

RESEARCH GRANTS COUNCIL

**Application for Allocation from
the General Research Fund for 2018/19
Application Form (GRF1)**

- Please read the Explanatory Notes GRF2 (Sep 17) carefully before completing this form.
- To safeguard the interests of the researcher and the university, the awardee university bears the primary responsibility for prevention, detection and investigation of research misconduct, including but not limited to misuse of funds, data falsification, plagiarism and double-dipping. The university is strongly encouraged to vet the grant applications using anti-plagiarism software before submitting them to the RGC.

PART I SUMMARY OF THE RESEARCH PROPOSAL

[To be completed by the applicant(s)]

1. Particulars of the Project**(a) (i) Name and Academic Affiliation of Principal Investigator (PI):**

Name	Post	Unit/ Department/ University
Prof Holz, Carsten A	Professor	Division of Social Science/The Hong Kong University of Science and Technology

(ii) Is the PI a new appointee within 2 years of full-time paid appointment to his/her first substantive position as an academic staff in a university at the time of submission of the proposal?

Yes No

(iii) Title of Project: Capital Measures for China (1952 – today)

(iv) Nature of Application

New Re-submission Continuation

(b) (i) Primary Field: Area Studies (including Japanese Studies, China Studies, European Studies) & Code 4421

Secondary Field: Economics & Code 5102

(ii) A maximum of five keywords to characterise the work of your proposal**(a maximum of 30 characters for each keyword)**

- 1) Capital theory
- 2) Capital service measurement
- 3) Physical capital stock
- 4) Wealth capital

(iii) Project Duration:24 Months*

*** for longer term projects, please explain in your research plan in Part II 2(b)(i) why the proposed research cannot be completed within the normal span of 36 months.**

(iv) Total Amount Requested:

\$	249,999
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(c) Abstract of Research comprehensible to a non-specialist (either a maximum of 400 words in one A4 page of PDF document in standard RGC format or a maximum of 400 words for direct input in the text box):

Capital estimates are widely used in economic growth and productivity studies, as well as for profitability measurement and wealth accounting exercises. Yet the calculation of “capital” frequently receives only cursory attention, despite the challenges posed by conceptual difficulties, the complexity of calculations, and the extensive data requirements.

This project will focus on the calculation of the capital service values used in economic growth and productivity studies, while also providing the wealth capital values necessary for profitability measurement and wealth accounting exercises. The calculation of capital service values follows a complex procedure pioneered by Jorgenson (1963) and Jorgenson and Griliches (1967), which was more recently summarized and formalized by the OECD (2009). Presumably due to their complexity, such calculations are typically only undertaken by country statistics offices, such as the U.S. Bureau of Labor Statistics (BLS) and the Australian Bureau of Statistics (ABS).

This project will calculate China’s capital values using the complex procedures outlined by the OECD (2009) and followed by the BLS and ABS. It will provide a critical discussion of some of the shortcuts advocated by Jorgenson and the OECD. The key output of the project is a long-run annual national capital series (capital services, wealth capital) for China from 1952 until today, based on detailed sector data.

(d) Special funding template (Applicants can select more than one box)

- Clinical Research Fellowship Scheme (Please also complete an additional form (Enclosure I) and see Enclosure II) (only available for applications under Biology and Medicine Panel)**
- Support for Individual Research (Time-off) (see Enclosure III) (only available for applications under Humanities and Social Sciences Panel and Business Studies Panel)**
- Longer-term Research Grant (see Enclosure IV)**
- Employment of Relief Teacher under Humanities and Social Sciences Panel (see Enclosure V) (only available for applications under Humanities and Social Sciences Panel)**
- Provision of Research Experience for Undergraduate Student (see Enclosure VI)**
- Support for Academic Research related to Public Policy Developments (see Enclosure VII)**

PART II DETAILS OF THE RESEARCH PROPOSAL

[To be completed by the applicant(s)]

RESEARCH DETAILS**1. Impact and objectives***(a maximum of 800 words in total for the long-term impact and project objectives)***(a) Long-term impact:**

The literature largely agrees on the need for capital service values rather than wealth capital values in economic growth and productivity studies. Yet the complexity of capital service calculations has led authors such as Jorgenson (1995) to use conceptual shortcuts (for example, substitution of a geometric age–efficiency profile for a hyperbolic age efficiency profile). I disagree with the rationale (or lack of rationale) for such shortcuts and would like to provide a critical discussion, unless a re–examination of the large literature suggests that such a discussion is not warranted.

