

Dean's Roundup: 23 March 2017

Roundup: *Ceiling function*, the mathematical operation of rounding a number up to the next higher integer.

Roundup: a term in American English referring to the process of gathering animals into an area, known as a "Muster" in Australia.

Rounding up: when a helmsman cannot control a boat and it heads into the wind

Roundup: the plan for an invasion of northern France by Allied forces during World War II (Wikipedia)

Dean's Roundup: part blog, part bulletin; part honour roll, part curatorial [cu¹ra-to¹ri-al (ky⁰⁰r¹e-tô¹r¹ē-əl, -tôr¹-) n. nounised by the Dean from curator + editorial]

Dear All,

Last week in Dean's Roundup I commented on an intellectual debate raised in an REC seminar and I invited responses to be published in this week's Roundup. I am happy to say that it was a student who came up with the best response. An edited version appears below, which should be regarded as a very nice example of a provocative professional blog by Li Ling (Christina), a final year PhD student of KW Chau's, with small contributions from Chau and myself.

Cities take shape as houses, flats, factories, shops and offices change hands. If buyers had perfect information, they would choose the best designed buildings and interiors in the best location, 'best' being specific to a particular individual, firm or group. A city becomes more and more valuable as a place to co-habit, the greater the amount of information available to buyers in their choice of buildings and locations. Systematic patterns arise as people buy and sell and this gives rise to the familiar morphologies (original and adapted) of buildings and urban designs that characterize the cities we are familiar with.

But there are also systematic biases in the way buildings and locations are valued and these biases can have significant impacts on the shape and function of buildings, blocks neighbourhoods and whole cities. For example, individual buyers may under-value design compared to the social value of a well designed building. The result: everyone free-rides and design is undersupplied and the quality of a neighbourhood deteriorates.

Another source of bias in the information signals that shape cities is a lack of symmetry in information between buyer and seller. At the time of sale, buyers are usually deemed to suffer information asymmetry since sellers will usually know more about the product quality. Akerlof's (1970) seminal paper predicts that because of this, bad products (represented in his paper by lemons) will drive out good products (peaches). The market will be dominated by inferior products (badly designed homes, if the theory is correct).

However, the prediction is largely refuted by empirical facts since it ignores the possibility that information asymmetry can be reduced prior to purchase, for example by the use of experts (such as real estate agents in the second-hand homes market or architects working on both sides of a deal in a commercial property development transaction). We conjecture that even in

the absence of experts, 'lemon buildings' may not drive out 'peach buildings' because of (1) variations in the costs of reducing information asymmetry amongst buyers, and/or (2) sellers' efforts to reduce information asymmetry as a competitive strategy, such as by guaranteeing a product or by investing in goodwill.

*Information asymmetry is widespread in Hong Kong's second-hand housing market: used properties are traded without warranties, and the use of experts to ascertain the quality is difficult since the housing market is dominated by multi-storey buildings. However, not all buyers suffer equally from this problem: non-local buyers, impaired by their distance, are significantly less informed than local buyers and can be expected to suffer prohibitively higher costs of improving the information on which a transaction is based. They can therefore be expected to be less able to differentiate lemon from peach homes. This disadvantage is likely to drive them to sellers who have less information advantage over them and to sellers willing to assume some of the costs of proving housing quality. Shopping for a first-hand housing unit is therefore an appropriate strategy for non-local buyers. Sellers (developers) in the first-hand market are required to provide a warranty during the defect liability period. Some large developers have successfully established goodwill to signal quality, since for them, real estate development is a repeat business. So we would expect to observe proportionally more non-local buyers in the first-hand market. We might also expect non-local buyers to pay a higher price in the second-hand property and also to suffer a higher risk of buying a lemon. Local buyers are more likely to stay in the second-hand market relying on their own ability to discern quality. As a reward for their service to reduce the buyer's information deficit, sellers in the first-hand market can charge a higher price relative to the second-hand market. The price premium will rise in line with demand from non-local buyers demanding a quality guarantee. In the extreme case, where the housing market is dominated by non-local buyers, we would predict not that the bad will drive out the good, but that houses with less information asymmetry will drive out those with greater information asymmetry. This agrees with the prediction made by Steven Cheung in his recent book *Economic Explanation* (Volume 3, p.290).*

The prediction can be generalized to any goods or service characterized with information symmetry problems. In what direct or indirect ways might design be used to equalize (or perhaps further distort) the information available to home buyers in the first-hand market? Well designed entrance ways and public spaces can be used to compensate for poorly specified flats. The higher the competition in the first hand market, the more we might expect good design to be used by sellers in an honest way: to make more explicit the advantages of buying this home in this location. Design conveys the message that expert thought has gone into optimizing the configuration of a home. Good design delivers on this promise.

