

RGC Ref. No.: UGC/FDS14/B06/18 _____ (please insert ref. above)
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**RESEARCH GRANTS COUNCIL
COMPETITIVE RESEARCH FUNDING SCHEMES FOR
THE LOCAL SELF-FINANCING DEGREE SECTOR**

FACULTY DEVELOPMENT SCHEME (FDS)

Completion Report
(for completed projects only)

<p><u>Submission Deadlines:</u></p> <ol style="list-style-type: none"> 1. Auditor's report with unspent balance, if any: within six months of the approved project completion date. 2. Completion report: within 12 months of the approved project completion date.
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Part A: The Project and Investigator(s)

1. Project Title

Doubts on Natural Rate of Unemployment: Evidence from Asian and OECD Countries

2. Investigator(s) and Academic Department(s) / Unit(s) Involved

Research Team	Name / Post	Unit / Department / Institution
Principal Investigator	Dr. CHENG Ka Ming / Associate Professor	Economics and Finance / The Hang Seng University of Hong Kong
Co-Investigator(s)	N/A	
Others	N/A	

3. Project Duration

	Original	Revised	Date of RGC / Institution Approval <i>(must be quoted)</i>
Project Start Date	1 January 2019		
Project Completion Date	31 December 2020		
Duration <i>(in month)</i>	24 months		

Deadline for Submission of Completion Report	31 December 2021		
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Part B: The Final Report

5. Project Objectives

5.1 Objectives as per original application

1. *To test the null of hysteresis hypothesis against the alternative natural rate of unemployment hypothesis with linear and non-linear unit root tests.*
2. *To detect the presence of natural rate of unemployment, hysteresis in unemployment due to economic shocks, and the possibility of a natural rate shift due to structural changes.*

5.2 Revised objectives

Date of approval from the RGC: N/A

Reasons for the change:

- 1.
- 2.
3. ..

5.3 Realisation of the objectives

(Maximum 1 page; please state how and to what extent the project objectives have been achieved; give reasons for under-achievements and outline attempts to overcome problems, if any)

1. By employing the conventional univariate unit root tests under a linear framework and the threshold autoregressive (TAR) nonlinear unit root test developed by Park and Shintani (2016), we can successfully test the null of hysteresis hypothesis against the alternative natural rate of unemployment hypothesis.
2. By applying a threshold autoregressive (TAR) nonlinear unit root test developed by Park and Shintani (2016) with two different specifications, we can successfully detect the presence of natural rate of unemployment, hysteresis in unemployment due to economic shocks, and the possibility of a natural rate shift due to structural changes.

5.4 Summary of objectives addressed to date

Objectives <i>(as per 5.1/5.2 above)</i>	Addressed <i>(please tick)</i>	Percentage Achieved <i>(please estimate)</i>
1. To test the null of hysteresis hypothesis against the alternative natural rate of unemployment hypothesis with linear and non-linear unit root tests.	√	100%
2. To detect the presence of natural rate of unemployment, hysteresis in unemployment due to economic shocks, and the possibility of a natural rate shift due to structural changes.	√	100%
3.		
4.		

6. Research Outcome

6.1 Major findings and research outcome

(Maximum 1 page; please make reference to Part C where necessary)

This study aims to investigate the nature of unemployment dynamics of 34 Asian and OECD countries with monthly data of unemployment rates from April 1998 to December 2018. The findings in this study provide some important policy implications for government officials and policymakers to boost the employment of an economy.

By employing the conventional univariate unit root tests under a linear framework, we find strong evidence to support hysteresis hypothesis for 19 countries. Further, we investigate the stationarity and nonlinearity properties of Asian and OECD countries' unemployment rates by applying a threshold autoregressive (TAR) nonlinear unit root test developed by Park and Shintani (2016) with two different specifications. The novelty of the research design with two specifications is that it allows us to test the hysteresis hypothesis against the alternative natural rate of unemployment hypothesis as well as the possibility of a permanent shift of natural rate of unemployment due to economic or structural shocks.

Since the inf- t test rejects the unit root null favoring nonlinear stationarity for only 4 out of 34 countries when the unemployment rate obeys a stationary autoregressive process when past rates are below a certain threshold, the results provide very weak evidence to support the natural rate

hypothesis. In contrast, the empirical results of an existence of persistent hysteresis unemployment in both regimes over time for 21 countries provide strong evidence in favor of the hypothesis of hysteresis unemployment, thereby giving support to more activist stabilization policies to reducing unemployment.