The conceptual shortcuts allow an extreme simplification of capital calculations, to the point where the original conceptual framework is lost and capital values are simply values of convenience, with little or no logical foundation. In the proposed project, I will implement the complete, complex calculations needed for proper capital service values, as done by country statistics offices such as the BLS and ABS, and as presented by the Organization for Economic Cooperation and Development (OECD).

No such series exist for China. There are many studies of China’s capital stock, yet none make use of the extensive Chinese investment data available and none appear to use the conceptually correct method. The data series resulting from the proposed project will likely be used in a wide range of economic growth and productivity studies.

(b) Objectives**[Please list the objectives in point form]**

1. 1. Calculate the annual capital service and wealth capital values for China from 1952 until today, to the greatest extent possible with a breakdown by industrial sectors

2. Background of research, research plan and methodology:

(a maximum of seven A4 pages in total in standard RGC format for items (a) and (b)(i); a maximum of one A4 page for item (b)(ii))

(a) Background of research**(b) (i) Research plan and methodology****Attached 3 pages(s) as follows**

a. Background of Research

I have been researching Chinese capital stock on and off for more than ten years. My first foray into the topic was in the mid-2000s (Holz, 2006), when I used a one-hoss shay model to—in my view—significantly improve on the existing literature. (As of October 2017, that paper has 140 Google citations.)

Since 2013, I have been collaborating with the China Center for Human Capital and Labor Market Research on the construction of *provincial* capital measures to complement their human capital measures (Holz and Sun, 2017). I created a highly complex model spreadsheet to calculate capital services, while graduate students, in particular Sun Yue, compiled the raw data (following my instructions) that would go into each province's spreadsheet. I wrote the paper. The work involved in compiling the raw data, including the necessary double-checks, was too overwhelming for one person.

In this project, I will replicate that analysis at the national level. At the provincial level, each province's capital values are ultimately based on three quasi-sector series. At the national level, depending on year, there are approximately 50-200 industrial sectors. This means the data manipulations will exceed what can be done with Excel, and I will need to use Matlab (programming). Thus, although the type of calculations is the same as previously—and the published paper shows my deep knowledge of the topic—the implementation will require a completely new approach.

In addition, in this project I would like to delve further into capital theory and engage with earlier authors and their arguments. In particular, I find the shortcuts used in the literature, such as the geometric age-efficiency profile, non-permissible, and I will elaborate on these problems. (The joint paper with Sun Yue simply presents the capital service concept and explains the calculations, without discussing conceptual issues.) A (re)review of the literature, a significant part of which I have already read, may, however, lead to further insights that could convince me that such a discussion can be kept short, or, quite unlikely from my current point of view, is not even necessary.

In sum, my previous work shows my familiarity with the topic, but the proposed project has the following new elements: national-level rather than provincial-level data; a much greater variety of raw data (breakdown by industrial sectors); a new technical approach to deriving the results (programming, rather than spreadsheet work); and a deeper engagement with the theoretical literature.

Two bodies of literature are relevant: the China capital literature and the capital theory literature. I assume that the reviewers are familiar with capital theory and therefore with the differences between capital services and wealth capital stock, the relationship between the age-price and age-efficiency profiles, and the endogeneity issue (of the rate of return) in the derivation of capital services. The paper by Holz and Sun (2017) reviews some of this literature and also explains the intricacies of the China data that will also affect the proposed project's calculation of national capital services.

Capital stock calculations are common in the literature on China (for example, Zhang, 1991; Chow, 1993), but studies focusing on capital services are rarer. The literature calculating some measure of national capital services includes Sun and Ren (2005), which gives a capital services index for 1980 – 2002, Cai (2009), which gives a capital services index for 1978 – 2007, and Cao et al. (2012), which gives a capital services index for 1978–2010. Sun and Ren (2014) provide national and 33 (exhaustive) sector capital services indices for 1981–2005, and Wu (2015) calculates a national capital services index with a breakdown into an exhaustive 37 sectors for 1980–2010. Across this literature, the raw data, the methods, and the assumptions vary greatly. Only Cai (2009) and Cao et al. (2012) consider the equivalency relationship between the age–efficiency profile and age–price profile and derive the age–price profile from a hyperbolic age–efficiency profile; these two Chinese language articles do not provide enough information to ascertain whether the complexity of the capital services concept has been done full justice.

The proposed project will make the following contributions to the literature: (i) extensive data coverage (which explains my one financing request, for a postgraduate research student to help with the data work) and (ii) the avoidance of all shortcuts. The proposed project will calculate national capital series for capital services and wealth capital from 1952 to the present and will cover, depending on year, approximately 50–200 sectors. All of the data will be made available online, contrary to the typically “proprietary” approach in the literature.