Design, then, is a message or a signal, as well as a process. One of the reasons for such an appalling standard of house design in the UK's mass first-hand homes market, is a lack of competition in an industry dominated by a small number of large house-builders, as well as a highly restricted land supply as a result of an overly-strict planning system. Hong Kong's market has similarities. Under what circumstances might sellers in HK employ more design to improve the product and signal genuine quality value? In what circumstances might they employ design cynically to increase their

informational advantage? In what circumstances might governments try to regulate for more (or for less) design?

Reference:

Akerlof, G. A. (1970). *The Market for "Lemons": Quality Uncertainty and the Market Mechanism*. *The Quarterly Journal of Economics*, Vol. 84, No. 3. (Aug., 1970), pp. 488-500.

http://www.jstor.org/stable/1879431?seq=3#page_scan_tab_contents

Li Ling, KW Chau and CJ Webster, March 2017 © HKU

Congratulations to colleagues for the achievements listed below.

Chris

Teaching and other Achievements

FoA Departments and Divisions

Faculty of Architecture (FoA)

1. The Hong Kong PhD Fellowship Scheme (HKPF) and The University Postgraduate Fellowships (UPF)

The Faculty has received one HKPF and three UPF awards for this year. For details, please refer to the following table. These are highly-prized additional PhD scholarship allocations, awarded on the basis of student quality.

Dr. Wilson Lu, the Associate Dean (Research) would like to thank all including the supervisors, co-supervisors, DPRC chairmen, and Faculty Research Services Office for the great efforts to make this happen. Congratulations! To continue with our success in HKPF and UPF awards, colleagues are encouraged to search proactively and in advance for excellent candidates around the world. Let's try and get one of these awards in DoA next year.

Scheme	Department	Name (Nationality)	Curriculum	Supervisors
HKPF	Urban Planning & Design	Zhang Yong (China)	4-year PhD	Primary Supervisor: Prof. Anthony Yeh Co- Supervisor: Dr. Xingjian Liu
UPF	Real Estate & Construction	Miss LU Siru (China)	4-year PhD	Primary Supervisor: Dr. S.K. Wong Co- Supervisor: Prof. KW. Chau
UPF	Urban Planning & Design	Miss ZHANG Mengzhu (China)	4-year PhD	Primary Supervisor: Dr. Shenjing He Co- Supervisor: Prof. Chris Webster & Prof. Anthony Yeh
UPF	Urban Planning & Design	Miss ZHOU Mimi (China)	4-year PhD	Primary Supervisor: Dr. Xingjian Liu Co- Supervisor: Prof. Anthony Yeh

Department of Real Estate and Construction (DREC) and Ronald Coase Centre for Property Rights Research (RCCPRR)

1. The 11TH Planning, Law, and Property Rights (PLPR) Conference

- Professor Chris Webster, Professor KW Chau, Dr. Lennon Choy and Ms. Moly Lau (all Organizing Committee members) have organized the 11TH Planning, Law, and Property Rights (PLPR) Conference from 20 – 24 Feb, 2017 at The University of Hong Kong. The conference is co-hosted by HKUrbanLab, Ronald Coase Centre for Property Rights Research, and the Planning, Law, and Property Rights Association. Around 150 participants around the world had presented 120 papers in 31 parallel sessions and a Ph.D. workshop. The Lincoln Institute of Land Policy and The Peking University – Lincoln Institute Center for Urban Development and Land Policy have provided generous sponsorships to the conference. More information about the conference can be found at <http://plpr2017.arch.hku.hk/>



- Three pre-conference excursions were arranged on 21 Feb 2017. Professor Lawrence Lai and Dr. Hoyin Lee had organized a bus trip. They explained the institutional logic and arrangements of urban spaces and heritages in Hong Kong to over 60 overseas participants while they were riding on the bus.



- Professor K.K. Ling had delivered a talk on “Planning and Development of Hong Kong: its DNA and Institutional Dynamics” at the opening reception of the conference on 21 Feb 2017.



