WTO 與新經濟
——對台澳雙邊關係的衝擊

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中文摘要

本文主旨在探討 E-經濟相當成功的國家與地區的特徵暨基礎建設，所採用的是跨領域的宏觀經濟與政策問題的研究方法。新經濟顛覆了傳統的經濟理論。例如實物賣出後，出售者將不再擁有該實物，而賣出一項觀念，賣方仍可享有所有權，且可一而再，再而三地再賣出。知識被使用，但不會用盡。這與二百年前亞當史密斯所描述的以資源有限爲基調的市場體系大相逕庭。傳統經濟理論假設由於大多數的工業在某一點會因單位成本增加而出現「報酬遞減（diminishing returns）」的效應，所以沒有一家公司可以壟斷市場。然而不斷增加的資訊產品（如軟體、書、電影、金融服務與網站）事實上已增加了報酬的回收。資訊產品的產出成本昂貴，但是複製則極爲低廉。

WTO 與網際網路所帶動的新經濟將會相輔相成，使國家間的貿易與合作提升到另一個新境界。WTO 促進自由貿易，而網際網路則提供在一個較少摩擦的 WTO 環境下進一步推動貿易所

需的基礎建設。雖然網際網路有助發展，但並非成長的萬靈丹。開放市場、打破通訊壟斷以及改善教育也都是重要變數。再者，事實上資訊科技（information technology，簡稱 IT）與全球化（globalization）關係密切。由於 IT 降低資訊與傳播的成本，所以 IT 有助於生產與資本市場的全球化。而全球化擴大了 IT 的經濟利益。因此，在資訊經濟裡政府的最重要角色或許是保持市場的開放，確保 IT 所提供的機會能獲得充分利用。自全球化倒退將會重創新經濟。此外，政府可扮演的另一個角色是鼓勵創新。

最後，作者從 co-opetition、clusters 與 virtual clusters 三個模式來分析國家間的合作性競爭及其對澳台雙邊關係的適用性。作者建議兩國政府應共同努力發展出一個良好的產品貿易窗口，並點出生物科技、紅酒、運動員訓練與教育等四項產業是兩國的最佳合作機會。而在新經濟與 WTO 的時代，作者以爲我國欲從強化澳台雙邊關係獲利就必須進一步發展我們的實力，並在實力的基礎下與澳洲合作使相互利益得以極大化。

The WTO and New Economy: How Are They Reforming Taiwan-Australian Bilateral Relations

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Abstract

In this paper, we study the characteristics and infrastructures of countries/regions that are relatively successful in the e-economy, by applying an interdisciplinary approach to macroeconomic and policy issues that separate the winners from the losers in the global competition among the riders of the e-wave. We also study and analyze the key issues in the formation of mutually beneficial alliances between countries. When we consider the point that more countries/regions are expected to join the WTO by the end of the year 2000, which should accelerate the opening of the doors for trade and the boosting of competition in all industries, the issues become even more complicated. How can two countries/regions benefit from their interaction in the era of the Internet? In this paper, we build a model of co-opetition (co-operation and competition, or collaborative competition) between countries/regions that show certain key complementarities and/or synergies. We use Australia and Taiwan to illustrate the points in our model. We also provide critical reviews of interdisciplinary literature, and form key hypotheses and observations

by applying economic theory, case studies and country/region reports. The idea of applying syndication in education, co-opetition between countries and the virtual cluster concepts are original and are being further developed.

(0) What Is New in "The New Economy"?

Compared to the period from 1973 to 1995, the American economy has turned in a remarkable record for the last four and a half years. Productivity gains, investment rates, and real wage growth are all higher; unemployment and inflation are lower; and the expansion has now set an all-time U.S. endurance record. Increasing confidence that the future of the real economy will look more like the last four years than the preceding 22 years has led more analysts and even economists to accept the media label, 'The New Economy." Although slowdowns and recessions will occur at some point, the economy's trajectory appears to have shifted upward.

The information technology sector has played a critical role in the economic success of recent years. Businesses across the economy have been investing heavily in IT hardware and software to harness the potential created by falling prices and by the increasing capacities of computer processing, storage media and communications links. Business strategies and even the structures of companies and industries are being transformed as communication within companies and among the members of corporate alliances occurs more rapidly, with more customized information, and with greater security, interactivity, and timeliness than before. The most important aspect of the new economy is not the shift to high-tech industries, but the way that IT will improve the efficiency of all parts of the economy, especially old-economy firms.

-- Digital 2000, United States Department of Commerce

(0.1) Characteristics of Knowledge and Information Products

Economists have a problem with knowledge because it seems to defy the basic economic law of scarcity. If a physical object, such as a computer, is sold, the seller ceases to own it. But when an idea is sold, the seller still possesses it and can sell it over and over again. However much knowledge is used, it does not get used up. Yet the market system as described by Adam Smith 200 years ago was based on the notion of scarcity, including a cost structure in which it is more expensive to produce two of anything than one.

Traditional economic theory assumes that most industries run into "diminishing returns" at some point because unit costs start to rise, so no one firm can corner the market. But an increasing number of information products (anything that can be transformed into a string of zeros and ones), such as software, books, movies, financial services and web sites, have 'increasing returns". Information is expensive to produce, but cheap to reproduce. High fixed costs and negligible variable costs give these industries vast potential economies of scale. A new software program might cost millions of dollars to develop, but each extra copy costs next to nothing to make, especially if it is distributed over the Internet.

