

The Citation Life Cycle of ETDs in Taiwan

YI SHUAN HUANG PHD STUDENT, NATIONAL TAIWAN UNIVERSITY

LEE CHEN CHEN ASSOCIATE PROFESSOR, NATIONAL ILAN UNIVERSITY

BAO-TZUOH HUANG PROFESSOR, NATIONAL ILAN UNIVERSITY

Outline

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National Digital Library of Theses and Dissertations in Taiwan(1/3)

- ◆ An open full-text database, <http://ndltd.ncl.edu.tw/>
- ◆ Our National Central Library, as delineated in the Degree Deferral Law, is the only legal depository for theses and dissertations in Taiwan. NCL has done just that in creating a database that makes possible freedom in research dissemination, the reduction of the urban-rural gap, and equality in academics.
- ◆ The system is a national academic research support platform through the assistance of colleges and universities across Taiwan.
- ◆ Since participating institutions do not need to create separate databases, this translates into reduced costs for universities in terms of computer hardware, system maintenance, and IT personnel.

National Digital Library of Theses and Dissertations in Taiwan(2/3)

- ◆ The third generation system developed by the NCL
 - ◆ 1970: print catalog
 - ◆ 1997: WebPac system(catalog online)
 - ◆ 2010: full-text database
- ◆ Over 950,000 records, also uploaded to the ND LTD Union Archive
- ◆ More than 360,000 electronic theses is available online
- ◆ About 220,000,000 visitors since 2010

National Digital Library of Theses and Dissertations in Taiwan(3/3)

The screenshot shows the website's main interface with a yellow and green color scheme. At the top left is the logo for NDLTD IN TAIWAN, with the text '臺灣博碩士論文知識加值系統' and 'National Digital Library of Theses and Dissertations in Taiwan'. Navigation links include 'Site Map', 'Home', 'About Us', 'Contact Us', 'NCL', '中文版', 'FB Fans', and 'Mobile (App version)'. There are also links for 'FreeMember Sign in' and 'Registry'. Below the header is a green navigation bar with tabs for 'For The Public', 'For Researchers', 'For Faculties & Students', 'Basic Search', 'Rankings', 'Questionnaire', 'Special Topic', and 'NDLTD Search'. A status bar shows the IP address '(61.58.105.113)', time zone 'GMT+8', date '2016/06/30 09:27', and an 'Exit' button. On the right, there are 'Resize' and 'Default font' controls.

The main content area is divided into two columns. The left column features a 'Basic Search' section with a search input field, a 'Search' button, and a '查詢字詞擴展' button. Below the search field are checkboxes for search criteria: Title (checked), Author, Advisor, ODC, Keyword, Abstract, Reference, and All Field. Search Type options include Precision (selected), Fuzzy, zhu yin, Hanyu Pinyin, and Tongyong Pinyin. Auxiliary Search options are Simplified To Traditional and Latin language. Full text Format options include Document file. Below the search section are 'Hot Searches' for 'Yesterday', 'Last week', 'Over the past 014 days', 'Last month', 'Last half year', 'Last Year', and 'Past Years'. Below the search section is a 'Latest News' section with an RSS icon and a list of news items:

- 2012/11/01 小小授權畫-裡頭學問大
- 2014/07/03 國家圖書館博碩士論文系統全面採用 CNRI 永久網址接軌國際
- 2010/10/28 推動臺灣學位論文資訊國際化，國家圖書館正式成為國際NDLTD組織會員。
- 2016/06/21 銘謝 林威翔先生授權元智大學碩士論文：《封神演義》中人物形象之人文意涵研究
- 2016/06/15 銘謝 胡士雄先生授權政治大學博士論文：越南胡志明市高級中學校長分布式領導、教師知覺

The right column features a 'Hot Rankings' section with tabs for 'FullText Authorization', 'Most Cited', 'Most Hit', and 'Most Downloaded'. Below the tabs is a 'Quantity/Percentage' row showing '104|103|102|101|100|99|Past Years Graduated Academic Year'. Below this is a table with the following data:

No.	Institution Name	Full text	Total
1	國立交通大學	436	670
2	國立中央大學	241	330
3	國立臺灣科技大學	188	324
4	國立成功大學	186	514
5	國立中正大學	181	484

Below the table is a 'More far1' link. At the bottom of the page, there is a banner for '強力徵求學位論文' (Strongly seeking theses and dissertations) with an image of books.