The findings of a natural rate shift above a certain threshold level for 12 countries provide some evidence to support the possibility of a permanent shift of natural rate of unemployment resulting from structural changes in economic fundamentals. The results shed some light on the empirical relevance of structuralist view on unemployment. In addition to deploying quantitative easing and ultra-low interest rate policies, policymakers may need to implement some appropriate structural reforms, such as labor market policies, to avoid a permanent upward shift of natural rate.

6.2 Potential for further development of the research and the proposed course of action (Maximum half a page)

The same methodology and research design can be employed to explore if there are any gender and racial differences in unemployment dynamics during an economic downturn in Asian and OECD countries. The findings of the future study may provide insight for policy makers to derive appropriate gender- and racial-specific stabilization policies to reduce the unemployment rates.

7. Layman's Summary

(Describe in layman's language the nature, significance and value of the research project, in no more than 200 words)

High unemployment is a major concern of the government in many countries since the unemployment rates tend to stay persistently at a high level over time rather than returning to a normal level, natural rate, after a short period of time. People cast doubt on the presence of natural rate of unemployment in those countries. There has been an ongoing debate among theorists of natural rate, structuralist and hysteresis for many decades.

This study aims to revisit the nature of unemployment dynamics in Asian and OECD countries from 1998 to 2018 by employing a novel nonlinear unit root test developed by Park and Shintani (2016). The purpose is to detect the presence of natural rate of unemployment, hysteresis in unemployment due to economic shocks and the possibility of a natural rate shift due to structural changes. Empirical evidence is important to give guidance for policymakers to make effective stabilization policies when having doubts on the natural rate hypothesis. The findings in this study confirm the presence of hysteresis unemployment in many Asian and OECD countries while some countries are found to have a permanent shift of natural rate, thereby giving support to more activist stabilization policies.

Part C: Research Output**8. Peer-Reviewed Journal Publication(s) Arising Directly From This Research Project**

(Please attach a copy of the publication and/or the letter of acceptance if not yet submitted in the previous progress report(s). All listed publications must acknowledge RGC's funding support by quoting the specific grant reference.)

The Latest Status of Publications				Author(s) (denote the corresponding author with an asterisk*)	Title and Journal / Book (with the volume, pages and other necessary publishing details specified)	Submitted to RGC (indicate the year ending of the relevant progress report)	Attached to this Report (Yes or No)	Acknowledged the Support of RGC (Yes or No)	Accessible from the Institutional Repository (Yes or No)
Year of Publication	Year of Acceptance (For paper accepted but not yet published)	Under Review	Under Preparation (optional)						
		√		CHENG Ka Ming*	Doubts on Natural Rate of Unemployment: Evidence and Policy Implications / Structural Change and Economic Dynamics		Yes (Annex I)	Yes	No

9. Recognized International Conference(s) In Which Paper(s) Related To This Research Project Was / Were Delivered

(Please attach a copy of each conference abstract)

Month / Year / Place	Title	Conference Name	Submitted to RGC (indicate the year ending of the relevant progress report)	Attached to this Report (Yes or No)	Acknowledged the Support of RGC (Yes or No)	Accessible from the Institutional Repository (Yes or No)
June 2019 San Francisco CA, USA	Doubts on Natural Rate of Unemployment: New Evidence from a Nonlinear Unit Root Test	94th Annual Conference, Western Economic Association International	2019	No	Yes	Yes https://researchdb.hsu.edu.hk/view/publication/201900364

10. Whether Research Experience And New Knowledge Has Been Transferred / Has Contributed To Teaching And Learning

(Please elaborate)

The findings in this study can be used for teaching undergraduate Economics courses, such as Principles of Macroeconomics, Intermediate Macroeconomics, and Money and Banking.

11. Student(s) Trained

(Please attach a copy of the title page of the thesis)

Name	Degree Registered for	Date of Registration	Date of Thesis Submission / Graduation
N/A			

12. Other Impact

(e.g. award of patents or prizes, collaboration with other research institutions, technology transfer, teaching enhancement, etc.)

N/A

13. Statistics on Research Outputs

No. of outputs arising directly from this research project	Peer-reviewed Journal Publications	Conference Papers	Scholarly Books, Monographs and Chapters	Patents Awarded	Other Research Outputs (please specify)	
					Type	No.
	NIL	One	NIL	NIL		

14. Public Access Of Completion Report

(Please specify the information, if any, that cannot be provided for public access and give the reasons.)

Information that Cannot Be Provided for Public Access	Reasons
NIL	