(0.2) Sensitivity of Productivity to Trade; Sensitivity of Productivity to E-commerce

Economic studies suggest that a one-percentage-point increase in trade as a share of GDP boosts the level of productivity by 0.5-2%. Making the brave assumption that opening up an economy to e-commerce will give a similar spur to productivity, and adding in the direct cost savings from procurement, forecasters estimate that over time, the Internet will boost the level of GDP by amounts ranging from 5% in Indonesia to an impressive 12% in Singapore. This gain

will be spread over a couple of decades, so annual growth rates might increase by between 0.2% and 0.8% over the next ten years.

(1) WTO and the New Economy

Many more economies are now part of the global market, and economies and multinationals are much more interconnected. A personal digital assistant (PDA) might be designed in London and made in China from parts produced in Canada, America and Sweden, on the orders of a headquarters in Finland.

WTO and the Internet-propelled New Economy will reinforce each other and push the trade and cooperation among countries to another frontier. WTO facilitates the free trade and Internet provides the needed infrastructure to further boost trade in a less frictional WTO environment. The Internet is itself a catalyst for change, by exposing restrictive rules and helping to remove barriers to trade. However, although the Internet will assist development, it is not a magic drug for growth. Opening markets, breaking up telecommunication monopolies and improving education are all important concerns.

(1.1) Information Technology and Globalization

In reality IT and globalization are closely related. By reducing the cost of information and communication, IT has helped to globalize production and capital markets. In turn, globalization amplifies the economic gains from IT. Perhaps the most important role of governments in the information economy, therefore, is to keep markets open. A retreat from globalization would seriously hurt the new economy, which needs the free flow of trade and capital to maximize the benefits of IT. Thanks to IT, information is also much more global than it was a century ago. As consumers find out more about products available abroad, and discover the benefits of being

part of the global economy, political pressure to open borders to trade is likely to intensify.

The information-technology revolution has barely begun, but it is spreading fast. A century ago, technological innovations took decades to make their way around the world. Today, developing countries have almost immediate access to new knowledge, and the faster pace of diffusion of technology is itself boosting global growth.

(1.2) Information Technology on Inflation, Unemployment and Competition

The IT revolution is affecting everyone's life. The advances and spread of IT are part of the reason why the United States now has the lowest unemployment rate and fastest growth in real wages in three decades, and the longest expansion on record. Consumers are making a small but increasing amount of their purchases online and using the Internet to make more informed purchases offline. IT is also transforming the way most firms operate. As employers substitute IT for labor, workers have to develop new skills.

Broadly speaking, the Internet reduces barriers to entry, because it is cheaper to set up a business online than to open a traditional shop or office. The Internet also makes it easier for consumers to compare prices. Both these factors increase competition. It does not matter if only a small fraction of goods is being sold online so far; traditional firms will still find it harder to push up prices. More-intense-than-ever retailing price competition has very recently forced US consumer electronics and office equipment chain stores to drop their "matching competitors' price with another 55% price difference refund" policy.

The Internet infrastructure somehow makes labor force a mobile production factor. A good example is the aggressive outsourcing of programming to Indian software engineers and programmers by many Silicon Valley companies. Due to immigration constraints, even when US companies are facing severe shortage of programmers, well-trained Indian programmers cannot all be given work permits to work in the US. The second best solution is outsourcing the required work to the labor force in India. By doing so, US companies can obtain the needed talent, save cost, and gain time. Why didn't they target the equally well-trained Chinese programmers? Language may be the reason!

Many people believe that the Internet makes a central barker's job easier by helping to hold down prices (maybe that's why Mr. Greenspan is paid a comparatively modest salary of $140,000 a year). But initially, the IT revolution may actually increase inflationary pressures, as shown in Figure 1 below. In the long term, IT will shift the economy's aggregate supply curve from S_1 to S_2, but this will only happen gradually. Meanwhile, investors will anticipate faster future growth in output and profits, pushing up share prices. This will boost households' wealth (unrealized wealth if stocks are not sold) and encourage them to spend more, even before the increase in supply has materialized. As a result, the demand curve will shift to the right, from D_1 to D_2, pushing up the price level to P^*. The risk is that if the increase in demand outstrips the increase in supply, inflation will rise unless the central bank raises interest rates. This could be a description of what is happening in America today, as hinted by Mr. Greenspan in a speech earlier this year.

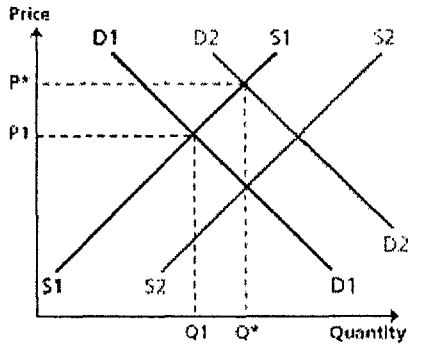

Figure 1: Web of intrigue - Aggregate supply and demand
(Source: "Bubble.com"in the Economist's New Economy Survey)

(1.3) B2B E-commerce and Cost Reduction

From an economic point of view, the biggest impact on cost will come from business-to-business (B2B) e-commerce, or the electronic linking of buyers and sellers along the supply chain. Some forecasts show that global B2B e-commerce will reach $4 trillion by 2003, compared with less than $400 billion of online sales to consumers.

B2B e-commerce can cut firms' costs in several ways. First, it reduces procurement costs, both by making it easier to find the cheapest supplier and through efficiency gains. It is much cheaper to place an order online, and there are likely to be fewer errors in orders and invoicing. A second possible saving is from much lower distribution costs for goods and services that can be delivered electronically, such as financial services, software and music. And lastly, better information reduces the need for firms to keep large stocks. For example, Dell Computer's build-to-order model completely eliminates inventories, and is being widely copied.