Open Access

- ◆ Read the Budapest Open Access initiative(2002)
 - ◆ Free and unrestricted online availability
 - ◆ Gives readers extraordinary power to make use of relevant literature
 - ◆ Hope to help open up access to the rest of this literature and remove the barriers, especially the price barriers
 - ◆ Permit any users to download, copy, print, or link to the full texts without financial, legal, or technical barriers
 - ◆ The only constraint about open access is that should give authors the right to be properly acknowledged and cited

The Immediacy Index of OA and non-OA ETDs

Table 4 Cited during published year number of OA ETDs

Year	Random sample number	Cited during published year	Immediacy index
2008	500	43	0.08
2009	500	38	0.07
2010	500	36	0.07
2011	500	72	0.14
2012	500	81	0.16

Table 5 Cited during published year number of non-OA ETDs

Year	Random sample number	Cited during published year	Immediacy index
2008	500	0	0
2009	500	1	0
2010	500	2	0
2011	500	1	0
2012	500	0	0

- In our previous research in 2014, we found a significant difference between the immediacy index of OA and Non-OA ETDs
- Table 4 reveals the average immediacy index of OA published during 2008-2012 is about 0.1, whereas Table 5 shows the average immediacy index of non-OA is 0.
- The immediacy index of OA published during 2008-2012 has shown a tendency to increase.

Research Purpose

- ◆ To identify the development of OA ETDs in recent years in Taiwan
- ◆ To compare the difference of citation life cycle between OA and non-OA ETDs in Economic, Chinese, Medical, and Computer science field

Research Methods

- ◆ The research data of this paper is based on bibliometric and citation analysis of OA and non-OA ETDs.
 - ◆ Our measurement of quantitative statistics is focused on Number of OA on ETDs, Number of ETDs, published year, department, and citation count.
 - ◆ We conduct the study in the 50 random samples by each year of OA and non-OA ETDs in different department.
- ◆ The research setting is in the National Digital Library of Theses and Dissertations (NDLTD) in Taiwan (<http://ndltd.ncl.edu.tw/>)
- ◆ 3-stage life cycle analysis: the first sub-period, the second sub-period and the forward period

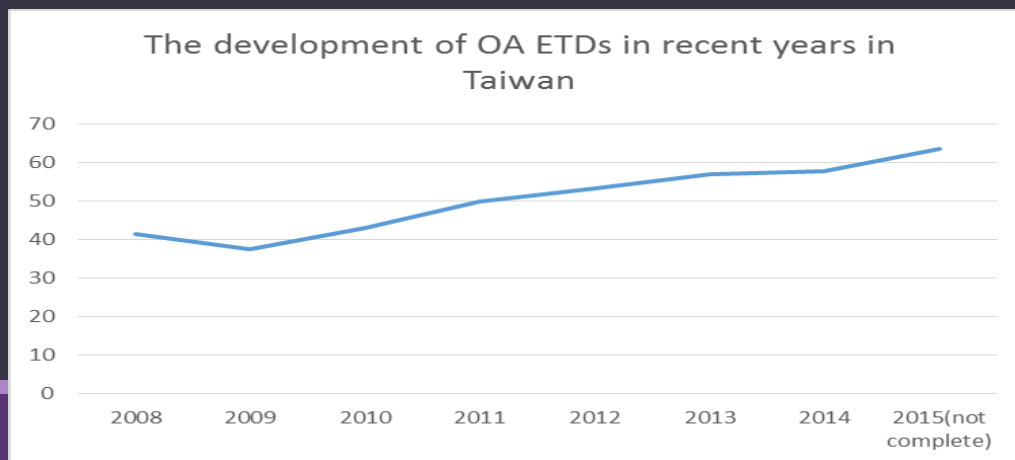
Research Findings

The recent development of OA ETDs in Taiwan

Published year	OA ETDs	ETDs	OA rate (%)
2008	25,455	61,232	41.57
2009	23,680	63,118	37.52
2010	27,101	62,784	43.17
2011	31,667	63,539	49.84
2012	33,683	63,186	53.31
2013	34,521	60,534	57.03
2014	34,270	59,259	57.83
2015(not complete)	4,788	7,532	63.57
total(1956 till now)	364,718	953,089	38.27

Since the 2011, the OA rate in Taiwan has been above 50%.

Over the whole observation period, from 1956 till now, the OA rate has been approximately 38% in average. The OA rate has exceptionally reached 60% after the 2014, thanks to a robust digital and knowledge platform.



