Economic &Trade Interdependence between Taiwan (ROC) and China (PROC)

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Abstract

There has been extensive research in the areas of and trade relationships, economic interdependence, and national security in fields such as global studies, security studies, international trade, and global economics. The current research draws from several of the related fields and provides empirical evidence in the context of the opposing forces across Taiwan Strait, and examines the unique geo-political interaction between Taiwan (Republic of China) and China (People's Republic). The study is pertinent during a time when the second power transfer in Taiwan took place and the administration of Tsai Ing-wen faces drastic changes in mainland China and growing tensions between the two. Trade and economic ties between the two entities are becoming even more intriguing as the Unites States, a third party with close ties to both Taiwan and China, is embarking on a new direction under Trump administration and imposing steep tariffs on China. Longitudinal study on trade and investment relationships between 1990 and 2015 presents a shift in interdependency and the intricate nature of the relationship amid geopolitical turmoil. The trends are examined using both trade and investment as parameters and a new measure of integrated bilateral dependency growth rate on the two entities.

Introduction

Transition of democratic political power took place for the second time when President Tsai Ing-wen took office in May of 2016 in Taiwan (Republic of China). The Tsai administration took on a series of reforms while President Xi Jinping of mainland China (PRC) was facing tremendous domestic changes. The political and economic situation in China becomes even more complex today, when a trade war between the U.S. and China is ongoing. During this period of time, the interactions and tensions across Taiwan straits between the two Chinas is also quite contentious, due to the interdependence between the two entities with regard to politics, economy, diplomacy, and military. With Hong Kong and Macao included, the relations among these four players exacerbated with American policies on China and Taiwan are being rewritten and are incorporated in the picture. Studies on economic and trade interdependence between Taiwan (ROC) and China (PRC) is pertinent to the democracy in Taiwan and U.S. interests in Indo-Pacific region, as well as to global business and economy, and regional security.

This study draws from literature from global economy, global strategy, and global security in an effort to shed light on the bilateral relationship and interdependency for policy makers in Taiwan and America. Taiwan used to have a so-called "Silicon Shield" where the semiconductor sector in Taiwan is a "shield" to Taiwan for any potential attack by China as Taiwan is the key and important player of the industry in the world where an interruption of the supply chain is detrimental to worldwide economy. However, this dependence in favor of Taiwan was sabotaged by mainland China when Taiwanese semiconductor industry moved westbound to mainland China (Chen, 2017).

The anxiety and concern among people of Taiwan is not unsubstantiated. According to a report on Freedom Times, the Communist regime of China has attempted, even quite successfully in some areas, to influence and control Taiwan through engaging 5% of the population of Taiwan who are pro-quick-unification with China (Freedom Times 2017).

Extensive research has examined the relationship between economic interdependence and international conflict, when two major schools of thoughts emerged, with some researchers suggest that interdependence produces greater international conflict, and others suggest interdependence produces a decline in conflict (McMillan 1997). Still others argue that both schools of thought may be correct: while the costly aspects of interdependence seem to produce greater international conflict, its beneficial aspects appear to produce a decline in conflict (Gasiorowski 1986).

McMillan (1997) and others examined how the costly and beneficial aspects of interdependence combine to affect interstate conflict, and identifiedthe relationships among the various dimensions of interdependence and conflict themselves. Some even argued that rivalry within interdependence is possible (Buszynski 2009).Maoz (2009) integrated "sensitivity interdependence"—the effects of changes in one state on other states—with "vulnerability interdependence"—the opportunity costs of breaking a relationship, and the framework measures interdependence at different levels of analysis and across multiple relationships.

The authors examine such relationship and dependences across Taiwan Strait between Taiwan and China using data from government sources in Taiwan and the United States, and explore the trend and movement over a period of a quarter of a century (between 1990 and 2015), in an effort to understand the intricate relationship between a free China in Taiwan and a Communist China in mainland. Under the current state of a furious trade war between U.S. and China, which greatly affects Taiwan and Taiwanese investors as well, this study is of particular importance to understand the business and trade relations in the most important expanse in the Indo-Pacific region.

Literature Review

Blanch et al.(1996) emphasized the strategic goods (i.e., those essential materials for national industry and defense) asmajor concern, whereby they calculated "the strategic good vulnerability" to capture the most strategically important costs of international trading. The Strategic Goods Test(SGT) introduced by Blanch et al. provided an approach to evaluatethe dependence of Taiwan on mainland China for continued and stable access to crucial resources for national survival, and vice versa.

The evaluation of the impact of Cross-Strait Service Trade Agreement (CSSTA) on Taiwan's macroeconomic, conducted by Chung-Hua Institution for Economic Research (2009) offered projected statistics for examining such potential impact on some specific industries, which could be regard as strategically crucial. Therefore, trading of those industries are necessary for extraordinary caution, because of the considerations of the strategically vulnerability in Blanch et al.(1996).

Wang Hua et al.(2010) utilized VectorError Correction Model(VECM) by using vertical auto regression(VAR) quantitative method as an evaluation of the interdependence across the Taiwan Strait. By regressing amount of exports, amount of imports, Taiwanese direct investment (TDI), GDP of Taiwan and GDP of mainland China, they concluded that the investments and trading are important factors for the economic growth of both sides of the strait.

Gomez et al.(2013) distinguished the synchronization in regional growth patterns and the synchronization of the world economy by calculating clustering GDP growth rate. It was shown by Gomez et al. that dynamics of interdependence has been driven more by the regional one.

Chen Tian-Chih(2003) regarded the recent economic growth of China as a result of Pareto Improvement of resource allocation. Following the Chinese economic reform, the consequent impact of cross-strait trading on Taiwan, according to Chen Tian-Chih, is influential, yet the resource allocation between Taiwan and mainland China is still under the principle of global division of labor.

Wang et al. (王華2013) examined the interdependence between China and Taiwan at three levels: Input, Output, and Affects. Input refers to the interdependence between the two entities at the products and production factor level; Output refers to the interdependence at the production, demand, price, and employment level; and the Affect refers to interdependence between the two at the level of economic structure, social structure, and government policies. Their study used many quantitative measures for interdependency such as trade interdependency (that can be subdivided into export interdependency and import interdependency), dependency of mainland China on Taiwan businesses, strength of bilateral trade between Taiwan and China, regression coefficients of bilateral trade, and elasticity index of bilateral trade. Wang's calculations were based on trade volume, GDP, and trade growth as the denominators, corresponding to "trade volume", "direct economic impact", and "overall economy".
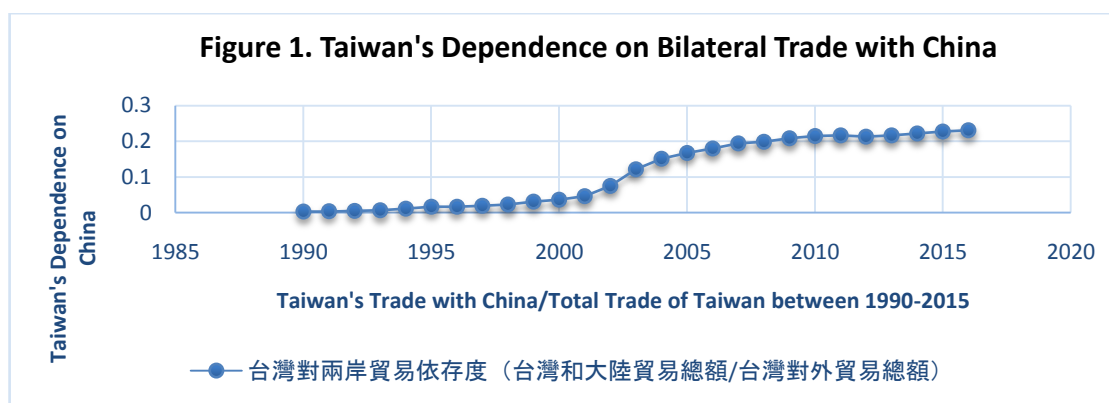
Trade relations between Taiwan and China

In this study, we collected data from the Overseas Chinese and Foreign Investment Commission of the Ministry of Economic Affairs of ROC, Customs Administration of the Ministry of Finance, and the World Bank. Adopting the quantitative model of Wang et al. (2013) and then further developed it, we analyzed the data using static analysis on the interdependency, and factored the transition of power and world affairs as the background.