(1.4) Side Effects of IT - Unusually High Stock Prices

At a recent White House Conference on the New Economy, Yale economist William Nordhaus concluded that the IT revolution has generated a new economy in productivity terms, but he was worried that unrealistically high stock prices were damaging on several fronts: national saving, management decisions, compensation structures, and job choices. Robert Shiller, an economist at Yale University, tracked the P/E ratio of America's S&P 500 over 120 years, a period that covers huge technological change: America's railway boom, electricity, telephones, radio and cars. With each wave of technology, share prices soared and later fell. Disturbingly, though, prices now are higher in relation to profits than they have ever been before (see Figure 2 below).

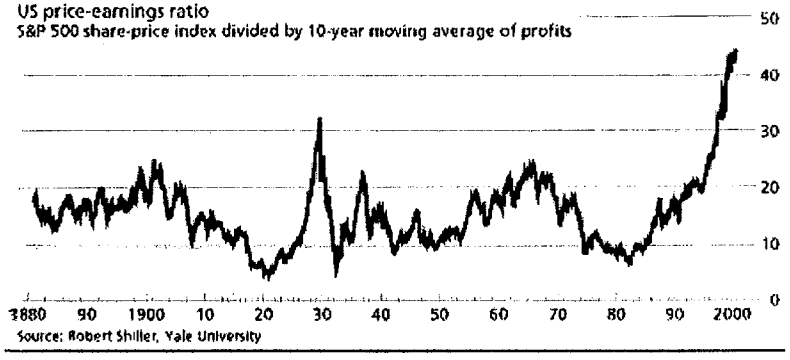

Figure 2: Irrational exuberance
(Source: "Bubble.com" in the Economist's New Economy Survey)

(1.5) Second Movers Advantage: Catch Up, Don's Give Up

Europe and Japan do not need to create cutting-edge technology to close the productivity gap with America. They can make their economies more productive simply by adopting or imitating American

technology and B2B e-commerce. For all the talk about first-mover advantage, there are actually several advantages to being a follower. Catching up is much cheaper than trailblazing. A Japanese or European firm buying IT equipment today will pay much less than it would have had to a few years ago, thanks to falling computer prices. For example, in 1993 American firms invested $143 billion in IT, but the same level of computer processing power could now be had for perhaps $15 billion. Second-movers are also able to wait and see what works. They can cherry-pick the best bits and avoid the mistakes of American firms. 'The early bird may catch the worm, but it is always the second mouse that gets the cheese."

In 1997, New Zealand, Sweden, Australia, United States, and Switzerland are the top five in the world in terms of IT spending (consisting of IT hardware, IT services and software, and Telecommunications, computed as a percentage of GDP.

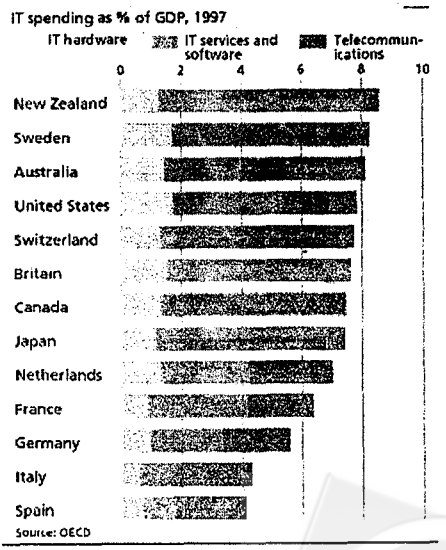

Figure 3: Which countries get IT?
(Source: 'Catch up if you can" in the Economist's New Economy Survey)

(1.6) Governments' Role in Sustaining IT Advantage

It is true that IT brings the economy closer to the microeconomic model of perfect competition, but governments still retain an important role in ensuring that the opportunities offered by IT are fully exploited. Well-functioning markets for labor, products and capital are important, but on their own they are not enough. Investment in education, too, will be crucial, to ensure that the workforce is equipped for the information economy. Governments also have a role to play in encouraging innovation. Studies suggest that the social return from R&D is at least twice as big as the private return because of spillover benefits to other firms. Companies may invest too little in research because they are unable to capture all the benefits, which suggests there is a case for government support for R&D, especially basic science research. The Internet may now be synonymous with free markets, but in the beginning it was itself the product of government funding. Yet government tax credits and research grants for R&D may not be enough.

As mentioned earlier, the most important role of governments in the information economy is perhaps to keep markets open. By reducing the cost of information and communication, IT has helped to globalize production and capital markets. Inturn, globalization amplifies the economic gains from IT. A retreat from globalization would seriously hurt the new economy, which needs the free flow of trade and capital to maximize the benefits of IT

(2) Australia in the New Economy

(2.1) Australia's Economy - An Overview

Australia has a prosperous Western-style capitalist economy, with a per capita GDP at the level of the four dominant West European economies. Rich in natural resources, Australia is a major

exporter of agricultural products, minerals, metals, and fossil fuels. Commodities account for 57% of the value of total exports, such that a downturn in world commodity prices can have a big impact on the economy. The government is pushing for increased exports of manufactured goods, but competition in international markets continues to be severe. While Australia has suffered from the low growth and high unemployment characterizing the OECD countries in the early 1 990s and during the recent financial problems in East Asia, the economy has expanded at a solid 4% annual growth pace in the last five years. Canberra's emphasis on reforms is a key factor behind the economy's resilience to the regional crisis and its stronger than expected growth rate. Growth in 2000 will depend on key international commodity prices, the extent of recovery in the nearby Asian economies, and the strength of US and European markets.