The capital theory literature is large and there seems little point in reviewing this literature, starting from Jorgenson (1963) and Jorgenson and Griliches (1967), as I am not questioning the concept of capital services. I will closely follow the OECD (2009) procedures—the OECD’s summary recommendations on the consistent calculation of capital services across countries represents a culmination of the capital theory literature—along with the practices of the BLS (2006) and ABS (2015).

One issue in the capital theory literature that I would like to examine further is the widespread simplifying assumption of a geometric age–efficiency profile, which tremendously simplifies the calculation of capital services. Not only is it utterly unrealistic, it appears to me to require the quiet abandonment of key tenants of modern capital theory. This is also a repeated topic in the literature (Hulten and Wykoff (1981), Harper (1982), and a whole issue of *Economic Inquiry* in 1996, led by Hulten and Wykoff (1996)). Although I think I have something further to say on the topic—based on my reading of the literature for my provincial capital service paper—this requires another round of re–reading and re–thinking.

b. Research Plan and Methodology

I will follow the OECD (2009) methodology without, however, using their proposed

shortcut via the geometric age–efficiency profile. Instead, I follow the BLS (2006) and ABS (2015) approach to implement the complete methodology, including using a hyperbolic age–efficiency profile and derive the age–price profile from the age efficiency profile.

I have described these procedures, including the idiosyncrasies of dealing with Chinese data, in Holz and Sun (2017). Due to space limitations, I will not repeat that lengthy discussion here. One crucial point is that the sectoral breakdown of gross fixed capital formation (or gross capital formation) is based on the available fixed asset investment data (Investment 1950–2000, Investment Yearbook (annual issues), NBS website). Due to the amount of data and the changes in variable definitions over time, I am requesting funding for a postgraduate research student to help with data inputting and data manipulation.