1. Trade Interdependence based on Trade Volume
Based on trade volume (with total trade as the denominator), the dependence of Taiwan on trade with China is on the rise in the past 25 years, as illustrated in Figure 1.

Figure 1. Taiwan's Dependence on Bilateral Trade with China

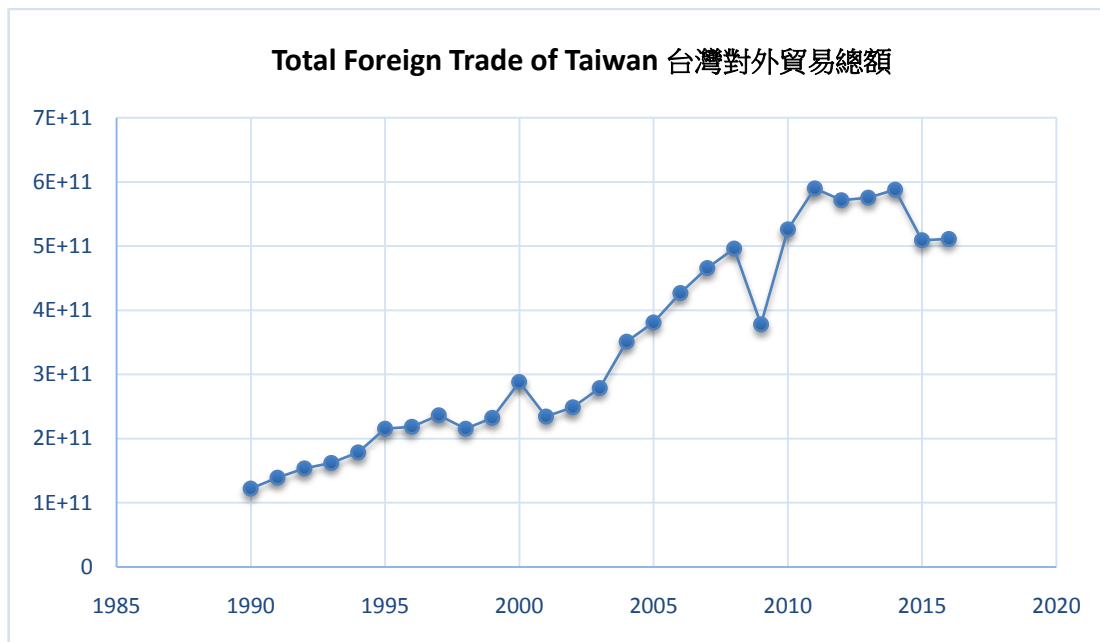Figure 1. Taiwan's Dependence on Bilateral Trade with China

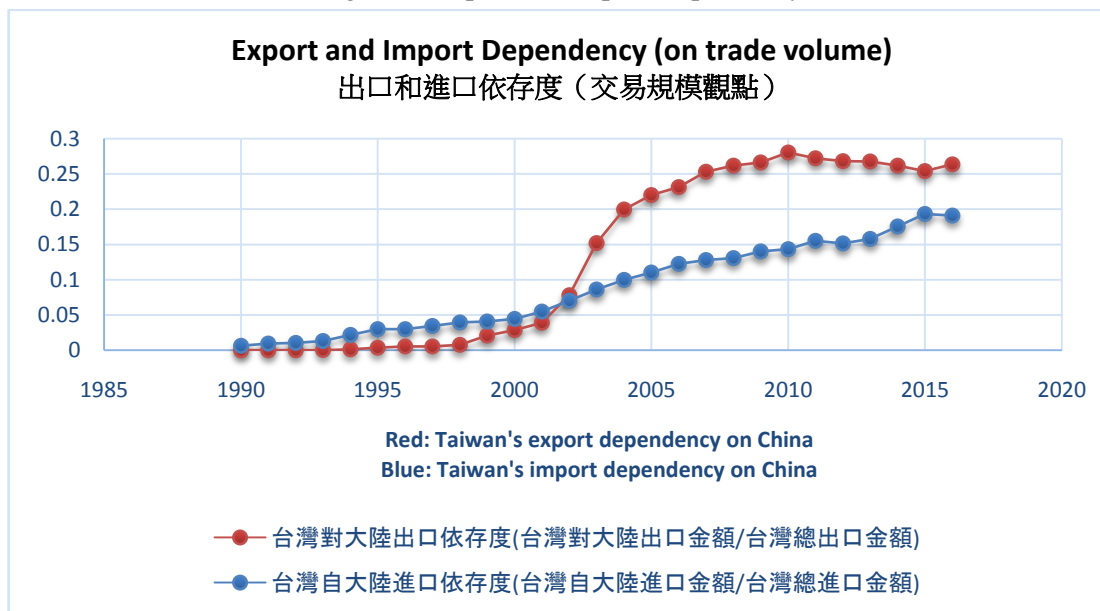**Figure 2. Total Trade between Taiwan and China**
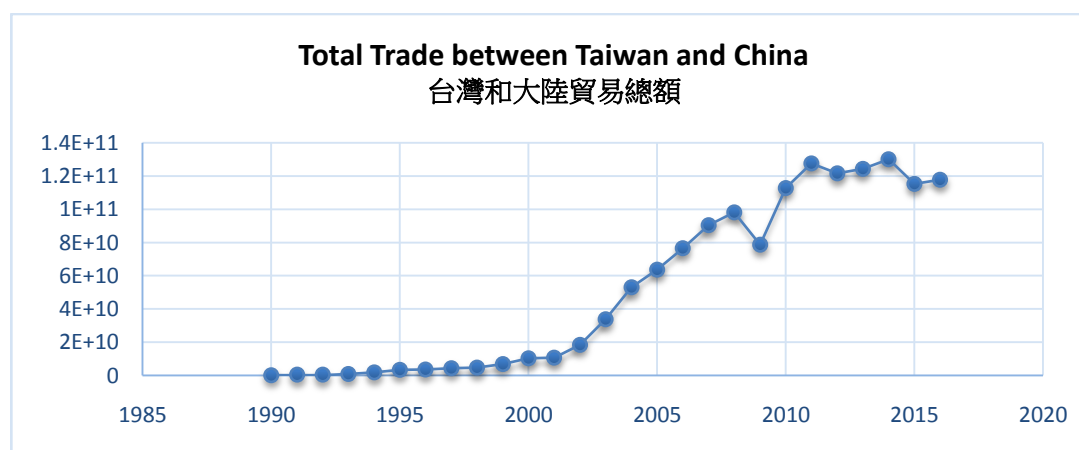
Both the total trade of Taiwan with China and total trade of Taiwan overall (Figure 2 and 3) experienced significant downward movements in 2009. It is estimated that the financial crisis of 2008 in the United States led to worldwide recession and this is reflected in the decreased GDP for both countries. Yet the ratio of the two parameters largely diminished the fluctuation in their own magnitude, as shown in the figures.

Figure 3. Total Foreign Trade of Taiwan

Total Foreign Trade of Taiwan 台灣對外貿易總額

(Units: USD)

Figure 4. Export and Import Dependency

Export and Import Dependency (on trade volume)
出口和進口依存度（交易規模觀點）

Red: Taiwan's export dependency on China
Blue: Taiwan's import dependency on China

台灣對大陸出口依存度(台灣對大陸出口金額/台灣總出口金額)
台灣自大陸進口依存度(台灣自大陸進口金額/台灣總進口金額)

As well, the two parameters (total trade between Taiwan and China, and total foreign trade of Taiwan) have a high correlation coefficient of 0.9828855, demonstrating that the two grow almost in parallel over the years. However, if trade dependency is divided into export dependency and import dependency (Figure 4), we will see that export dependency of Taiwan on China grows at a faster pace than import dependency.