The citation count of Medical and Computer Science: Low-count case

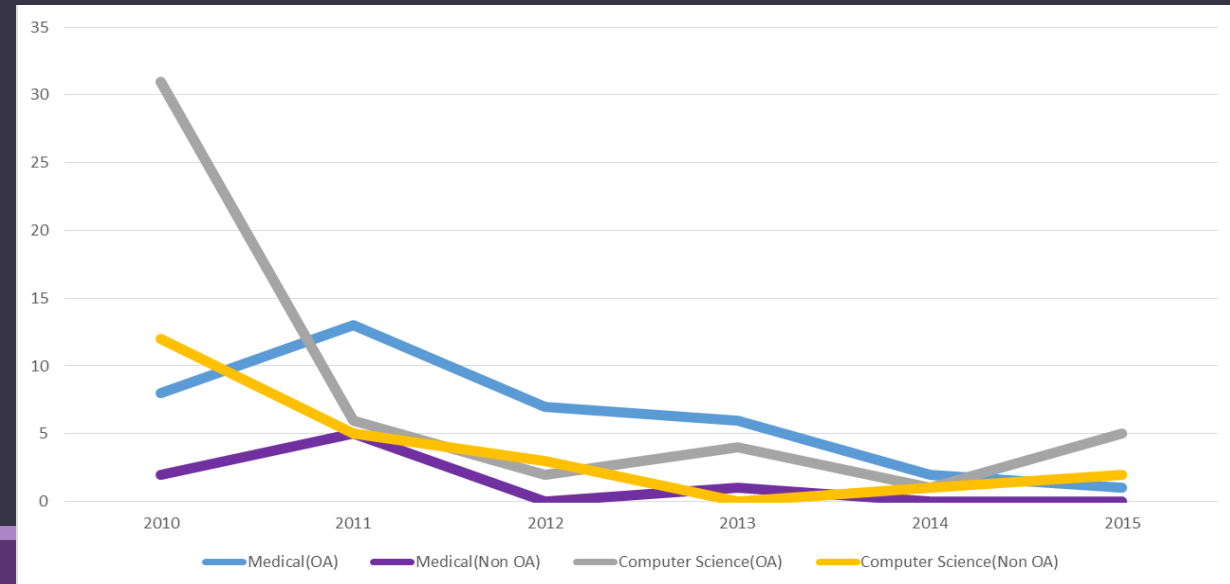
The citation count of Medical

Published year	OA ETDs	Non OA ETDs
2010	8	2
2011	13	5
2012	7	0
2013	6	1
2014	2	0
2015	1	0

Dividing the 5 observation years into two sub-periods of equal length, we find the counts of the two low-count fields increase smoother between 2013 and 2015. Over the second sub-period of 2010-2012, counts also increase smoother in it's early stage.

The citation count of Computer Science

Published year	OA ETDs	Non OA ETDs
2010	31	12
2011	6	5
2012	2	3
2013	4	0
2014	1	1
2015	5	2



The citation count of Economic and Chinese Field: High-counts case

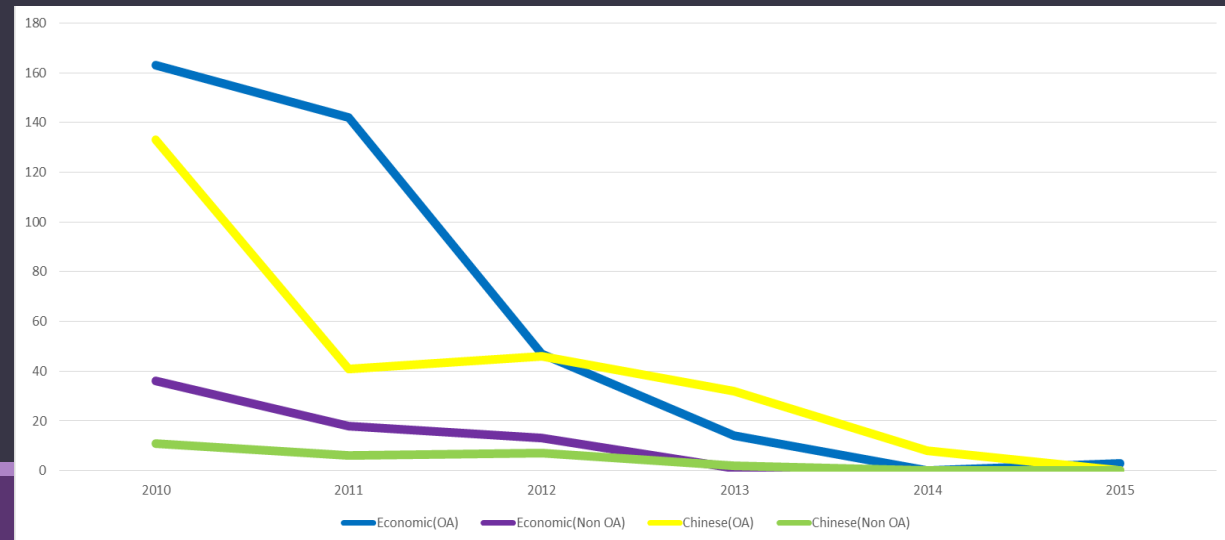
The citation count of Economic

Published year	OA ETDs	Non OA ETDs
2010	163	36
2011	142	18
2012	47	13
2013	14	1
2014	0	0
2015	3	0