- Apart from the keynote lecture delivered by Professor Rachelle Alternman, David Azrieli Chair in Town Planning at the Technion, on 22 Feb 2017, the conference was also featured by two public lectures held on 22 and 23 Feb 2017. Professor Richard Sandor who is named by the Time Magazine the Father of Carbon Trading has given a talk on “Financial Innovation: The Convergence of Environmental and Financial Markets”. Ms. Christine Loh (Under Secretary for the Environment), Professor Chris Webster and Professor KW Chau had given welcome speeches to Professor Sandor. It was almost a full house in the 400 seat Yuet Ming Auditorium. The public lecture was organized by Dr. Lennon Choy with the help of Mrs. Poonam Datta, Ms. Kannex Chu (FoA) and Ms. Moly Lau (DREC).



- Professor Yoram Barzel, Professor of Economics in The University of Washington and author of *Economics Analysis of Property Rights*, gave a public lecture on “Information Costs, Property Rights and Markets” on 23 Feb 2017. About 300 audience turned up in the Yuet Ming Auditorium. Professor Chris Webster and Professor KW Chau had extended a warm welcome to the 85 years old world-renowned economist.

2. Dr. Katherine Y Deng and Dr. SW Poon

- Their Research project entitled “Saving Our Maritime Icons - A Panoramic View of Heritage Lighthouses in Hong Kong” has received a project grant at \$281,700 from the Lord Wilson Heritage Trust for a duration of 18 months.

Department of Urban Planning and Design (DUPAD)

(1) MSc Urban Planning – Year 1 students

- As part of the Regional and Territorial Planning Studio, MUP Year 1 students and teachers had a fieldtrip to Singapore during the Reading Week (5 to 9 March 2017) to examine the planning and development of its logistics industry. The group did a presentation about Hong Kong’s logistics industry at the Singapore Urban Redevelopment Authority (URA) and visited the Tuas Container Terminal construction site, the Port Operation Control Centre of the Maritime and Port Authority of Singapore (MPA), the Pasir Panjang Terminal 1-3 of the Port of Singapore Authority (PSA), the Changi Airport and the Air Logistics Park. The students also carried out independent research and interviews with the relevant professionals and practitioners at Singapore.



Research Achievements

HKUrbanLab research groups

CUSUP

1. Dr. Mandy Lau

- Obtained a research grant under the Seed Funding Programme for Basic Research, entitled “Space sharing in the city: Developing a conceptual framework”.

2. Dr. Shenjing He

- Was listed by Elsevier in March, 2017 as one of the most cited researchers in mainland China for a third consecutive year. The data source Elsevier used was from Scopus which includes publications in English only and collects citations worldwide.

3. Dr. Weifeng Li

- Published the following article:

Wu, J., Zhu, J., Li, W., Xu, D., and Liu, J. (2017). Estimation of the PM_{2.5} health effects in China during 2000–2011. Environmental Science and Pollution Research. doi:10.1007/s11356-017-8673-6 (Corresponding author)

Abstract: Exposure to fine particulate matter (PM_{2.5}) has been associated with mortality, but the extent of the adverse impacts differs across various regions. A quantitative estimation of health effects attributed to PM_{2.5} in China is urgently required, particularly because it has the largest population and high air pollution levels. Based on the remote sensing-derived PM_{2.5} and grid population data, we estimated the acute health effects of PM_{2.5} in China using an exposure-response function. The results suggest the following: (1) The proportion of the population exposed to high PM_{2.5} concentrations (>35 µg/m³) increased consistently from 2000 to 2011, and the population exposed to concentrations above the threshold defined by World Health Organization (WHO) (>10 µg/m³) rose from 1,191,191,943 to 1,290,562,965. (2) The number of deaths associated with PM_{2.5} exposure increased steadily from 107,608 in 2000 to 173,560 in 2010, with larger numbers in the eastern region. (3) PM_{2.5} health effects decreased in three pollution control scenarios estimated for 2017, i.e., the Air Pollution Prevention and Control Action Plan (APPCAP) scenario, the APPCAP under WHO IT-1 scenario (35 µg/m³), and the APPCAP under WHO IT-3 scenario (15 µg/m³), which indicates that pollution control can effectively reduce PM_{2.5} effects on mortality.

4. Dr. Jiangping Zhou

- With his co-authors, Ping Zhang from Tongji University, Tianran Zhang from Shanghai Institute of Urban Planning and Design, had the following paper accepted for publication:

Zhang, P. Zhou, J* and Zhang, T. Quantifying and Visualizing Jobs-Housing Balance with Big Data: A Case Study of Shanghai. Cities. (Accepted. *Corresponding author)