Comparing with the achievement of US, there is evidence that Australia has also experienced the 'New Economy"-

	Australia	Taiwan	US
Population	19m	22m	275.6m
Population	(July 2000 est.)	(July 2000 est.)	(July 2000.est.)
Inflation rate	1.8% (1999 est.)	0.4% (1999 est.)	2.2% (1999)
Unemployment rate	7.5% (1999)	2.9% (1999 est.)	4.2% (1999)

Australia is now comfortably ranked as the 12th most affluent country, and income inequalities, though widening, are still smaller than in most comparable places. Australian pay is not particularly high by the standards of the better-off developed countries, but nor is the cost of living, and there is a reasonably generous welfare system.

Australia's 100th birthday as a nation is coming up at the beginning of next year. Many Australians like to think that their country has entered a third golden age, to match the mineral-rich heydays of the second half of the 19th century, and the post-second-

world-war boom fueled by other countries' reconstruction. What is different this time round, they say, is that with careful management the new golden age should be sustainable indefinitely.

After a series of reforms over the past 15 years to make the economy more competitive, the place now seems to be running like clockwork. Growth has hovered around 4% or more for the past seven years, productivity has improved beyond all expectations, inflation is relatively quiescent, and unemployment is heading downwards. All this continued even as South-East Asia next door went through a severe economic crisis. The only obvious ill effect the crisis had on Australia was a deterioration in its current-account balance, which resembles the situation in the US and nobody takes too seriously, and a fall in the Australian dollar, in which other factors also played a part. That may be bad for the national ego, but it is making exporters' lives easier. We also know that when the extra import is from importing non-luxury goods (e.g., necessities) from countries which has depreciating currency values, the importing country's economy actually benefit from the lowered consumption prices and the controlled inflation rate. That is exactly what happened to the US economy during the Asian financial crisis.

A virtuous circle of low inflation and low expected inflation has happened in the US and Australia. Low inflation leads people to expect low inflation in the future. As a result, they agree to accept small increases in wages and the prices of the goods and services they supply, which keeps inflation- and expected inflation- low. In a similar way, high inflation leads people to expect high inflation, which in turn tends to produce high inflation.

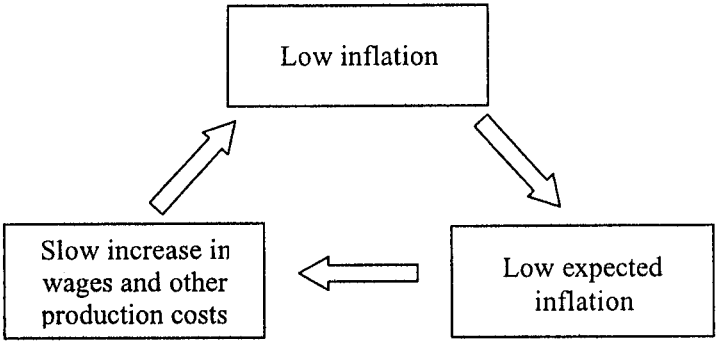

Figure 4: A virtuous circle of low inflation and low expected inflation

(3) Taiwan in the New Economy

(3.1) Taiwan's Economy - An Overview

Taiwan has a dynamic capitalist economy with gradually decreasing guidance of investment and foreign trade by government authorities. In keeping with this trend, some large government-owned banks and industrial firms are being privatized. Real growth in GDP has averaged about 8% during the past three decades. Exports have grown even faster and have provided the primary impetus for industrialization. Inflation and unemployment are low; the trade surplus is substantial; and foreign reserves are the world's third largest. Agriculture contributes 3% to GDP, down from 35% in 1952. Traditional labor-intensive industries are steadily being moved off-shore and replaced with more capital- and technology-intensive industries. Taiwan has become a major investor in China, Thailand, Indonesia, the Philippines, Malaysia, and Vietnam. The tightening of labor markets has led to an influx of foreign workers, both legal and illegal. Because of its conservative financial approach and its entrepreneurial strengths, Taiwan suffered little compared with many of its neighbors during the Asian financial crisis in 1998-99. Growth

in 2000 should pick up a bit from 1999, backed by expansion in domestic consumption, exports, and private investment.

(3.2) Small is Beautiful - A Niche for Taiwan's Small-Mid-Sized yet Entrepreneurial Companies

The Internet offers small and medium-sized firms many of the advantages of large, diversified firms. It gives them access to the same information as big firms, and makes it easier for them to get into international markets. Many big firms have been using electronic-data-interchange systems for years to communicate with their bigger suppliers. The Internet does the job much more easily and cheaply, making such functionalities accessible to firms of all sizes. Taiwan is featured by its small-mid-sized companies, which are agile and energetic and are actively taking this irresistible opportunity to grow.

IT increases competition in industries where network externalities are less important -- in such industries IT does not favor giants that exploit economies of scale and hence tiddlers will thrive. It is an important niche for Taiwan's small-mid-sized companies to develop and prosper.

(3.3) Not Just Making IT, Use IT!

The vital point is that the use of IT will do the most in lifting productivity, not the making of IT products. Many of the studies that have dissected the recent increase in America's productivity growth suggest that IT production accounted for only about one-quarter of the increase in labor-productivity growth in the second half of the 1990s. A more important factor was investment in IT

(3.4) Cannot Invent? Just Exploit Other's Invention!

Historically, the biggest economic gains from a new technology have come not from its invention and production, but from its exploitation. Taiwan is one of the top exporters of information products, but there is still a lot of infrastructure work to be done by the government in order to make Taiwan a leading user of information products. And only when that happens will Taiwan fully benefit from IT and the new economy.

(4) Bi-lateral Relationship in the New Economy

(4.1) What can Governments Learn from Industry?