2. Investment Dependency (Transaction volume view)

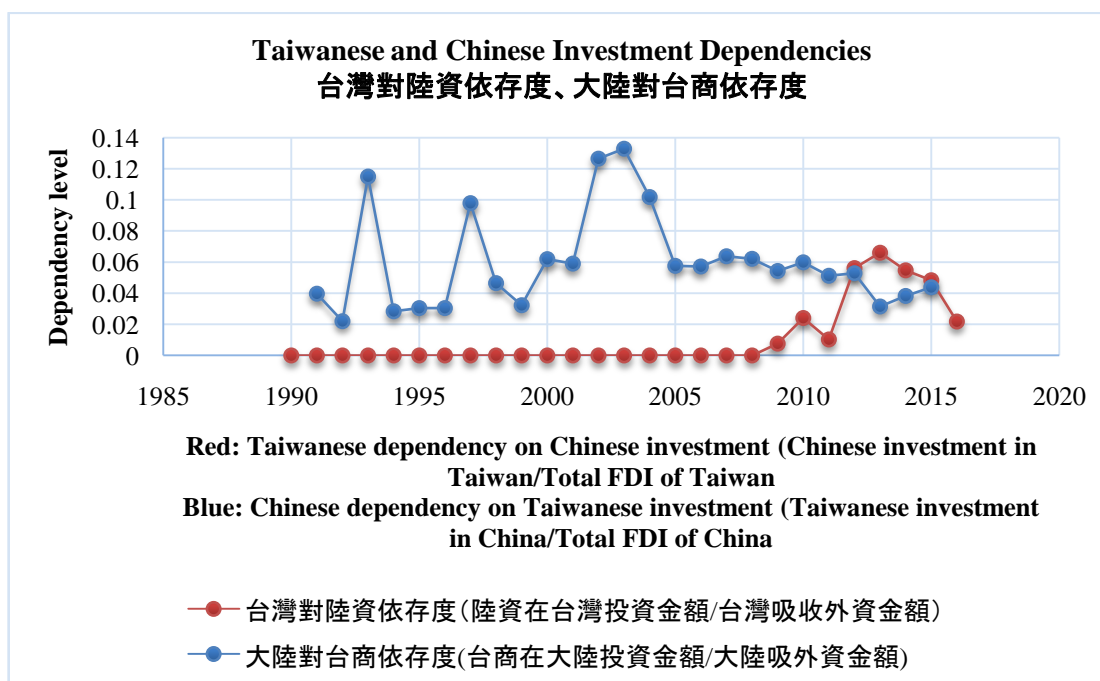Figure 5. Taiwanese investment in China (US dollars)

In investment, even though Taiwanese investment in China and mainland Chinese investment in Taiwan (Figure 5 and Figure 6) both see increases in the long run, but compared with trade, short term fluctuations in investment is much larger and varied tremendously from time to time.

Figure 6. Mainland Chinese investment in Taiwan (USD)

As to the mainland China's dependency on Taiwanese investment, even though the total investment is increasing, the dependency of China on Taiwanese investment over the long term sees no significant growth, especially after 2005, as the dependency fell to the level of that of the 1990's.Even though the investment pool of fund of Taiwan is relatively smaller, yet the dependency of Taiwan on Chinese investment, on average, is less than the dependency of China on Taiwanese investment (Figure 7). (Note that Taiwan only became open to Chinese investment in July of 2009).

Figure 7. Taiwanese and Chinese investment dependencies

Taiwanese and Chinese Investment Dependencies
台灣對陸資依存度、大陸對台商依存度

Red: Taiwanese dependency on Chinese investment (Chinese investment in Taiwan/Total FDI of Taiwan
Blue: Chinese dependency on Taiwanese investment (Taiwanese investment in China/Total FDI of China

──●── 台灣對陸資依存度（陸資在台灣投資金額/台灣吸收外資金額）
──●── 大陸對台商依存度(台商在大陸投資金額/大陸吸外資金額）

After 2005, Chinese dependency on Taiwanese investment saw a drastic decline, as this was the time when mainland China started to absorb large amount of investment from regions or countries other than Taiwan (Figure 8).

Figure 8. FDI in China: from Taiwan and elsewhere. (USD)

FDI in China: from Taiwan and elsewhere
大陸吸收外資金額比較

Blue: Total Taiwanese investment in China
Red: Total FDI in China

──●── 台商在大陸投資金額   ──●── 大陸吸收外資金額
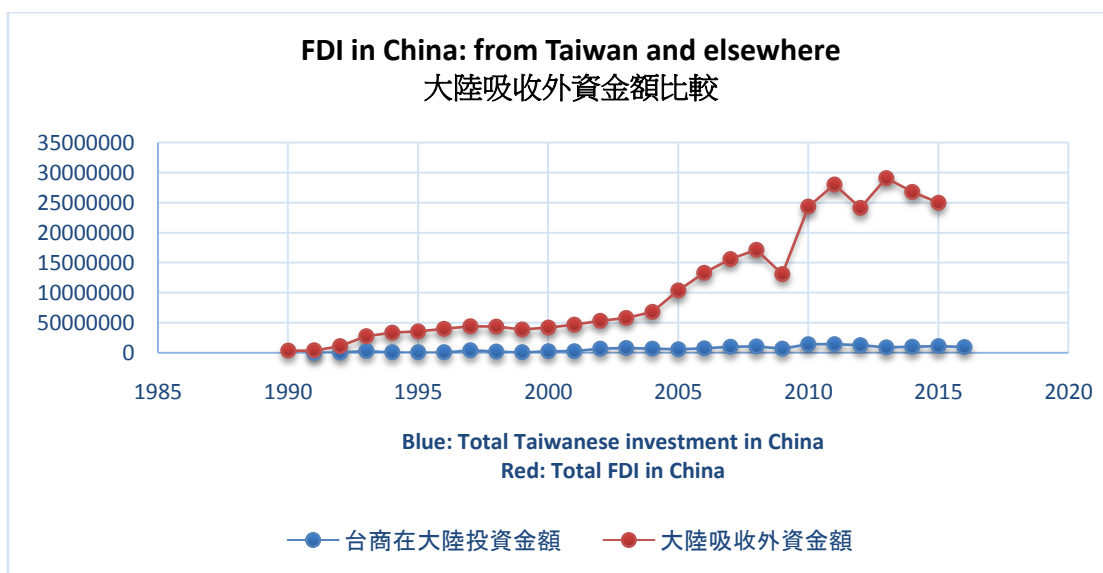
3. Trade Dependency of Taiwan (based on Direct Economic Impact)

The Direct Economic Impact view uses GDP as the denominator in calculating the trade dependencies. For Taiwan, nominal GDP growth over the long term between 1990 and 2015 is generally on the rise, with small-scale downward trends in 1998, 2001, and 2009 (Figure 9).