(b) (ii) A one-page Gantt Chart showing the research activities

Attached 1 pages(s) as follows

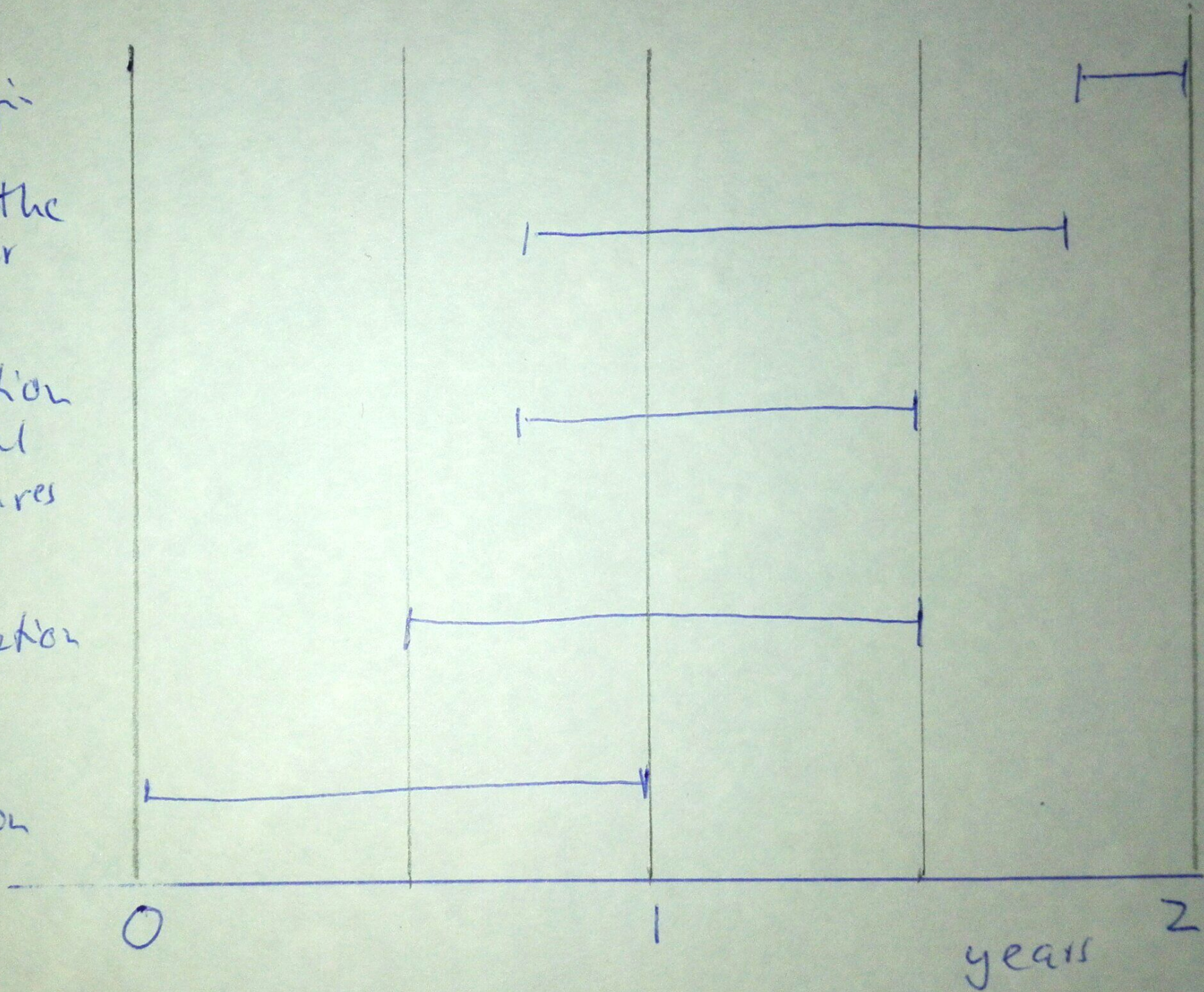
Safety margin

Writing the paper

Calculation of capital measures

Data manipulation

Data collection



(c) A maximum of two non-text pages of attached diagrams, photos, charts and table etc, if any.

(d) Reference (a maximum of three pages for references is allowed for listing the publications cited in Section 1-2. All full references should be provided, including all authors of each reference.)

Australian Bureau of Statistics. Australian System of National Accounts: Concepts, Sources and Methods. 2014. At <http://www.abs.gov.au/AUSSTATS/abs@.nsf/MF/5216.0>.

Bureau of Labor Statistics. Overview of Capital Inputs for the BLS Multifactor Productivity Measures. July 26, 2006, 12pp. At www.bls.gov/mfp/mprcaptl.pdf.

CAI Xiaochen. "China's Capital Inputs, 1978-2007" (Zhongguo ziben touru: 1978-2007). Guanli shijie, no. 11 (2009): 11-20.

CAO Yuequn, Qin Zengqiang, Qi Qian. "Estimates of China's Capital Services" (Zhongguo ziben fuwu gusuan). Tongji yanjiu 29, no. 12 (2012): 45-52.

Chow, Gregory C. (1993). "Capital Formation and Economic Growth in China." The Quarterly Journal of Economics 108, no. 3 (1993): 809-842.

Harper, Michael J. "The Measurement of Productive Capital Stock, Capital Wealth, and Capital Services." U.S. Department of Labor, Bureau of Labor Statistics. BLS Working Papers, Working Paper 128, June 1982.

Holz, Carsten A. "New Capital Estimates for China." China Economic Review 17, no. 2 (2006): 142-85.

Holz, Carsten A., and SUN Yue. "Physical Capital Estimates for China's Provinces, 1952-2015 and Beyond." In press, China Economic Review, available at <http://www.sciencedirect.com/science/article/pii/S1043951X17300913>.

Hulten, Charles R., and Frank C. Wykoff. "The Measurement of Economic Depreciation." in Charles R. Hulten, ed., Depreciation, Inflation, and the Taxation of Income from Capital, URI Series, Urban Institute Press, Washington, D.C., 1981, pp. 82-125.

Hulten, Charles R., and Frank C. Wykoff. "Issues in the Measurement of Economic Depreciation Introductory Remarks." Economic Inquiry 34, no. 1 (January 1996): 10-23.

Investment 1950-2000. Zhongguo guding zichan touzi tongji shudian 1950-2000 (China Investment in Fixed Asset Statistics 1950-2000). Beijing: Zhongguo tongji chubanshe, 2002.

Investment Yearbook. Zhongguo guding zichan touzi tongji nianjian (China Investment in Fixed Assets Statistical Yearbook). Beijing: Zhongguo tongji chubanshe (Zhongguo jihua chubanshe since the 2004 issue), various issues. (The following issues, with the year

in the title, have so far been published: 1950–95, 1997, 1998, 1999, and then annually 2003– [but not 2014].)

Jorgenson, Dale W. “Capital Theory and Investment Behavior.” *The American Economic Review* 53, no. 2 (May 1963): 247–259.

Jorgenson, Dale W., and Zvi Griliches. “The Explanation of Productivity Change.” *Review of Economic Studies* 34, no. 3 (July 1967): 249–83.