Due to imperfect information and the need to minimize transaction costs, firms are vertically integrated (as opposed to individuals buying and selling goods and services at every stage of production). A firm can either produce component parts or services itself, or buy them from a supplier. They will probably be cheaper if bought in the marketplace, but against that the firm will have to spend time and money on finding what is available, and on ordering the products. In the past, these transaction costs were high, so firms often preferred to do lots of things in-house, which made them bigger.

Vertical integration solved the problem of imperfect information. But as the Internet increases access to information and reduces transaction costs between firms and suppliers, it makes it more attractive for firms to concentrate on doing what they are best at and to buy other goods and services from outside. This reduces the firms' optimal size and most importantly, saves their most scarce resource -- time. In today's business environment, we simply cannot afford to do everything ourselves -- we can only do whatever we are best at and trade with others, even with our competitors. This is the origin of the term "collaborative cooperation", or "co-opetition". The network has to hang over (connect to) another network to multiply the power and to save time in a drastic scale. This is exactly what we have seen in

the business news everyday -merger and acquisition. In this respect, we expect Australia and Taiwan to find more complementarities and vertical integration opportunities to cooperate (e.g., apply Porter's cluster argument) for mutual benefit. The essence is still to develop their respective absolute strength in their particular fields and then cooperate. Otherwise the intense international competition will gradually erode the basis or niche in the bi-lateral national cooperation relationship.

In the era of the Internet, customized marketing is also very important. The Internet opens the doors to all the companies in all the countries, but additionally, you can also customize your programs for each specific customer to enhance the satisfaction and nurture further cooperation.

(4.2) Countries' Comparative Advantage

Comparative advantage forms a basis for trade - a jack-of-all-trades is poor mainly due to his versatility. Ideally, each person should specialize in the activity in which he is relatively most efficient, or has a comparative advantage. This specialization, combined with trade between producers of different goods and services, allows a society to achieve a higher level of productivity and standard of living than one in which each person is essentially self-sufficient.

This insight, that specialization and trade among individuals can yield impressive gains in productivity, applies equally well to nations. Factors such as climate, natural resources, technology, workers' skills and education, and culture provide countries with comparative advantages in the production of different goods and services. For example, the large number of leading research universities in the United States gives the nation a comparative advantage in the design of technologically sophisticated computer hardware and software. Likewise, the wide international use of the English language endows the United States with a comparative advantage in producing popular

films and TV shows. Similarly, France Is climate and topography, together with the accumulated knowledge of generations of vintners, gives that country a comparative advantage in producing fine wines, while Australia's huge expanses of arable land gives that country a comparative advantage in producing grain.

The principle of comparative advantage tells us that we can all enjoy more goods and services when each country produces according to its comparative advantage and then trades with other countries.

(4.3) Sources of Cooperation Opportunities

Complementarities exist and they should form the basis of cooperation. For example, Taiwan is small in area but is highly populated, while Australia is large in area (Australia is just slightly smaller than the US) but sparsely populated (Australia's population is 3 million less than Taiwan). A highly populated area has extra demand on education, produce and fuels, and consumption goods, which can be supplied abundantly from the less populated countries.

(4.3.1) Produce and Natural Resources

This autumn/winter season in the US supermarket, consumers are pleased to find the large Australian Valencia oranges. The price is much higher than that of the local produce, but as a sales person puts it, "the Australian oranges are juicier and sweeter". And not just oranges --many varieties of Australian produce are selling well in the US market. On the other hand, Taiwan is famous for its gourmet food and dishes. When the international supply of produce is high and the price is low, food-processing, being a value-adding process, presents a wonderful opportunity for cooperation in the produce sector. In terms of other natural resources, Taiwan also needs fuels, which Australia has an abundant supply of Australia is also relatively near to Taiwan.

(4.3.2) Impact of IT on Labor Force and Education

Many jobs are destroyed by new technology. A steel worker cannot easily get a job as a computer programmer. Most of the jobs being lost as a result of IT are concentrated among the low-skilled areas, whereas many of the new jobs require good education and skills. As the demand for brains has risen relative to the demand for brawn, so wage differentials have widened in favor of the better-educated. Since 1979, the average weekly earnings of college graduates in America have risen by more than 30% relative to those of high-school graduates (see Figure 5), increasing the wage gap to its widest for at least the past 60 years. The wage gap between college graduates and high-school drop-outs has grown by twice as much. Since average real wages rose relatively slowly for much of this period, the real pay of the least educated has actually fallen over the past 20 years. Indeed, education has huge differential power and deserves a huge market.

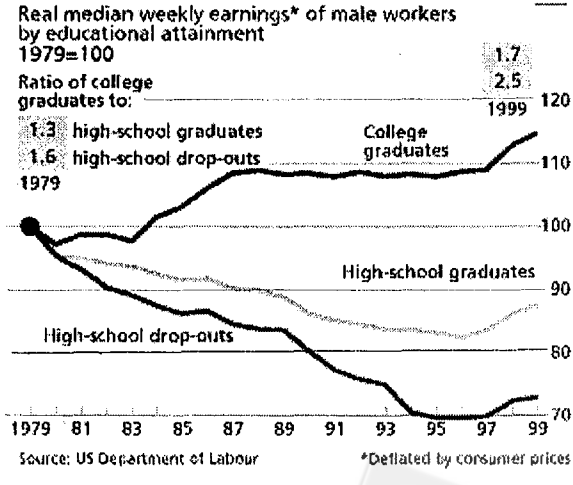

Figure 5: Blue-collar Blues
(Source: "Labour pains" in the Economist's New Economy Survey)

Education, including higher education, is undergoing drastic change and the rate of change is still accelerating. For mechanical course material (principles courses), students will benefit from the best professors in the world if a multimedia curriculum is appropriately designed and recorded, and broadcast to all the remote audience through audio-video devices and through the Internet. The marginal cost approaches zero but the marginal benefit remains fixed as the number of registered students increase. Australia can play an important role in providing well-designed curricula (e.g., Business English Courses) to the Taiwanese audience, since it is Taiwan's ongoing effort to enhance her degree of internalization, which can be properly measured by her citizens' average English proficiency. Another possible niche market is the market for managerial courses that lead to MBA degrees or credits. Australia has internationally famous higher learning institutions as well as the capacity to accept foreign students and scholars. It has little reason to let go of this comparative and geological position's advantage. Taiwan, on the other hand, can play an important role in helping Australia to open the markets in China, since Taiwan has comparative advantage in culture and language.