Abstract: Existing jobs-housing balance studies have relied heavily if not solely on small data. Via a case study of Shanghai, this study shows how cellular network data can be processed to derive useful information, job and housing locations of commuters in particular, for those studies. Based on cellular network data, this article quantifies and visualizes Shanghai's jobs-housing balance with a much larger sample ($n=6.3$ million), finer spatial resolution and greater geographic coverage than ever before. It identifies and geocodes the local commuters by Base Transceiver Station (BTS), which has on average a service area of 0.16 square kilometers. After detecting jobs and housing by BTS, it aggregates them by subareas of particular interest (e.g., traffic analysis zones, inner city, suburbs and exurbs) to local planners and decision-makers. It also visualizes the traffic flows associated with the actual (T_{act}), theoretical minimum (T_{min}) and maximum (T_{max}) commutes. It shows that Shanghai's commuting pattern is far from the extremes (indicated by T_{max} and T_{min} traffic flows) and Shanghai's relative balance of jobs with respect to housing is decent (3.2 km) despite of its huge population (24 million) and land area sizes (6,800 square kilometers). The distance distribution of the T_{min} and T_{act} flows in Shanghai is similar when the distance is larger than 12.5 km, which means that if Shanghai hopes to optimize its commuting pattern, it should focus more on commuting trips that are shorter than 12.5 km.

- With his co-authors Jonathan Corcoran and Rosabella Borsellino from University of Queensland, had a graphic accepted for publication:

Jiangping Zhou, Jonathan Corcoran and Rosabella Borsellino (2017). Mapping cities by transit riders' trajectories: The case of Brisbane, Australia. Environment and Planning A. (Accepted as a featured graphic)

Abstract: Emerging non-traditional data (NTD) such as transit agencies' smartcard data and Google's General Transit Feed Specifications (GTFS) have made it easier to unveil the way in which public transit remains relevant, reveal how it facilitates daily mobility, and highlight the way in which different locales across a metropolitan area are connected by public transit. Based on a 24-hour period of smartcard data for Brisbane (04 March, 2014) allied with GTFS data, we retrieved 205,560 distinct transit riders' trip trajectories by direction (AM/inbound vs. PM/outbound). These riders account for 98% of all distinct riders that tapped their respective smartcards at least twice in that day. The trajectories allow us to see how local public transit infrastructure, which consists of heavy railroads, ferries, buses, and bus rapid transit (locally referred to as busways), were used and how this usage has linked various locales around the city, that is, forms a spatial structure that is facilitated and even enabled by public transit.

Healthy HD Cities

1. Dean Webster and Dr. Chinmoy Sarkar

- The following two papers have been accepted subject to minor revisions:

- (i) Chinmoy Sarkar and Chris Webster. Urban environments and human health: Current trends and future directions Current Opinion in Environmental Sustainability Accepted s.t. minor revisions March 2017. (IF=4.66)

Abstract: *Abstract In an era of rapid urbanization and significant demographic shifts, human health has emerged as a primary focus of sustainable development. According to the environmental model of public health, the environment is one of the first causes of disease, injury and mortality. In this paper we discuss the complexities involved in urban environment – human health interactions; provide an overview of the environmental determinants of health; and highlight future directions and challenges. A deeper understanding of the relationships between urban environment and human health will help devise effective preventive interventions towards reducing environmental risk exposures, lead to healthy lifestyles and behaviour and thereby fulfil the goals of sustainable development.*

- (ii) Chinmoy Sarkar, Chris Webster, Sarika Kumari. Street morphology and severity of road casualties: A 5-year study of Greater London. International Journal of sustainable Transportation. (IF=3.21, Ranking: 1/6 Green & Sustainable Science & Technology; 10/104 in Environmental Studies; 3/32 in Transportation). Accepted subject to revisions, March 2017.

Abstract: *Built environment factors, especially street-scale design and traffic casualties are intrinsically interlinked. Starting from Alker Tripp's seminal ideas about city design, street morphology and accident risk, this paper summarises results from an increasingly sophisticated line of enquiry at the boundaries between transport geography, urban geography and planning. It goes on to specify what we believe to be the most comprehensive study yet, based on five years' worth of road casualty data from London; GIS data on street morphology captured at a street-link unit of analysis; socio-economics and other determinants of accidents; and individual data about casualty victims. We test hypotheses about links between urban morphology and casualty severity using multi-level models with individual victim attributes at level-one, street-link morphology attributes (various measure of network connectivity) at level-two, and neighbourhood descriptors at level-three.*

Results indicate that street-level morphology and design (expressed as in terms of betweenness, divergence ratio and hull radius), together with traffic volume and physical features of streets are all significantly associated with odds of 'Killed and Seriously Injured' (KSI) causality incidents. We find the strongest evidence yet recorded that London's 20-MPH speed-restricted residential zones reduce the incidence of KSI; while neighbourhood-level factors such as population density, deprivation of living environment and access to services are also significant predictors of KSI indicating that selective urban territorial enclosure can save lives.