Jorgenson, Dale W. “Productivity and Economic Growth,” Chapter I, Volume II, in Dale W. Jorgenson (ed.), *Productivity, Volumes I and II*, Cambridge: MIT Press, 1995, pp. 1–98.

NBS website. <http://www.stats.gov.cn> (data section)

OECD. *OECD Manual: Measuring Capital*. Paris: OECD, 2001, and second edition 2009.

SUN Linlin, and REN Ruo'en. “Estimates of China's Capital Input and Total Factor Productivity” (*Zhongguo ziben touru he quan yaosu shengchanlv de gusuan*). *Shijie jingji*, no. 12 (2005): 3–13.

SUN Linlin, and REN Ruo'en. “China's Sector Capital Accumulation during the Transition Period—Calculation of Capital Stocks and Flows” (*Zhuangui shiqi woguo hangye cengmian ziben jilei de yanjiu—ziben cunliang he ziben liuliang de cesuan*). *Jingjixue (jikan)* 13, no. 3 (2014): 837–62.

ZHANG Jun, WU Guiying, and ZHANG Jipeng. “Estimation of China's Provincial Capital Stock 1952–2000” (*Zhongguo shengji wuzhi ziben cunliang gusuan 1952–2000*). *Jingji yanjiu*, no. 10 (2004): 35–44.

PROJECT FUNDING**3. Cost and justification****(a) Estimated cost and resource implications:**

[Detailed justifications should be given in order to support the request for each item below]

(a maximum of 500 words for each box)

	Year 1	Year 2	Year 3	Year 4	Year 5	Total
	(\$)	(\$)	(\$)	(\$)	(\$)	(\$)

(A) One-line Vote Items**(i) Supporting Staff Costs**

[please read Section 3(a)(A)(i) of the Explanatory Notes GRF2 carefully]

Types

Monthly salary x Nos. x Months

Research Postgraduate Students

\$210,000

17,500 * 1 * 12

210,000

Justification:

A postgraduate student will be needed to help with data collection and data input. I will be dealing with 65 years' worth of Chinese sector investment data, with varying sector details over the years (approx. 50–200 sectors) that have to be reconciled.

(ii) Equipment Expenses

[please itemize and provide quotations for each item costing over \$200,000]

Justification:

Quotation Provided:

Yes

No

(iii) Outsourcing Expenses of Research Work Outside Hong Kong

[please itemize your cost estimation with justification and provide quotations for work costing over \$200,000; and provide detailed justification of sample sizes and costs for surveys conducted outside Hong Kong.]

Justification:

Quotation Provided:

Yes No **(iv) General Expenses**

[please itemize and provide quotations for services/purchase costing over \$200,000; and provide detailed justification of sample sizes and costs for surveys conducted in Hong Kong.]

Justification:

Quotation Provided:

Yes No **(v) Conference Expenses**

Conference attendance	20,000	20,000	0	0	0	40,000
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Justification:

To present my work at conferences in order to obtain feedback, and to make the availability of the data series better known to the research community.

Sub-total for (A) (One-line Vote Items):

\$ 250,000

(B) Earmarked Items**(vi) Costs for Employment of Relief Teacher**

[see Enclosure III for individual research and Enclosure V for relief support under Humanities and Social Sciences Panel]

Rank

Monthly salary x Months

Justification:

Current Average Teaching Load: Total 0 classroom hours per academic year [please report UGC-funded programmes only]

**(vii) Expenses of Research Experience for Undergraduate Student
(see Enclosure VI for Provision of Research Experience for Undergraduate Students)**

Justification:

(viii) High-performance Computing Services Expenses

Justification:

Quotation Provided: Yes No

**(ix) Research-related Software Licence /Dataset
[Please itemize and provide quotations for each item]**

Justification:

Sub-total for (B) (Earmarked Items): **\$ 0**

(x) Total cost of the proposal (A) + (B) \$ 250,000

(C) Deduction Items

Less :

(xi) University's funding for provision of research experience for undergraduate student \$ 0

(xii) Other research funds secured from other sources \$ 1

Sub-total for C (Deduction Items): \$ 1

(xiii) Amount requested in this application : (A) + (B) - (C) \$ 249,999

(D) Academic Research related to Public Policy Developments

(xiv) Percentage of the total cost of the proposal related to public policy developments ((A) + (B))

[see Enclosure VII for Support for Academic Research relating to Public Policy Developments] 0%

(b) Declaration on the Equipment Procurement:

(i) No procurement of equipment is required

OR

(ii) I declare that the equipment indicated in 3(a)(A)(ii) above is not available in the university

OR

(iii) I declare that all or some of the equipment (please provide details in the following text box) indicated in Section 3(a)(A)(ii) above is available in the university but cannot be used by me in view of the following reasons (a maximum of 500 words)

Reasons : (a maximum of 500 words)

(c) Declaration on employment of relief teacher:

(i) No relief teacher is required

OR

- (ii) I declare that I currently do not hold any grant for employment of relief teacher of any on-going project under UGC/RGC funding schemes

OR

- (iii) I declare that I hold grant for employment of relief teacher of the following on-going project(s) under UGC/RGC funding schemes (excluding Humanities and Social Sciences Prestigious Fellowship Scheme (HSSPFS)) and undertake to submit the corresponding completion report(s) by 15 April 2018

(d) Declaration on high-performance computing services:

- (i) No procurement of high-performance computing services is required

OR

- (ii) I declare that the high-performance computing services indicated in Section 3(a)(B)(viii) above is not available in the university

OR

- (iii) I declare that all or some of the high-performance computing services (please provide details in the following text box) indicated in Section 3(a)(B)(viii) above is available in the university but cannot be used by me in view of the following reasons(a maximum of 500 words)

Reasons : (a maximum of 500 words)

(e) Declaration on the research-related software licence / dataset:

- (i) No procurement of research-related software licence / dataset is required

OR

- (ii) I declare that the research-related software licence / dataset indicated in Section 3(a)(B)(ix) above is not available in the university

OR

- (iii) I declare that all or some of the research-related software licence / dataset (please provide details in the following text box) indicated in Section 3(a)(B)(ix) above is available in the university but cannot be used by me in view of the following reasons (a maximum of 500 words)

Reasons : (a maximum of 500 words)

4. Existing facilities and major equipment available for this research proposal:
(a maximum of 400 words)

Computer provided by HKUST

5. Funds secured or to be secured

(a) Other research funds already secured for this research proposal:

[This amount will be deducted from the total cost of the project in Section 3 of Part II above.]

<u>Source</u>	<u>Amount (\$)</u>
Nil	1

(b) Other research funds to be or are being sought for this research proposal.

[If funds under this item are secured, the amount of the GRF to be awarded may be reduced]:

<u>Source</u>	<u>Amount (\$)</u>
Nil	1

6. Particulars of PI and Co-Is

(a) Investigator(s) information:

Name and Academic Affiliation of Applicant:

Name	Post	Unit/ Department/ University	Current Member of RGC Council as at the application deadline (Yes or No)	Current Member of RGC Subject Panel as at the application deadline (Yes or No)	Name of RGC Subject Panel
PI Prof Holz, Carsten A	Professor	Division of Social Science/The Hong Kong University of Science and Technology	No	No	

(b) Curriculum vitae (CV) of Applicant(s).

[For the PI and each Co-I, please attach a CV (a maximum of two A4 pages in standard RGC format for attaching PDF documents or a maximum of 800 words for direct input in the text box) per person in the following format.]

i) Name:

ii) Academic qualifications:

iii) Previous academic positions held(with dates):

iv) Present academic position:

v) Previous relevant research work:

vi) Publication records [Please refer to GRF 2 Part II Section 6 for the format required by the RGC]:

Section A - Five most representative publications in recent five years

Section B - Five representative publications beyond the recent five-year period with the latest publication entered first.

vii) Others (please specify):

(c) Plan(s) for collaboration in this application:

[Indicate the role and the specific task(s) the PI and each Co-I , if any, is responsible for.]

[Letter(s) of collaboration should be attached to section 11]

N/A

(d) Number of hours per week to be spent by the PI in the proposal: 15 hour(s)

(i) Carsten A. HOLZ

(ii) PhD Economics, Cornell University

(iii) 1995 Assistant Professor, SOSC, HKUST, 2002 Associate Professor, SOSC, HKUST, 2010 Professor, SOSC, HKUST; 2014/15 Visiting Professor Harvard U., 2012/13 Visiting Professor Stanford U., 2010–12 Visiting Professor University of Southern California, 2007/08 Visiting Professor Princeton University, 2003/04 Visiting Professor Stanford U., 1999/2000 Visiting Professor Cornell U.

(iv) Professor, SOSC, HKUST

(v)

“Physical Capital Estimates for China’s Provinces, 1952–2015 and Beyond.” With SUN Yue. December 2016. In press, *China Economic Review*, available at <http://www.sciencedirect.com/science/article/pii/S1043951X17300913>.