David Autor, at MIT, suggests that the Internet could cause two opposite effects in different parts of the labor market. In routine occupations, such as cashiers and clerks, pay is likely to become more uniform as technology reduces regional wage differentials. On the other hand, the superstar effect could spread to more occupations, such as teaching and software engineering, as the Internet increases the power of talented individuals to serve a bigger market.

Stanford University Is School of Engineering is among those at the frontiers of distance learning, and it has also achieved great success in the past. For example, almost all Computer Science courses at Stanford are video-taped. This is especially useful for students whose native languages are not English or who have to miss classes for various reasons. Many computer science majors are from foreign

countries and they admit that they have benefited from the videocassettes on reserve at the Engineering Library, where they can watch the class tapes again to fully understand the material. Just last year, an Internet version of the class tapes has been launched and students need only enter a password to view all the class lectures on the Internet at any time. One student (a senior) told the author that she believes that fewer students are going to class since they can just attend the "virtual" class in the dorm. She said that she thinks this is good since the university can allow more students to enroll without needing to worry too much about the size of the classroom. This may sound like a joke but it's happening in many campuses in the US.

Medical education is a precious resource/opportunity in Taiwan and each year only a small portion of high school students can get into medical schools. On the other hand, Australia has excellent medical schools and educational resources. With suitable screening processes, Australia may educate some of the young qualified Taiwanese to achieve their goals of studying medicine without too much of a burden.

(4.3.3) More on the Syndication Concept and Academic Publishing

The syndication concept is one of the essential business models today. For example, if a Taiwanese publisher obtains the rights to localize an internationally famous Australian college textbook for the local audience, it will save much time in developing the contents while still providing monetary rewards to the author and publisher. The original author or publisher can sell the rights to a few Taiwanese publishers at the same time (i.e. parallel rights) to boost the competition and quality. Since each translation/localization work is done separately, a few different localized versions of the textbook coexist, and the original author and publisher actually sells the same content more than once.

In Taiwan, the author led a project to translate into Chinese a Harvard "Principles of Economics" textbook to fully understand the business potential of the localization of a leading educational product. Within a year and a hall, more than 50,000 copies of the translated text were sold and the gross revenue for the local publisher is 50 million New Taiwan dollars. However, the author strongly feels that students do not necessarily buy the translated product for its quality, since a mechanism for evaluating the numerous translated products is lacking. Instead, the sales of a translated product depends on whether the original English product has been adopted as the required textbook, whether the translators and their affiliated institutions are well-known, and whether the translated product is typeset and printed professionally. Another serious flaw is that many translations are shortened versions of the original English work. Many of them also suffer from a big time lag behind the English original. When there is a market failure, additional competition (based on the "syndication concept") has to be introduced in order to maintain an adequate translation quality. This is just one of the application of the "5yndication concept".

(4.4) Lessons from the Corporate B2B Model and Internet Economics: What Governments Can Do to Form a Benign Trade Relationship

The B2B exchanges being set up by car, steel, construction and aerospace firms will provide a more efficient marketplace for buyers and sellers to exchange products. Such exchanges are likely to spring up in most industries. GM, Ford, Daimler-Chrysler and Renault-Nissan plan to move all their business to a joint electronic exchange with a turnover of $250 billion and 60,000 suppliers. According to one estimate, dealing with suppliers online could reduce the cost of making a car by 14%.

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This is the model, I believe, Taiwan and Australia can learn constructive lessons from and build a cooperation basis with. Since there are certain complementarities of natural resources and products between Australia and Taiwan, their governments can work together to develop an excellent product window for trade. The doors are open to all, but a bi-lateral trade relationship will benefit most through complementarity and a mutually beneficial arrangement. Please note that the governments just need to lead the effort and bring in the participation to form the critical mass. Immediately after the important first stage (which should significantly reduce the search cost), the so-called "network externalities" will fuel and propel the second stage as well as other future stages.

The reasoning in the above argument can be explained as follows. The value of many information goods, such as authoritative/reliable information consultation and/or intermediation, fax machines or software packages, increases as more people use them. A good example is Microsoft's Windows, which is valued by customers precisely because it is so widely used. (If everybody you know uses Microsoft Word, then you will find life easier if you use it too.) This is one key source of Microsoft's monopoly power. The combination of demand-side and supply-side economies of scale in many information industries can be very powerful. Higher sales not only reduce production costs, but they also make the product even more valuable to other users. In such markets, one firm tends to become dominant. And the dominant firm can invest more money in research and development to sustain its advantage over a longer period of time. At the same time, there is another factor that can strengthen a leader's grip on the market: the lock-in effect. Once a customer has learned how to use a computer program, he is reluctant to switch because of the hassle of learning a new program. Users gain big benefits from common standards, so a newcomer has to show a huge advantage to persuade consumers to switch.