Figure 9. Nominal GDP of Taiwan (in million USD)

Nominal GDP of Taiwan (in million USD)
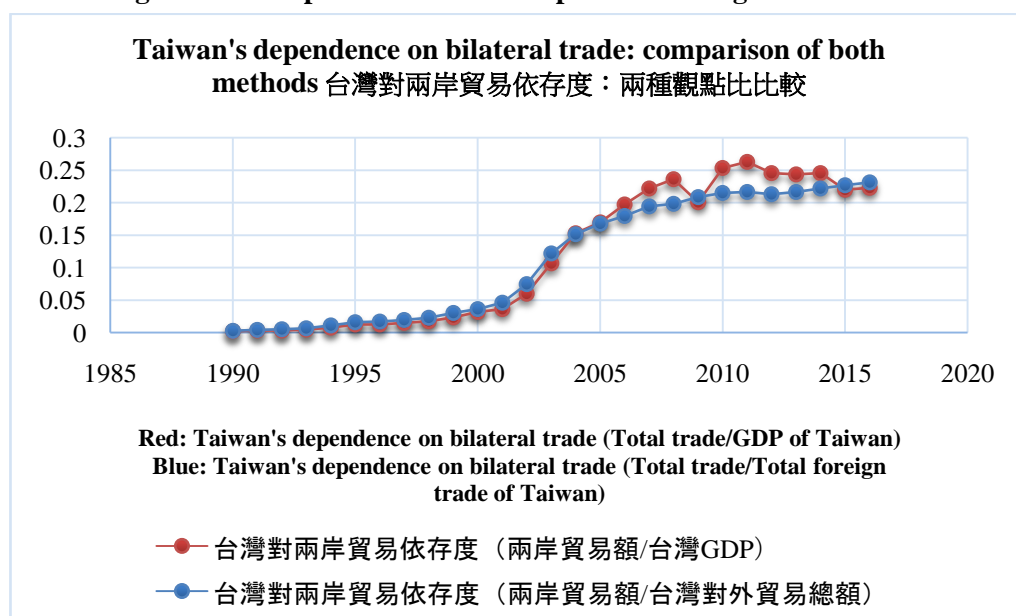**台灣名目GDP（單位：百萬美元）**
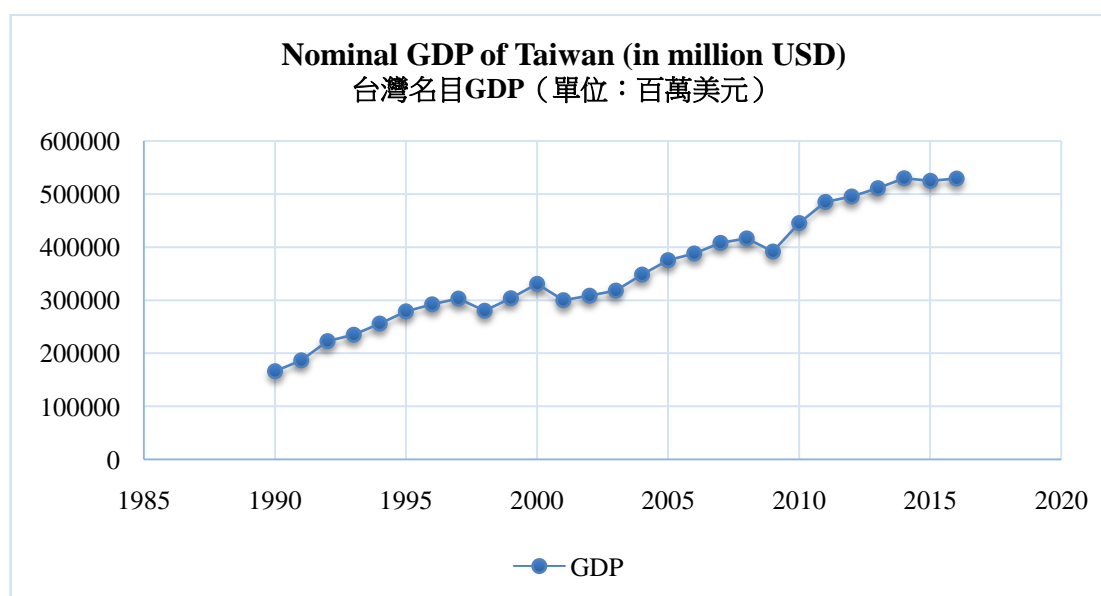
Looking at the direct economic impact, Taiwan's dependency on trade with China presents some interesting trends (Figure 10). Around the period of the aftermath of the financial crisis in 2009, decline in bilateral trade between Taiwan and China saw a steeper rate than the decline of GDP of Taiwan, therefore, the trade dependence decreased significantly.

Figure 10. Taiwan's dependence on bilateral trade.

Taiwan's dependence on bilateral trade
台灣對兩岸貿易依存度（直接經濟效觀點）
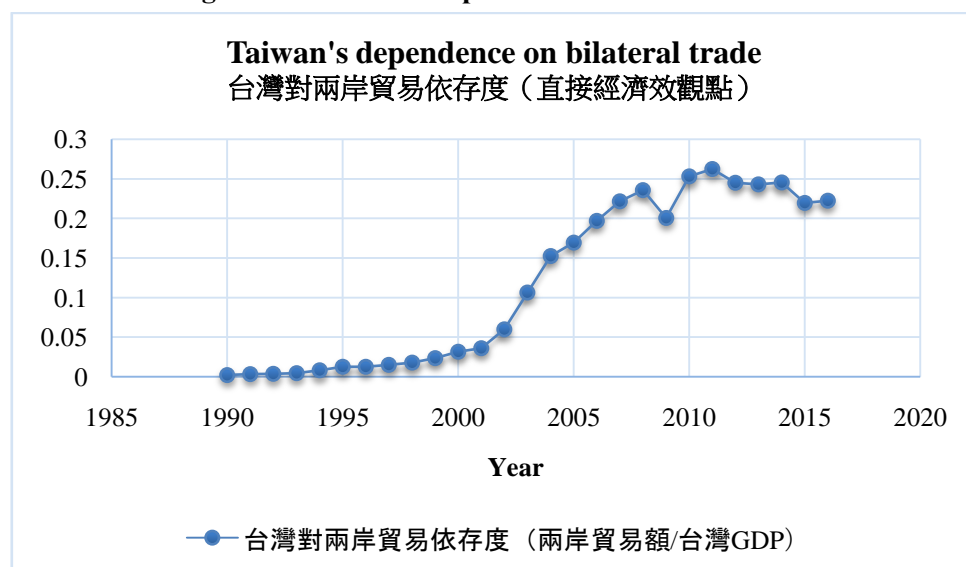
Comparing the two methods of calculating the bilateral trade dependency (Figure 11),it is obvious that the trend is more apparent when GDP is used as the denominator. That is, in 2009, Taiwan's overall foreign trade declined, and the magnitude of the decline roughly equals that of the decline in bilateral trade between Taiwan and China. Taiwan's dependence on bilateral trade, when using two different methods as bases for calculation, yields similar results. In Figure 11, the GDP of Taiwan and total foreign trade of Taiwan are quite close (Table 1). The two do not seem to be having any causal relationship, based on the way they are calculated.

Table 1. Taiwan's Total Trade and GDP (1990-2016)

Year	Taiwan's Total Trade(USD)	GDP(million USD）
1990	121,929,180,127	166,615
1991	139,037,626,044	187,314
1992	153,471,129,436	223,159
1993	162,150,753,782	235,140
1994	178,383,464,497	256,404
1995	215,203,771,718	279,224
1996	218,307,063,978	292,665
1997	236,499,793,289	303,737
1998	215,241,158,169	280,369
1999	232,272,734,338	304,171
2000	288,321,181,753	331,452
2001	234,279,376,023	300,450
2002	248,550,493,475	308,875
2003	278,602,202,715	318,590
2004	351,114,338,847	348,479
2005	381,034,544,003	375,769
2006	426,707,794,911	388,589
2007	465,921,799,289	408,254
2008	496,069,221,607	416,961
2009	378,038,242,624	392,065
2010	525,829,376,825	446,105
2011	589,687,272,874	485,653
2012	571,645,967,108	495,845
2013	575,330,472,707	511,614
2014	587,713,863,075	530,519
2015	508,999,362,766	525,196
2016	510,880,771,912	529,910

Figure 11. Comparison of Trade Dependence using both methods

Taiwan's dependence on bilateral trade: comparison of both methods 台灣對兩岸貿易依存度：兩種觀點比比較

Red: Taiwan's dependence on bilateral trade (Total trade/GDP of Taiwan)
Blue: Taiwan's dependence on bilateral trade (Total trade/Total foreign trade of Taiwan)

台灣對兩岸貿易依存度 （兩岸貿易額/台灣GDP）
台灣對兩岸貿易依存度 （兩岸貿易額/台灣對外貿易總額）

Taiwan's GDP: =Domestic Consumption + Government Spending + Investment + Export - Import
Taiwan's Foreign Trade:=Export + Import

4. Trade Dependency of Mainland China (Direct Economic Impact)

Based on data from the World Bank, GDP of mainland China has been on an accelerated rise since 1990 (Figure 12).While Chinese economy was on the rise between 1990 and 2015, China's dependency on bilateral trade with Taiwan did not increase over the years (Figure 13). Beginning in 2005, the dependency was actually in decline. The result echoes that of downward trend discussed previously with regard to China's dependency on Taiwanese investment.