“New Capital Estimates for China.” *China Economic Review* 17, no. 2 (2006): 142–85.

(vi.A)

“Physical Capital Estimates for China’s Provinces, 1952–2015 and Beyond.” With SUN Yue. December 2016. In press, *China Economic Review*, available at <http://www.sciencedirect.com/science/article/pii/S1043951X17300913>.

“Wage and Price Dynamics in China.” With Aaron Mehrotra. *The World Economy* 39, no. 8 (Aug. 2016): 1109–27.

“The Quality of China’s GDP Statistics.” *China Economic Review* 30 (September 2014): 309–38.

“Monthly Industrial Output in China 1980–2012.” *China Economic Review* 28 (March 2014): 1–16.

“Chinese Statistics: Classification Systems and Data Sources.” *Eurasian Geography and Economics* 54, no. 5/6 (2013): 532–71.

(vi.B)

“The Unbalanced Growth Hypothesis Revisited: The Role of State Ownership in China’s Economic Growth.” *Journal of Development Economics* 96, no. 2 (November 2011): 220–38.

“No Razor’s Edge: Reexamining Alwyn Young’s Evidence for Increasing Inter-Provincial Trade Barriers in China.” *The Review of Economics and Statistics* 91, no. 3 (August 2009): 599–616.

“China’s Economic Growth 1978–2025: What We Know Today about China’s Economic Growth Tomorrow.” *World Development* 36, no. 10 (October 2008): 1665–91.

“Revisions to China’s GDP Data Following the 2004 Economic Census: More Questions Than Answers?” *The China Quarterly*, no. 193 (March 2008): 150–63.

“Spatial Price Differences in China: Estimates and Implications.” With Loren Brandt. *Economic Development and Cultural Change* 55, no. 1 (October 2006): 43–86.

DECLARATION OF SIMILAR OR RELATED PROPOSALS & GRANT RECORD

[Please refer to GRF2 for information required and implications for non-disclosure of similar or related proposals]

7. Re-submission of a proposal not supported previously

(a) Is this proposal a re-submission or largely similar to a proposal that has been submitted to but not supported by the UGC/RGC or other funding agencies?

Yes

No

If yes, please state the funding agency(ies) and the funding programme(s):

Reference No(s). [for UGC/RGC projects only]:

Project title(s) [if different from Section 1(a) of Part I above]:

Date(month/year) of application:

Outcome:

(b) If this application is the same as or similar to the one(s) submitted but not supported previously, what were the main concerns / suggestions of the reviewers then?

(c) Please give a brief response to the points mentioned in Section 7(b) above, highlighting the major changes that have been incorporated in this application.

8. Grant Record of Investigator(s)

(a) PI - Details of research projects undertaken and proposals submitted by the PI (in a PI/PC or Co-I/Co-PI capacity) including (i) completed research projects funded from all sources (irrespective of whether from UGC/RGC) in the past five years; (ii) on-going research projects funded from all sources (irrespective of whether from UGC/RGC); (iii) terminated projects funded by UGC/RGC in the past five years; (iv) unsuccessful proposals or withdrawn projects submitted to UGC/RGC in the past five years; and (v) proposals pending funding approval. If you have any research project(s) / proposal(s) (irrespective of whether submitted to/funded by UGC/RGC and not limited to the past five years) which is/are similar or related to this application, please include in the table below

and provide an explanation on the differences between that/those project(s)/proposal(s) and this application (a maximum of 400 words). [If you have difficulty in making the declaration, please explain.] Please add a new table for each project/proposal.

Project/Proposal Ref No.	640413
Name of Investigator(s)	Holz, Carsten A
Project Title	The Process of Economic Development in West Sichuan, China
Project Objective (not applicable for unsuccessful proposals or withdrawn projects)	<ol style="list-style-type: none"> 1. Document and evaluate processes and levels of economic development in West Sichuan 2. Document government economic development policies in West Sichuan and evaluate their effectiveness 3. Document and evaluate the economic and social consequences of economic development in West Sichuan
Status	Completed
Capacity	PI
Funding Source(s) and Amount(\$)	GRF \$ 780,000
UGC/RGC Funding (Yes or No)	Y
Start Date (if applicable)	01-01-2014
Estimated Completion Date (if applicable)	30-06-2017
Number of Hours Per Week Spent by the PI in	0

Each On-going Project*

Similar or related to the current application NA

If yes, please explain the differences

Project/Proposal Ref No. 16600517

Name of Investigator(s) Holz, Carsten A

Project Title Spatial Price Differences in China

Status Unsuccessful

Capacity PI

Funding Source(s) and Amount(\$) GRF
\$ 0

UGC/RGC Funding (Yes or No) Y

Start Date (if applicable) --

Estimated Completion Date (if applicable) --

Number of Hours Per Week Spent by the PI in Each On-going Project* 0

Similar or related to the current application NA

If yes, please explain the differences

* The PI is not required to report on the time spent in the capacity of Co-I in GRF / Joint Research Schemes projects.