In industries where network externalities are important, IT will favor giants that exploit economies of scale, both on the supply and the demand side. Therefore, a strong reason for governments to start such an effort is that network and lock-in effects can create strong barriers to entry, and only non-profit entities (e.g., governments) can play the first-mover, but non-monopoly role. Governments should have the vision to start such efforts and governments have to enforce the mechanism to lower the risk of fraud in such a mechanism in order to quickly attract the critical mass.

(4.5) Virtual Cluster and New Economics for Competition (I)

Some economists argue that the biggest gains from the Internet in Asia will be in services. Asian manufacturing is famously efficient, but many service industries, being tightly regulated and closed to competition, are surprisingly flabby. The Internet can help to change this by giving consumers more power.

Some American firms such as Wal-Mart and J.C. Penney insist that their suppliers abroad deal with them over the net, which has forced their Asian trade partners to take to e-commerce sooner rather than later. The pressure to go online may come from local sources too -- in Thailand, all importers and exporters have to be online because the government has passed a law requiring all trade documentation to be provided on the web.

The main benefit is to form a "virtual" cluster (as compared to Porter's "real" cluster counterpart) that will provide further opportunities to connect to other value-adding complementary networks.

(4.6) More Cooperation Opportunities - Illustration by Examples from the Bio-Tech, Red Wine, Athletic Training, and Education Industries

Human capital takes a long time to develop and most countries place special emphasis/value on developing certain types of special talents for cultural or heritage reasons. In Taiwan for example, the semiconductor industry's (especially the foundries) leadership and the information industries' heavy-weight status came from the abundant supply of engineers in the seventies and eighties. You may have also noticed that many top talents have chosen medicine as their major due to Taiwan's cultural and value system. These people form the backbone for the development of the bio-tech industry, which is most likely to shine tomorrow. Taiwan and Australia can thus benefit from each other through joint developments and ventures in bio-tech and genetic engineering. In addition, geological differences can increase the "treasure hunting" in new varieties of gene and uncover more potential for future medicine development.

There is also complementarity in natural resources between Australia and Taiwan. Taiwan consumes a large quantity of red wines while Australia produces quality red wines.

Two steps are needed in the formation of clusters between Taiwan and Australia to achieve mutual benefits:

(1) For each country, find the most competitive industries/specialties. After all, the strengths form the key basis of cooperation when competition and cooperation become a style of every day's life in the global society.
(2) Look for broad complementarities and/or synergies between countries. By broad, we mean either the customer/supplier relationship, or the relationship between complementors. In literature, a complementor is defined as somebody who can either help you reduce cost or boost profit. For example, Australia can reduce its cost of getting into China Is market via a joint venture with a Taiwanese company, which will enable it to take

advantage of Taiwan and China's common cultural and language heritage. Similarly, Taiwanese companies can get into other English-speaking countries' market by making use of Australia's cultural and language advantage with other western countries.

(4.7) The Co-opetition Model Between Countries

A co-opetition model between two countries can be formed, if, in certain industries, the two countries form a portion or all of the following schematic relationship. In the schematic figure below, the hidden dimension is an industry (of a particular type) in Australia and Taiwan.

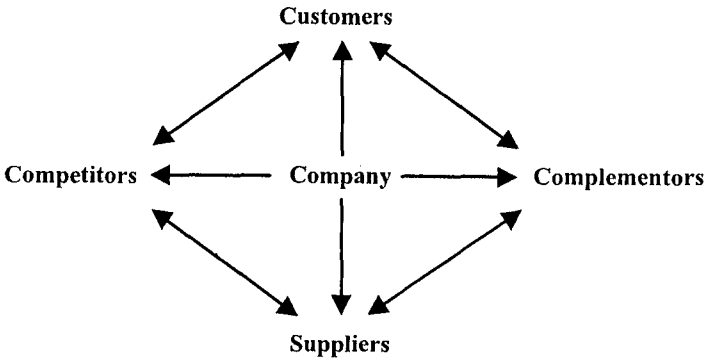

Figure 6

(Source: Ghemawat: Strategy and the Business Landscape)

In the above model, the value net highlights the critical role that complementors - participants from whom customers buy complementary products or services, or to which suppliers sell complementary resources – can play in influencing business success or failure. Complementors are defined as being the mirror image of competitors (including new entrants and substitutes as well as existing rivals). On the demand side, they increase the buyers' willingness to

pay for products; on the supply side, they decrease the price that suppliers require for their inputs.

(4.8) Virtual Cluster and New Economics of Competition (II)

Thinking of Porter's Cluster Theory, we want to ask, "Can Taiwan and Australia form a 'virtual' cluster for mutual benefit?" We believe that the idea is practical and worth trying. Besides, with joint effort, Taiwan can introduce Australia in a culturally appealing way in the local language to customers and companies in the Greater China area. With cultivated attention and care, virtual clusters can be established.

The clusters research was done by Harvard Business Professor Michael Porter. In his article entitled 'Clusters and the New Economics of Competition," Professor Porter defines clusters, explains how clusters foster high levels of productivity and innovation, and lays out the implications for competitive strategy and economic policy. Economic geography in an era of global competition poses a paradox.

What is a cluster? According to Porter's definition, clusters are geographic concentrations of interconnected companies and institutions in a particular field. Clusters encompass an array of linked industries and other entities important to competition. They include, for example, suppliers of specialized inputs such as components, machinery, and services, and providers of specialized infrastructure. Clusters also often extend downstream to channels and customers and laterally to manufacturers of complementary products and to companies in industries related by skills, technologies, or common inputs. Finally, many clusters include governmental and other institutions such as universities, standards-setting agencies, think tanks, vocational training providers, and trade associations that provide specialized training, education, information, research, and technical support.