Figure 12. Nominal GDP of mainland China (million USD)

GDP of Mainland China (million USD)
大陸名目**GDP**（百萬美元）

Figure 13. China's Dependency on Bilateral Trade (direct economic impact)

China's dependency on bilateral trade (direct economic impact)
大陸對兩岸貿易依存度（直接經濟效益觀點）

China's dependency on bilateral trade (total bilateral trade/GDP of China)

⎯⎯⎯ 大陸對兩岸貿易依存度（兩岸貿易額/大陸GDP）

If we compare the trade dependencies of Taiwan and China on the bilateral trade between the two (Figure 14), we will find that Taiwan's dependency is much higher than that of China. In recent years, the bilateral trade between the two countries has approached to about 30% of the GDP of Taiwan.

Figure 14. Comparison of Trade Dependency of Taiwan and China.
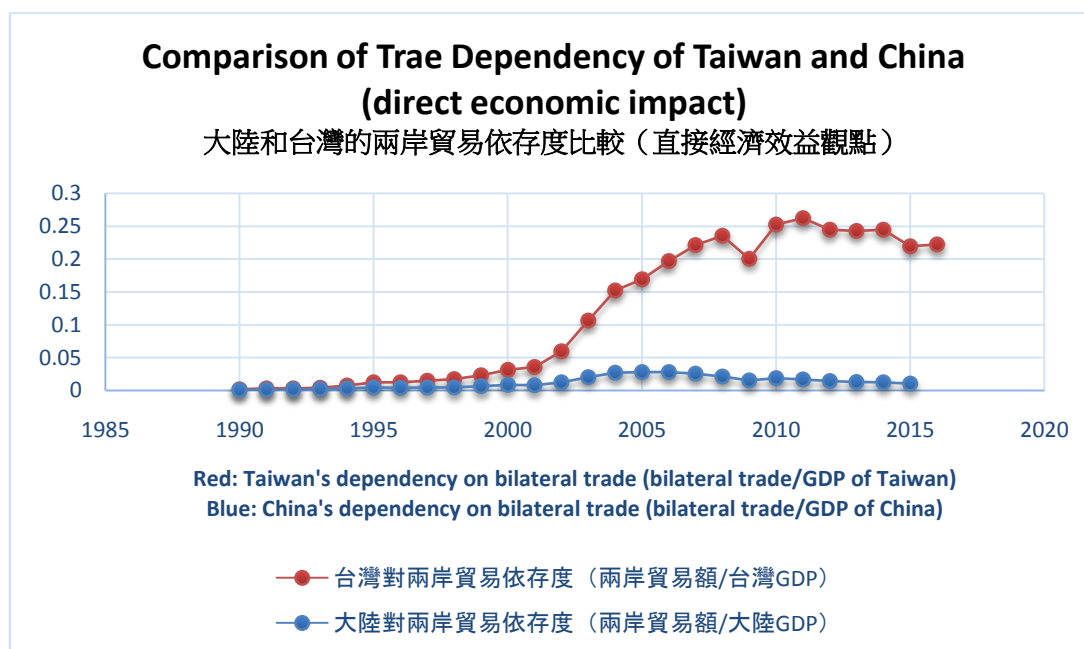
The relative dependency can be calculated by finding the ratios of the trade dependency of the two countries, and based on that calculation; we can see that Taiwan's dependency on bilateral trade is almost 20 times that of mainland China(Figure 15).

**Figure 15. Relative Dependency of Taiwan's Economy on that of China**
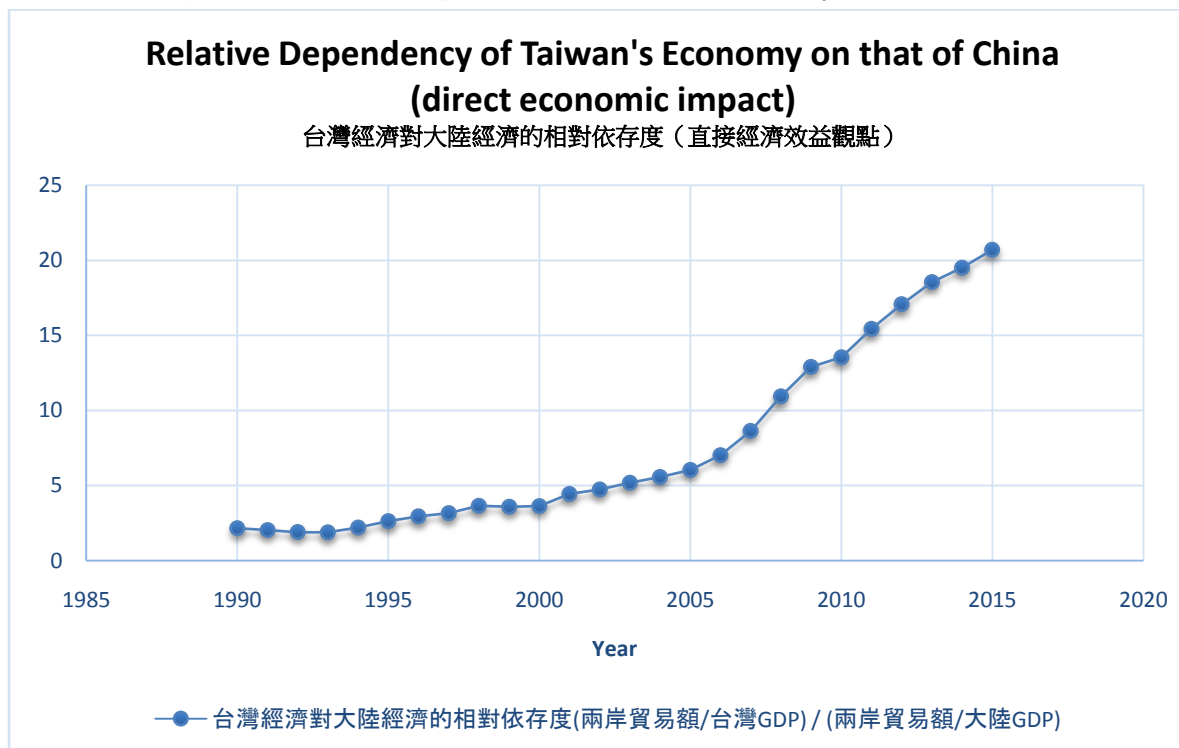
5. Overall Economic Impact

We examine the overall economic impact of bilateral trade on the economies of Taiwan and China by looking into the growth volume and growth rate of the two countries.

Regression coefficients of bilateral trade can be calculated by obtaining the ratios of GDP growth to that of the growth volume of bilateral trade between Taiwan and China (Figure 16).