Keywords: *traffic casualty severity, STATS19, urban design, morphometrics, multilevel, KSI.*

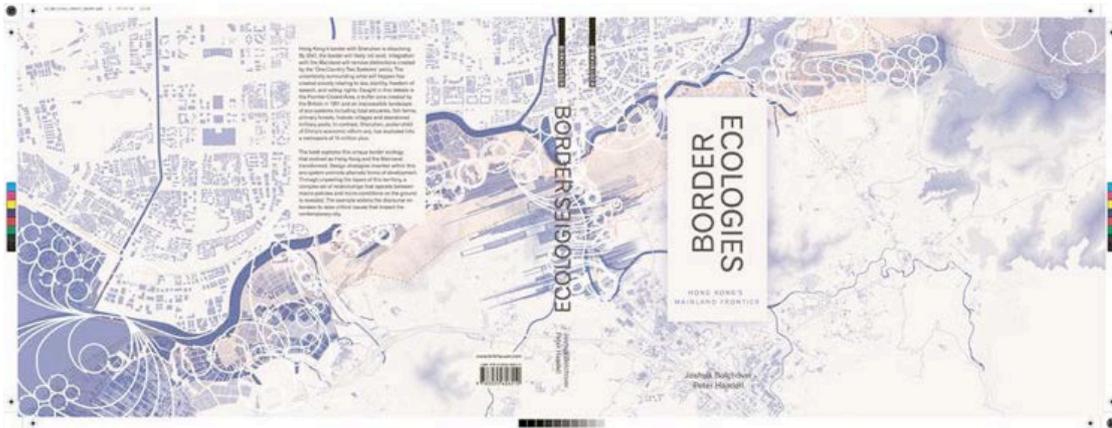
1. Dr. Wilson Lu

- Dr. Lu and colleagues published a book chapter “Lu, W., Peng, Y., Xue, F., Chen, K., Niu, Y., and Chen, X. (2017). The Fusion of GIS and Building Information Modeling for Big Data Analytics in Managing Development Sites, in Huang et al. (ed.) Comprehensive Geographic Information Systems. Elsevier.

Abstract: *For decades, urban planners and site development professionals have somewhat worked in silos, although they share the same admirable goal to provide us with better built and natural environment. There seems a stereotype whereby they have different focuses; urban planners are more on a macro scale while their site development counterparts are more on a micro end. They speak in different languages and use different instruments. Urban planners, for example, have successfully introduced Geographic Information Systems (GIS) and are advocating City Information Modelling (CIM) while site development professionals such as architects, engineers, contractors, and facility managers are promoting Building Information Modelling (BIM). While these stereotypes may remain, an encouraging trend emerged in recent years is that they tend to fuse with each other. The increasing integration of GIS and BIM can be explained by decision science - the increasing complexity of contemporary site development desires greedily decision-making information relating to not only the site itself but also its related environmental, geographical and surrounding infrastructure information. They desire so-called ‘big data’ formed by GIS and BIM. Advancements in computer science and data technologies make this fusion easier than ever. However, understanding of GIS and BIM fusion is still in its infancy. Innovative applications of GIS and BIM integration are yet to be fully explored. Using several cases in Hong Kong Special Administrative Region (SAR), this chapter investigates how BIM and GIS can be integrated together to derive big data to support site development.*

1. Joshua Bolchover

- Has published the following book entitled "Border Ecologies: Hong Kong's Mainland Frontier, Birkhauser 2016"



Abstract: *Hong Kong's border with Shenzhen is dissolving. By 2047, the border will likely not exist. Integration with the Mainland will remove distinctions created by the 'One Country Two Systems' policy. The uncertainty surrounding what will happen has created anxiety relating to law, identity, freedom of speech, and voting rights. Caught in this debate is the Frontier Closed Area, a buffer zone created by the British in 1951 and an inaccessible landscape of eco-systems including tidal estuaries, fish farms, primary forests, historic villages and abandoned military posts. In contrast, Shenzhen, poster-child of China's economic reform era, has exploded into a metropolis of 15 million plus.*

The book explores this unique border ecology that evolved as Hong Kong and the Mainland transformed. Design strategies inserted within this eco-system promote alternate forms of development. Through unpeeling the layers of this territory, a complex set of relationships that operate between macro-policies and micro-conditions on the ground is revealed. The example widens the discourse on borders to raise critical issues that impact the contemporary city.