The figure sheds light on the puzzling citation development through the period comparison of these two fields performance with those of the above two sciences. Both the life cycle figures develop quite similarly over the first sub-period of 2013-2015, but diverge thereafter (or the second sub-period).

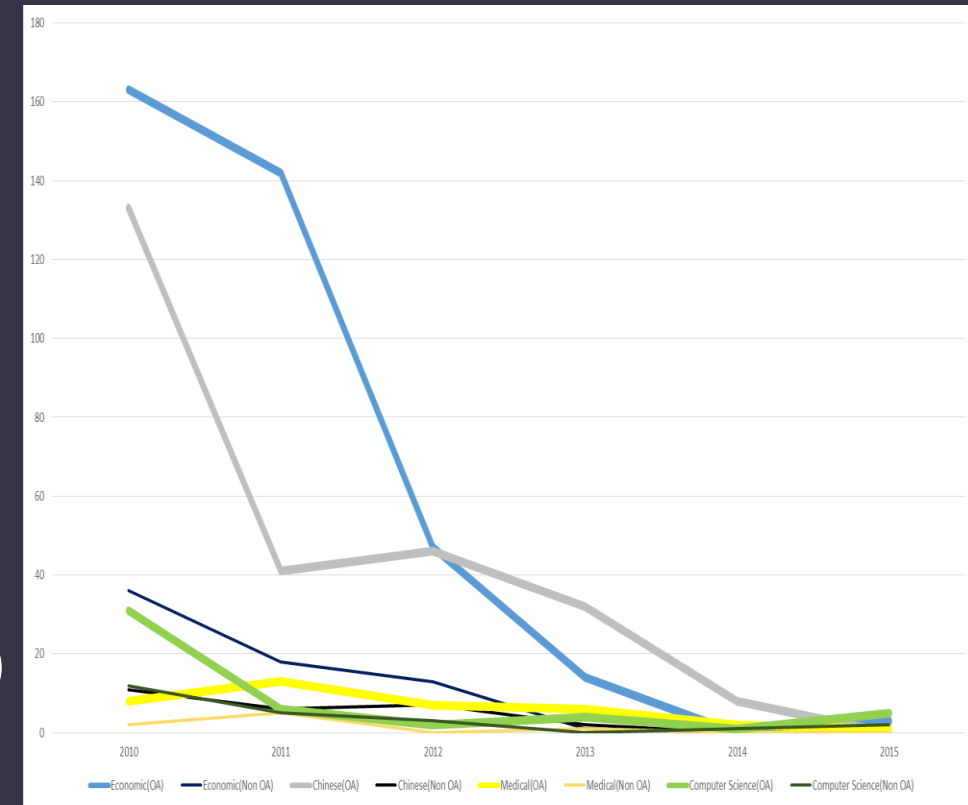
The citation count of Chinese

Published year	OA ETDs	Non OA ETDs
2010	133	11
2011	41	6
2012	46	7
2013	32	2
2014	8	0
2015	0	0