Figure 16. Regression coefficients of bilateral trade between Taiwan and China
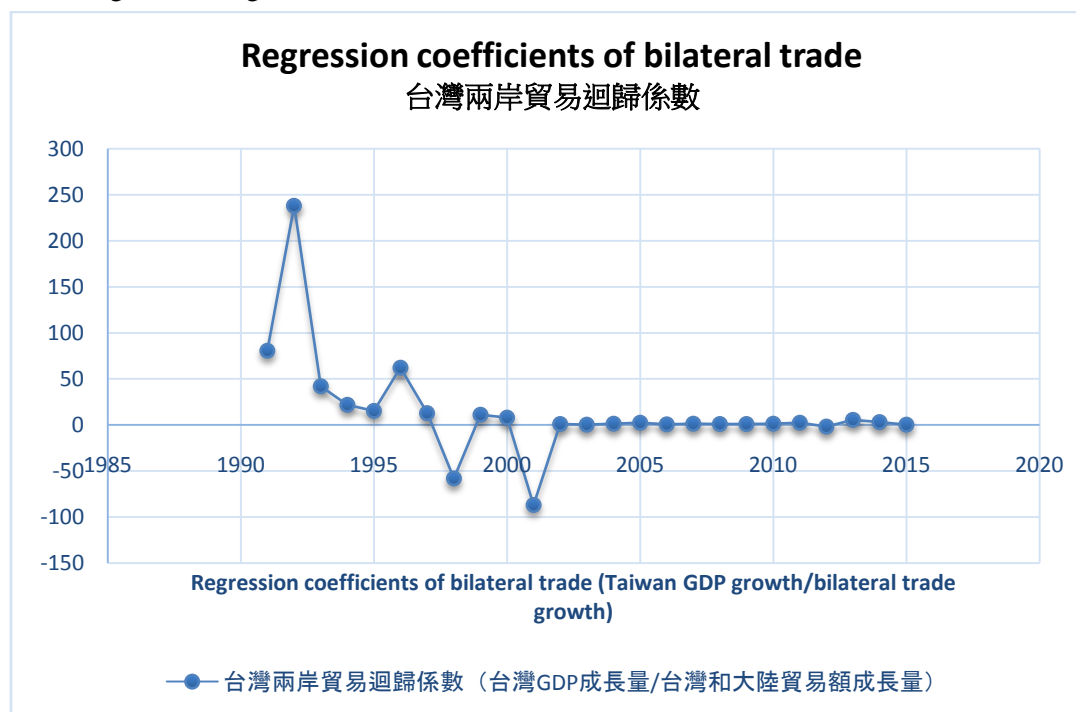
From Figure 16, we can see that the regression coefficients of bilateral trade between Taiwan and China are virtually flat after 2002. The reason for that is, with exception of 1992, 1998, and 2001, growth in volume in Taiwan's GDP and growth in bilateral trade between Taiwan and China are almost directly proportional in their increases, with little fluctuations.

In addition, Taiwan's GDP grew tremendously in 1992, yet the growth in bilateral trade between Taiwan and China did not grow as much, therefore the regression coefficients reached a high point of 238 times (Table 2).

Table 2. Taiwan's GDP Growth (million USD) and Bilateral Trade Growth (USD)

| Year	Taiwan's GDP Growth（million USD）	Bilateral Trade Growth (USD)
1991	20,699	255,944,227
1992	35,845	150,477,775
1993	11,981	283,596,534
1994	21,264	958,602,150
1995	22,820	1,477,549,209
1996	13,441	215,293,860
1997	11,072	858,544,547
1998	-23,368	403,377,522
1999	23,802	2,117,919,660
2000	27,281	3,377,547,757
2001	-31,002	357,536,052
2002	8,425	7,696,956,037
2003	9,715	15,412,751,747
2004	29,889	19,232,777,524
2005	27,290	10,595,846,594
2006	12,820	12,854,095,590
2007	19,665	13,840,022,320
2008	8,707	7,842,971,108
2009	-24,896	-19,602,733,832
2010	54,040	34,208,889,969
2011	39,548	14,675,523,544
2012	10,192	-5,933,991,100
2013	15,769	2,754,870,853
2014	18,905	5,782,162,073
2015	-5,323	-14,765,788,482

In 1998 and 2001, however, the GDP of Taiwan decreased while the bilateral trade increased, so the coefficients turned to become negative during that time (Figure 17).

Figure 17. Mainland China Trade Regression Coefficient
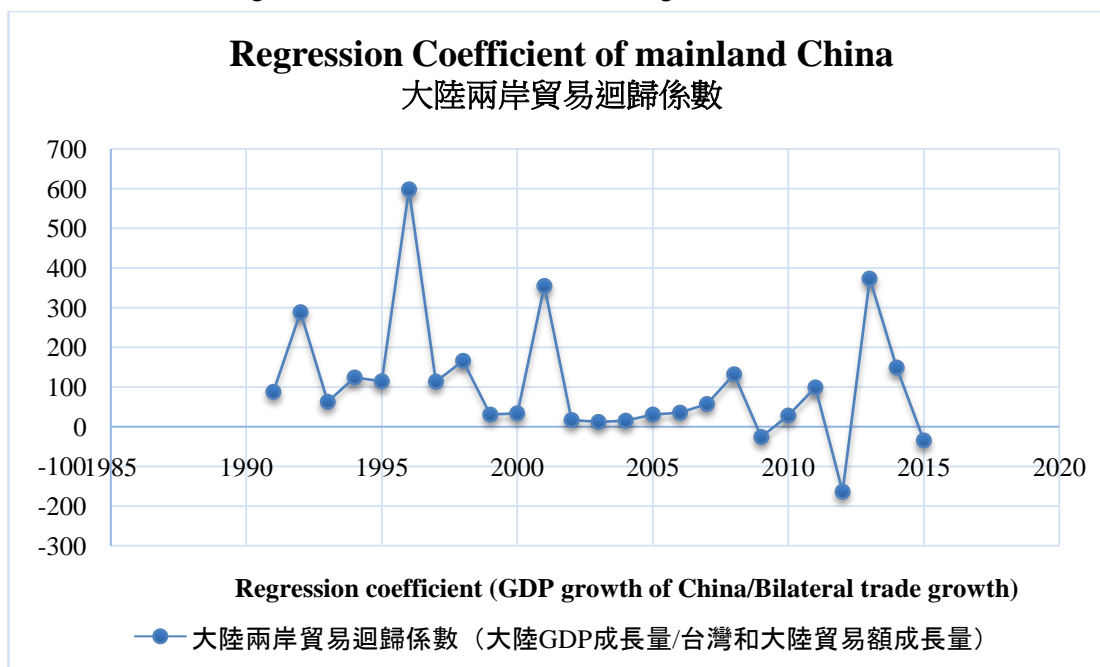
If we compare the regression coefficients of bilateral trade of both sides, we will find that fluctuation is larger on the Chinese side, probably because China's GDP, as the denominator, often experiences larger and unnatural growth volumes (Figure 18).