(b) Co-I(s) – Details of on-going research projects funded from all sources (irrespective of whether from UGC/RGC) undertaken by each Co-I (in a PI/PC capacity) and proposals pending funding approval (in a PI/PC capacity). If you have any research project(s)/proposal(s) (irrespective of whether submitted to/funded by UGC/RGC and not limited to the past five years) which is/are similar or related to this application, please include in the table below and provide an explanation on the differences between that/those project(s)/proposal(s) and this application (a maximum of 400 words). [If you have difficulty in making the declaration, please explain.] Please add a new table for each project/proposal.

ANCILLARY INFORMATION

9. Research Ethics/Safety Approval and Access to Government/ Official/ Private Data and Records

[Please refer to GRF2 Part II Section 9 for the responsibilities and implications]

(a) Research Ethics/Safety Approval

(i) I confirm that the research proposal involves / does not involve human subjects.

(ii) Please tick the appropriate boxes to confirm if approval for the respective ethics and/or safety issues is required and has been / is being obtained from the PI's university. PIs are encouraged to seek necessary approval (except for human research ethics (clinical)) before application deadline as far as possible

	Approval not required	Approval being sought	Approval obtained
(1) Animal research ethics	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(2) Biological safety	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(3) Ionizing radiation safety	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(4) Non-ionizing radiation safety	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(5) Chemical safety	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(6) Human research ethics (non clinical)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Approval not required	Approval being sought	Approval will be sought if funded
(7) Human research ethics (clinical)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(iii) If approval is required by other authorities, please indicate *below* the names of the authorities and the prospects of obtaining such approval. If not applicable, please put down "N.A.".

No approval required whatsoever.

(b) Access to Government/ Official/ Private Data and Records

(i) Is access to Government / official / private data and records critical to the research proposal?

- Yes
- No

If approval is required, please indicate below the names of the agency(ies) of obtaining such approval.

(ii) Please tick in the appropriate boxes to confirm if approval for access to the related data/records has been / is being obtained from the relevant agency(ies). If approval has been obtained, please provide evidence.

List of agency(ies)	Approval not required	Approval being sought	Approval obtained
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[Note: PIs are encouraged to seek necessary approval before application deadline as far as possible.]

10. Release of completion report, data archive possibilities and public access of publications resulting from research funded by the RGC

(a) Is the proposed project likely to generate data set(s) of retention value?

Yes No

If yes, please describe the nature, quantity and potential use of the data set(s) in future.

Dataset of capital service and wealth capital values for China 1952- . To be made available online.

(b) Are you willing to make the data set(s) available to others for reference twelve months after the publication of research results or the completion of this proposed project?

Yes No

I/We understand that the RGC will release the completion report to the public and only considers data archiving requests after the completion of the RGC-funded project. The RGC has full discretion in funding the archiving requests. Data sets archived with RGC funds will require users to acknowledge the originator and the RGC. The originator will also be provided with copies of all publications derived from the use of the data.

I undertake to include in the project completion report the URL links to the university's repository or the publisher's websites so that the public could have quick and easy access to the manuscripts or journal articles. I will also consider to include in the research completion report the data repository where research data of the project could be accessed and shared, where appropriate.

I undertake that upon acceptance of a paper for publication,

- (i) I will check whether the publisher already allows (A) full open access to the publisher's version, or (B) my depositing a copy of the paper (either the publisher's version or the final accepted manuscript after peer-review) in the university's repository for open access;**
- (ii) if both (i) (A) and (B) are not allowed, I will request the publisher to allow me to place either version in my university's repository for restricted access immediately upon publication or after an embargo period of up to twelve months if required by the publisher; and**
- (iii) subject to the publisher's agreement on (i) or (ii) above, I will deposit a copy of the publication in my university's repository as early as possible but no later than six months after publication or the embargo period, if any.**

11. Education Plan, Technology Transfer Plan, Letters of Collaboration and Supporting Documents

(A maximum of 20 words for each box to caption each uploaded pdf document)

Appendix 1: Education Plan (up to one A4 page)

The employed Research Postgraduate Student will become thoroughly familiar with modern capital theory.