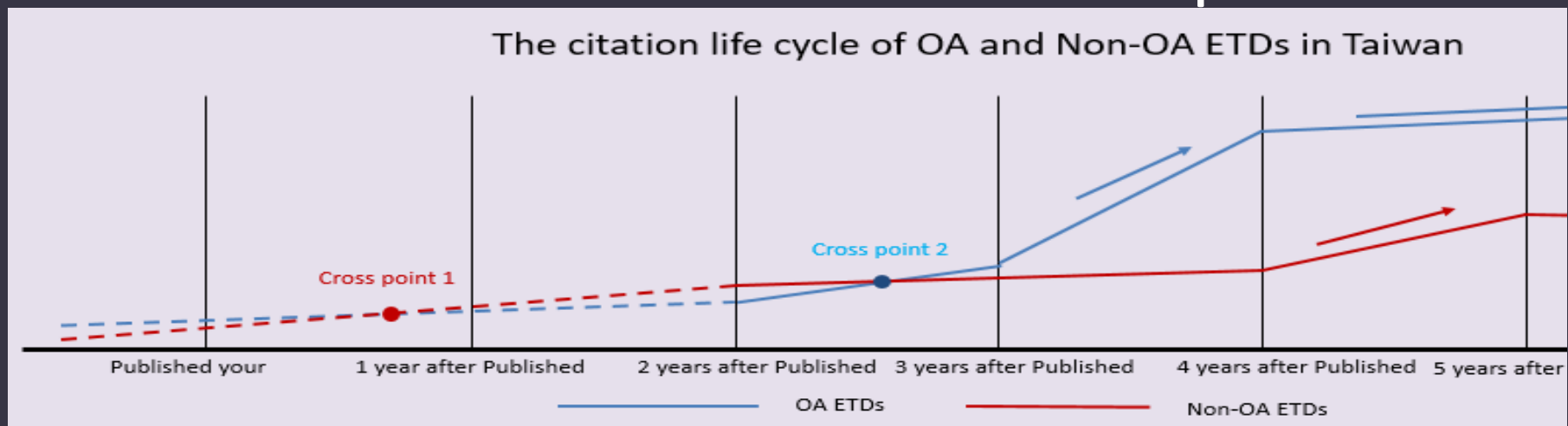


Conclusion (1/3): The citation life cycle – Two sub-period analysis

- ◆ According to the citation count of Economic, Chinese, Medical, and Computer Science, it is obvious that the open access would make more citing opportunities in different field. However, there have been important differences in the development of the second sub-period.
- ◆ The citation life cycle in the selected 4 fields:
 - ◆ In Medical and Computer science fields, both OA and Non OA ETDs are showing lower citation count and slowing considerably after the second sub-period.
 - ◆ The expansion stage of Economics (published after 4 years) is happened earlier than Chinese Literature (published after 5 years)
 - ◆ Compared with sciences, the expanding citations of economic and Chinese fields, may increase citing productivity via increasing the precedent analysis and historical data reuse.



Conclusion (2/3): The citation life cycle of OA and Non-OA ETDs – Two cross-point analysis



Cross point 1

Before: the citation count of OA outpacing Non-OA
After: the citation count of OA is lower than Non-OA

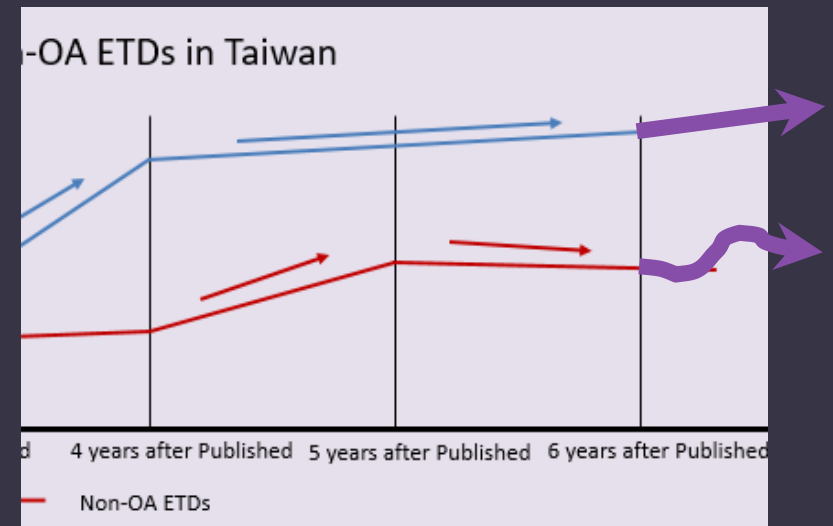
Cross point 2

Before: the citation count of OA is lower than Non-OA
After: the citation count of OA most noticeably re-surpassing Non-OA

Cross point 1 & 2 clearly confirm the most pronounced and mediating role, which can turn the situation upside down, in the citation life cycle of OA and Non-OA ETDs in Taiwan. First, the growth period of Non-OA ETDs is delayed one year than OA ETDs. Secondly, the decline period of Non-OA ETDs is always happened earlier than OA ETDs at about 5 years after the initially published.

Conclusion (3/3): The expected citation life cycle – Two **forward shape** analysis

In absolute terms, the largest widening gap of the two locus came from the 4 years after published, followed by the converging during the 4-5 years after published, whereas it diverged thereafter which one locus lift up but the another's tearing down. After the published 6 years or forward years, the increase in OA-ETDs will expect to remain fairly high, whereas it will expect to grow steady and converge to constant level in Non-OA ETDs. The exact locus and shape of these curves will vary greatly from field to field, and depending on general OA conditions to the different theses vintages published.



Thank you for your listening!