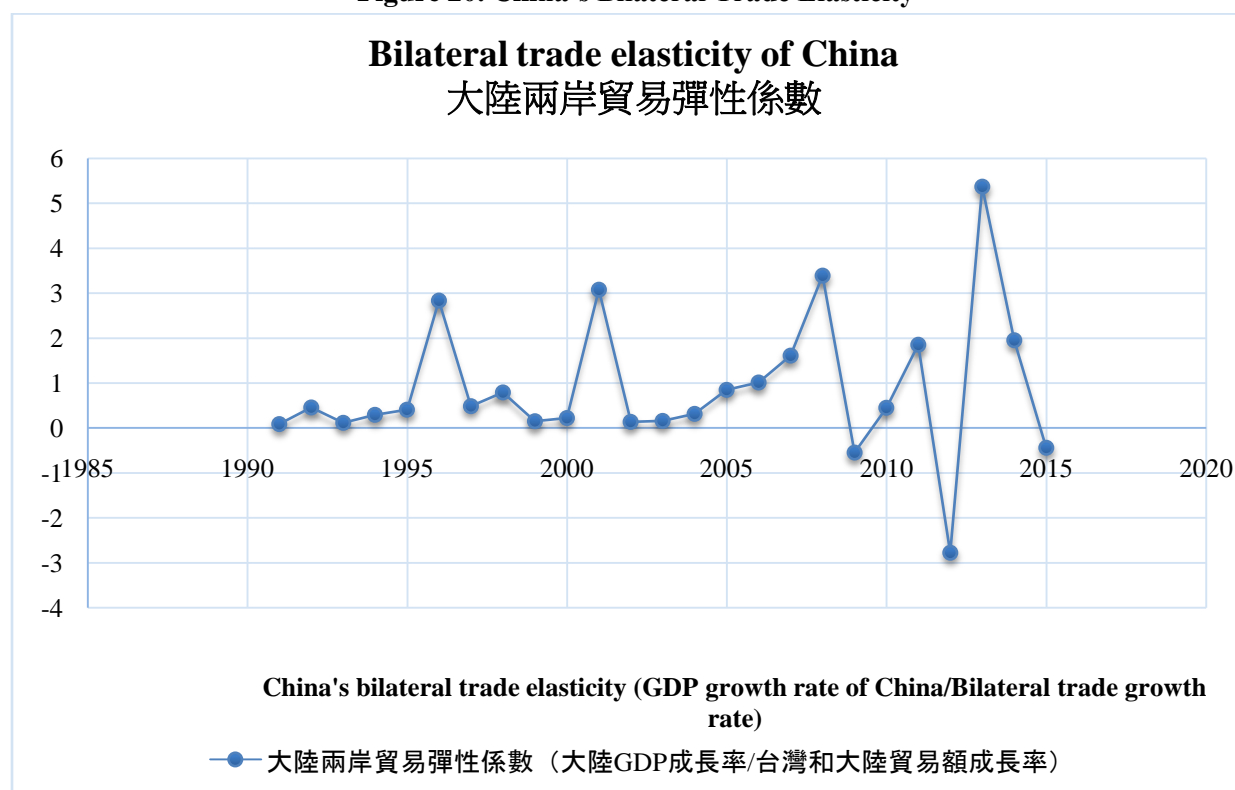**Figure 18. Comparison of Regression Coefficients of Taiwan and China**
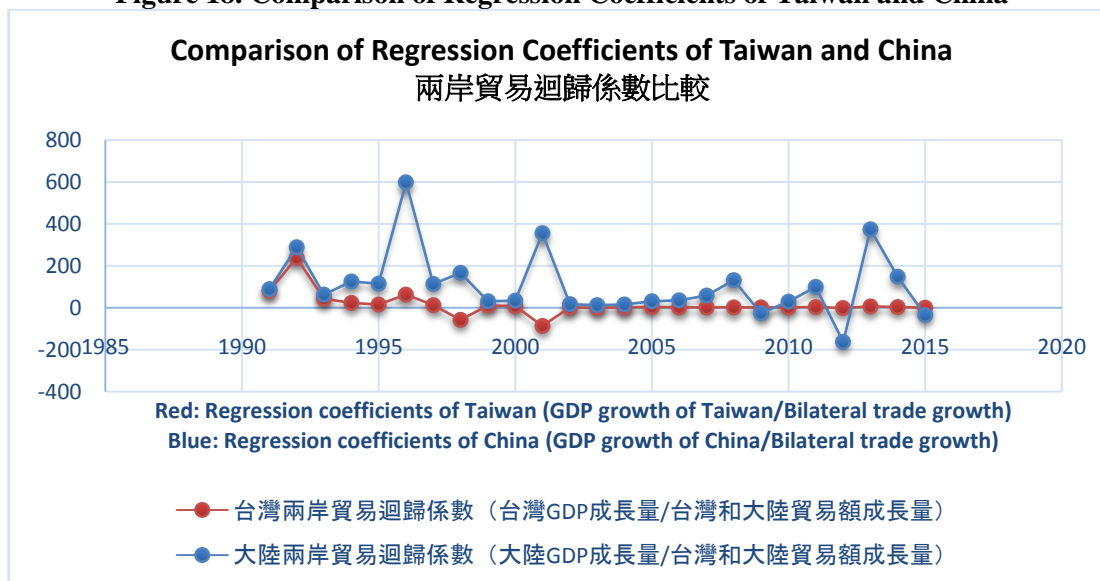
We further examined the trade elasticity by calculating the ratio between GDP growth rate and bilateral trade growth rate, and found the following trends (Figures 19 and 20).
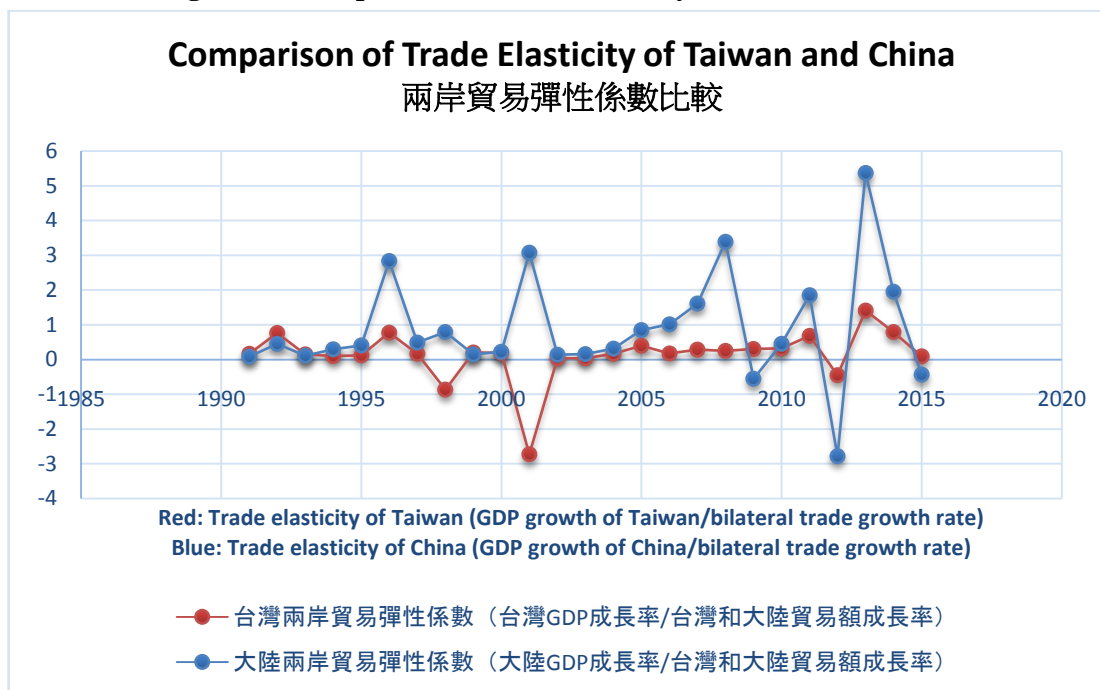
Figure 19. Taiwan's Bilateral Trade Elasticity

Bilateral trade elasticity of Taiwan
台灣兩岸貿易彈性係數

Taiwan's bilateral trade elasticity (GDP growth rate of Taiwan/Bilateral trade growth rate)

━●━ 台灣兩岸貿易彈性係數（台灣GDP成長率/台灣和大陸貿易額成長率）

Figure 20. China's Bilateral Trade Elasticity

Bilateral trade elasticity of China
大陸兩岸貿易彈性係數

China's bilateral trade elasticity (GDP growth rate of China/Bilateral trade growth rate)

━●━ 大陸兩岸貿易彈性係數（大陸GDP成長率/台灣和大陸貿易額成長率）

If we compare the relative trends about trades in both countries (Figure 21), bilateral trade regression coefficients and bilateral trade elasticity have similar meaning in the economies, one is a measure of the amount of growth, and the other is a measure of the rate of growth. The trends in the extreme values (peaks or valleys) in the charts are showing similar tendencies as well.

Figure 21. Comparison of Trade Elasticity of Taiwan and China

Comparison of Trade Elasticity of Taiwan and China
兩岸貿易彈性係數比較

Red: Trade elasticity of Taiwan (GDP growth of Taiwan/bilateral trade growth rate)
Blue: Trade elasticity of China (GDP growth of China/bilateral trade growth rate)

台灣兩岸貿易彈性係數（台灣GDP成長率/台灣和大陸貿易額成長率）
大陸兩岸貿易彈性係數（大陸GDP成長率/台灣和大陸貿易額成長率）

Bilateral trade elasticity is based on previous year's economic output, so it may be a better indicator of the actual changes in trade. Therefore, trade elasticity is preferred in this study. Figure 21 shows a comparison of trade elasticity of Taiwan and China. In economics, cross elasticity measures the responsiveness of the growth rate of one entity (Taiwan or China's GDP growth rate) to a change in the growth rate of another entity (bilateral trade growth rate), ceteris paribus. In this case, it measures the rate of change of GDP of Taiwan or China in response to a 1% change in the rate of change in the growth rate of bilateral trade between the two. It can be seen that Taiwan and China often times go their separate ways with regard to cross strait trade elasticity, their GDP growth is not much related to the growth in their bilateral trade, or, bilateral trade seems not contributing synchronously to their economic growth.

