future collaborative projects with the Cairns Institute the stem out of the symposium on Inclusive and Sustainable Economic Development.



CITBA is pleased to announce that its proposal to host a UN-Habitat Urban Thinkers Campus (UTC) is approved. The title of the campus is

***“URBAN DESIGN, ECONOMIC GROWTH, AND JOBS OF THE FUTURE IN THE TROPICS”***,

The campus will be held in JCU Cairns, on 25-27 November 2019, and Dr Taha Chaiechi is leading it.

The UTC- Cairns will be featured in the calendar of events on the World Urban Campaign website, as well as on the Urban Thinkers Campus page and will have its own dedicated page.

### **CITBA on Social media:**

Follow us on Twitter: @CITBA4

Connect with us on LinkedIn: CITBA James Cook University

Inclusive and sustainable economic development





# JCU Connect

## Singapore Presentation



On Friday July 26<sup>th</sup>, Rochelle Finlay the Director of JCU Connect conducted a very interesting presentation on all of the positive developments that have been happening in the research development space. As part of her discussion Ms. Finlay detailed the ways in which JCU Connect can assist with research, projects and bringing ideas to life. The initiative is playing an incredibly important role in providing leadership, support, and advice on partnering in all areas of research, development, and commercialization.

In the presentation, Ms. Finlay highlighted the important impact JCU Connect was having on driving research that was leading to very positive outcomes for the university, in particular:

### *Increased capture of HERDC-eligible income from non-consultancy/commercial activities*

- Increase of \$1.21M between 2016 and 2018 (3 years)

### *Increase in overheads charged to research projects*

- Increase of \$.5M between 2016 and 2018 (3 years)

### *Diversification of research income*

- Increase of \$1.8M ( 93%) in Commonwealth government “own purpose” commissioned R&D
- Increase of \$182K (14%) in State government “own purpose”

### *commissioned R&D*

- Increase of \$437K (8%) in Australian for-profit business commissioned R&D
- Increase of \$457K (17%) in Australian non-for-profit organization commissioned R&D
- Increase of \$364K (26%) in Australian philanthropy income (donations/bequests) for R&D
- Increase of \$80K (264%) in International government commissioned R&D
- Increase of \$806K (130%) in R&D income from the Commonwealth CRC program

### *Kinds of Support offered*

- First point of call for all and any grant related questions
- Assist with finding appropriate grant opportunities
- Advice and guidance on JCU research management policies and processes (ie, delegations)
- Advice on grant guidelines and eligibility
- Feedback on draft research proposals (if provided in time!)
- Management of processes for major funding rounds (ARC and NHMRC)

# JCUS Visiting Scholar

Prof. Lee-Chae Jang



Prof. Jang was invited to visit James Cook University Singapore (JCUS) as a visiting researcher over the July/early August period. Prof. Jang is a senior academic at Konkuk University in Seoul, South Korea.

Over his more than 30 years' experience in the graduate school of education, Prof. Jang has taught a range of subjects in pure and applied mathematics. He has also served as the Dean of the College of Natural Sciences and the Director of Planning and Coordination for Konkuk University.

In addition to this, Prof. Jang has also published more than 250 academic peer-review studies in Internationally recognized journals such as: *Information Science*, *Advances in Difference Equations*, *the Journal of Computational and Applied Mathematics*, and *Fuzzy Sets and Systems*. During his time at JCUS, Prof Jang worked with Dr. Jacob Wood on a series of multidisciplinary research project that draw on aspects of international trade as well as mathematical tools such as Choquet Integrals and measures. This work builds on the previous published study titled "On the CEU-Degree of Similarity in International Trade by Using the Choquet Integral Expected Utility" which was published in the *Journal of Computational Analysis and Applications*.

Prof. Jang has also been the recipient of several prestigious awards, which include the 2007 Academic Award for Excellence in Korean Institute of Intelligent Systems, the 2012 and 2018 Academic Awards at Konkuk University, as well as the 2016/17 KU Research Pioneer Award at Konkuk University. The university was fortunate to have someone of Prof. Jang's knowledge on campus and it is hoped that other senior academics will be able to visit the campus in the future.

# Grants

## 1. NHMRC dates released for 2020 schemes

Please find below confirmed dates of key NHMRC 2020 schemes for funding commencing in 2021. Note that these funding schemes are applicable to a broad range of disciplines and sectors.

Scheme	Open	Minimum data due	Close
Investigator Grants	2 October 2019	30 October 2019	27 November 2019
Synergy Grants	26 February 2020	25 March 2020	22 April 2020
CTCS Grants	4 March 2020	1 April 2020	29 April 2020
Ideas Grants	11 March 2020	8 April 2020	6 May 2020

Note that these are NHMRC's deadlines, and that internal JCU Connect deadlines will be provided shortly following discussions with the Divisions and Institutes.

JCU Connect encourages you to discuss your plans for bids within your colleges/divisions/institutes and with JCU Connect early (Rochelle, Tina Langford, and Javier Balanzategui) so that we can work with you to ensure a robust process which supports the development of high quality collaborative proposals. PLEASE DO NOT WAIT FOR THE GRANT GUIDELINES TO BE RELEASED to have these discussions.

In support of these competitive grant rounds, JCU Connect is also providing externally and internally facilitated NHMRC Grants workshops between August – November 2019, specifically:

- Grant ED will be facilitating NHMRC Investigator Fundamentals workshops for Early Career Researchers on Tuesday 27 August 2019:

a. The invitation and registration for this event can be accessed at the following link:

<https://www.eventbrite.com.au/e/nhmrc-investigator-fundamentals-workshop-tickets-63091187440>

b. Please do encourage your researchers to register for this opportunity.

- JCU Connect, with the support of our researcher community, is also planning two internal NHMRC/DTHM grants workshops:

a. For Early-Career Researchers in late September, providing advice on making NHMRC grant applications and insights from NHMRC peer review processes;

b. For Mid-Career Researchers in late October, providing advice on making large-scale, collaborative grant applications, particularly in an international context.

- The planning for these workshops is under development and details will be provided as soon as they are available.

If you have any questions regarding the above, please do not hesitate to get in touch.

## 2. Winter research awards and training from the Salis Institute

The Salis Institute is currently accepting applications for the following five research awards, and registrations are now open for the institute's July / August paper-writing webinar series.

- 2 x Salis Institute steps to independence grants, worth \$1000 (AUD) each.
- 3 x Salis Institute paper-writing scholarships, to receive training in the institute's July / August paper-writing webinar series (details below).
- A webinar series entitled Write your paper in 2 weeks (Tuesday 30 July to Tuesday 13 August 2019) is now open for registration.

The aim of these research awards and training is to help researchers to boost their track record and enhance their likelihood of winning larger research funding in the future.

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### Salis Institute steps to independence grants

#### *Purpose*

These grants of \$1000 (AUD) each are designed to help researchers in any field, affiliated with any research institution in Australia or New Zealand, to gain experience and exposure that will help them get their research known by people outside their immediate circle of colleagues, and to advance it towards the next level (e.g. application of their research by other research groups, or application of their research by non-research organizations).

#### *Due date*

Thursday 29 August 2019 (17:00 Australian Eastern Standard Time).

For full eligibility criteria, judging criteria, conditions of award, and online grant application form

<https://www.salisinstitute.com/services/awards/>

For questions about Salis Institute steps to independence grants

[info@salisinstitute.com](mailto:info@salisinstitute.com)