As well, we calculated the correlation coefficient of trade elasticity of Taiwan and trade elasticity of China, and the correlation is quite low (at 0.144844984). In 1998 and 2001, the correlation were negative, indicating an opposite trends in their respective growth or decline of the two economies.

6. Cross-strait Overall Trade Dependence

Based on the sum of total Taiwanese investment in China and total Chinese investment in Taiwan, mutual investment by both sides of Taiwan Strait can be calculated, and hence the growth rate of the mutual and total investments on each other by the two countries (Table 3).

Table 3. Bilateral investment volume and investment growth rate

Year	Total mutual investment (000'USD)	Total investment growth rate
1990	0	0
1991	174,158	1
1992	246,992	0.294884045
1993	3,168,411	0.922045467
1994	962,209	-2.292851137
1995	1,092,713	0.119431177
1996	1,229,241	0.11106691
1997	4,334,313	0.716393117
1998	2,034,621	-1.130280283
1999	1,252,780	-0.624084835
2000	2,607,142	0.519481486
2001	2,784,147	0.063576025
2002	6,723,058	0.58588086
2003	7,698,784	0.126737677
2004	6,940,663	-0.109228902
2005	6,006,953	-0.155438206
2006	7,642,335	0.213989834
2007	9,970,545	0.2335088
2008	10,691,390	0.067422945
2009	7,180,079	-0.489035148
2010	14,712,217	0.511964852
2011	14,428,249	-0.01968139
2012	13,123,660	-0.099407406
2013	9,539,569	-0.375707854
2014	10,611,201	0.100990642
2015	11,209,552	0.053378672
2016	9,918,360	-0.130182006

In this study, we have designed a new measure of the integrated dependency across Taiwan Strait and the rate of growth of interdependency between the two countries based on data from both bilateral trade and bilateral, mutual investments. The new measure is termed Integrated Bilateral Growth Rate of Interdependency or IBGRI for short.

Integrated Bilateral Growth Rate of Interdependency (IBGRI):

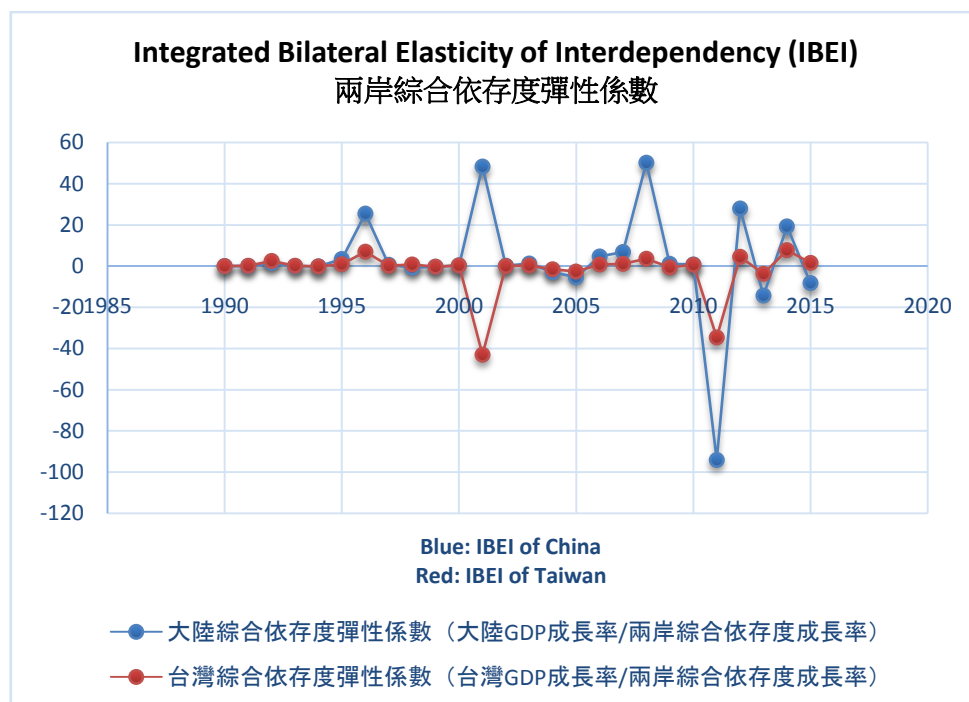IBGRI = Bilateral Trade Growth Rate*Bilateral Investment Growth Rate

Figure 22. Integrated Bilateral Growth Rate of Interdependency (IBGRI)

Finally, in this study, we extend beyond the model of Wang et al. (2013)of bilateral trade elasticity index and modified the formula by replacing the denominator of bilateral trade growth rate with Integrated Bilateral Growth Rate of Interdependency (Figure 22), so as to gauge and estimate, respectively, the elasticities of integrated bilateral growth rate of interdependency on China and Taiwan.

This new measure seems to be able to better explicate the intricate nature of the trade relations and interdependencies of China and Taiwan, given the complex nature of geopolitical factors affecting the two governments across the Taiwan Strait (Figure 23).

Figure 23. Integrated Bilateral Elasticity of Interdependency (IBEI)

Since the Integrated Bilateral Interdependency comprises both the bilateral trade growth rate and bilateral investment growth rate, and the two are not always moving in the same direction. For example, even though bilateral investment on each other reduced by a large margin, yet the bilateral trade volume increased tremendously. Therefore, the integrated bilateral elasticity of interdependency is better used as a way to observe the degree of drastic changes in bilateral trade, and not a good measure of the absolute trend, either positive or negative in bilateral trade relations.

Integrated Bilateral Elasticity of Interdependency (IBEI):

IBEI = GDP growth rate/growth rate of integrated bilateral interdependency

Based on our analysis, Taiwan's elasticity index on integrated bilateral trade interdependency fluctuates smaller, indicating that the GDP of Taiwan is more susceptible to the variations, restrictions, and impacts of the integrated interdependency than the GDP of China is. Therefore, based on our analyses, we can tentatively conclude that, in general, Taiwan suffers from a higher level of dependency (inan integrated manner) on the trade relationship between the two entities across Taiwan Strait (Figure 23).

Conclusions

In this study, we have found that Taiwan's dependency on bilateral trade with China has grown from less than 1% in 1990 to 23% in 2015, and this dependency on export trade is even more significant, at approaching 30%. On the other hand, China's dependency on bilateral trade with Taiwan has not seen much growth over the years, and saw a decline since 2005, and the dependency dropped to about only 1% in 2015. In another word, Taiwan's level of dependency on bilateral trade between China and Taiwan is almost 20 times that of China. We have also measured in this study the interdependency on mutual investment. China's dependency on Taiwanese investment in 2005 has decreased to the level of the 1990's, and this result is the same as China's dependency on bilateral trade, both have a downward trend. The reason for that is not a decrease in Taiwanese investment in China, but because China has started to attract investment from other regions of the world.

On the part of Taiwan, even though the overall capital pool of Taiwan is relatively small, but Taiwan's dependency on Chinese investment is, on average, not as much as China's dependency on investment by Taiwanese businesses. We have also measured the trade elasticities of both China and Taiwan. We measured the situation of how much would the GDP of Taiwan or China change in accordance with changes in the growth rates of trade between China and Taiwan. Our results indicate that the bilateral trade elasticities of Taiwan and China have a correlation coefficients of 0.14; and, if we observe the peaks of the function curve, we find that even though the peak indexes could point at the same directions from time to time, they could be in the opposite directions as well (such as in 2001). Therefore, it is not feasible for us to conclude that the cross elasticity of Taiwan and China could have any positive or negative correlations, let alone any causal relationships.

In addition, Taiwan's elasticity on integrated bilateral interdependency fluctuates relatively smaller, therefore it is concluded that overall, Taiwan's dependency on integrated bilateral trade and economic relations is relatively higher than that of China.

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