In theory, location should no longer be a source of competitive advantage. Open global markets, rapid transportation, and high-speed communications should allow any company to source any thing from any place at any time. But in practice, location remains central to competition. Today's economic map of the world is characterized by what Porter calls clusters: critical masses in one place of linked industries and institutions -- from suppliers to universities to government agencies -- that enjoy unusual competitive success in a particular field. In Porter's observation, the most famous examples of clusters are found in Silicon Valley and Hollywood, but clusters dot the world's landscape. The success of Taiwan's Science-Based Industrial Park is another vivid evidence of the cluster theory.

Porter explains how clusters affect competition in three broad ways: first, by increasing the productivity of companies based in the area; second, by driving the direction and pace of innovation; and third, by stimulating the formation of new businesses within the cluster. Geographic, cultural, and institutional proximity provides companies with special access, closer relationships, better information, powerful incentives, and other advantages that are difficult to tap from a distance. The more complex, knowledge-based, and dynamic the world economy becomes, the more this is true. Competitive advantage lies increasingly in local things --knowledge, relationships, and motivation -- that distant rivals cannot replicate.

Australia is getting well-known for its red wine while Taiwan is well-known for its green tea. Both tea and red wine are popular beverages and they are usually served with other food. Hence, they are complenientors form any other food industries. Let's draw the winery example from Porter's article:

> The California wine cluster is a good example. It includes 680 commercial wineries as well as several thousand independent

wine grape growers. (See Figure 7 - Anatomy of the California Wine Cluster.) An extensive complement of industries supporting both wine making and grape growing exists, including suppliers of grape stock, irrigation and harvesting equipment, barrels, and labels; specialized public relations and advertising firms; and numerous wine publications aimed at consumer and trade audience. A host of local institutions is involved with wine, such as the world-renowned viticulture and enology program at the University of California at Davis, the Wine Institute, and special committees of the California senate and assembly. The cluster also enjoys weaker linkages to other California clusters in agriculture, food and restaurants, and wine-country tourism.

-- Porter, Clusters and the New Economics of Competition

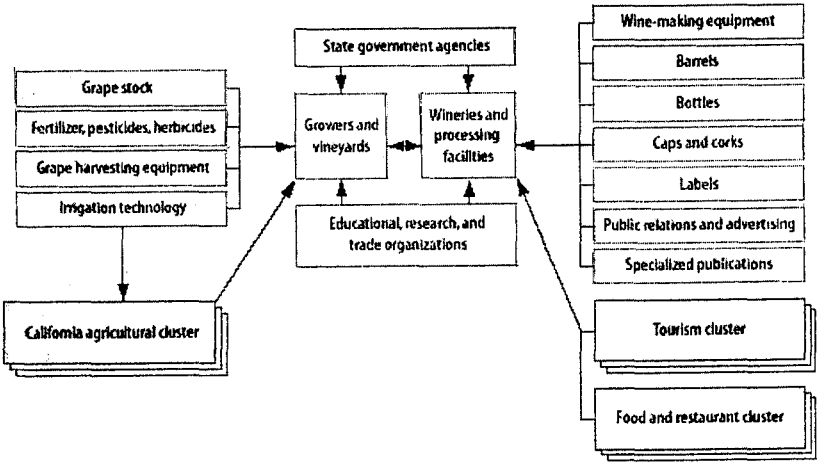

Figure 7: Anatomy of the California Wine Cluster
(Source: Porter: Clusters and the New Economics of Competition, Harvard Business Review)

With the invention of the Internet, virtual clusters will be formed easily, but to fully function like its bricks and mortar counterparts, a transition period of co-existing click-and-brick model is needed. A virtual cluster will tie all the bits and bytes together, and allow the potential customer, seller, government agency, related industry, domestic and foreign allegiance to interact. It is virtual, yet it is dynamic. If certain information is proprietary, intranets and extranets can both be designed in parallel to facilitate interactive information sharing.

(5) Conclusion

So far we have discussed the New Economy and its characteristics, its interaction with the WTO, and their joint effects on competition among industry sectors and across countries. We briefly reviewed the status quo of Australia's and Taiwan Is economies and the cooperation opportunities between them. We provide a brief sketch of three models (co-opetition, clusters, and virtual clusters) that will help in the analysis of the competition (with a collaborative nature) between countries. We believe that a more detailed analysis is needed but we are short of time to present all the thoughts at this point in time. We hope to present more findings on other occasions.

We also want to take this opportunity to mention a recent trend - be ready to compromise and be flexible - which is necessary to survive in this world. Intel, for example, emphasized its technical excellence and ignored another dimension of competition - price, since in the era of high prices, Intel easily sustained its market share at 80%. However, when low-priced PCs started to penetrate the low-end (less than $1000) market (the market share of low-priced PCs soared from 10% in 1996 to 30% in 1997, and subsequently to 60% in 1998), Intel painfully experienced the erosion of its market share as orders flew to low-priced CPU manufacturers like AMD. It's indeed an era of being alert and flexible!

Is the New Economy robust or volatile? Do the old economic rules still work today? The New Economy is robust in terms of its constructive destruction nature - a genie is out of the box and you cannot order him to go back. Many people believe that in the United States, the New Economy is proxied by the NASDAQ index, and the old economy by the DJIA index. The magic of the US economy is featured by the balancing of the alternate waning and gaining of these two forces/indexes, as well as the overall upward movement of the market. Speculators have recently taken such opportunities to make profits. However, the main point here is that when the market base is big and when the range of industry types is broad, there will be a cushion absorbing outside severe economic situations (if such a macroeconomic situation does occur), such that a firm and stable growth force is formed. The importance of complementarity and connecting yourself to another network through joint ventures or strategic alliances cannot be overemphasized.

We want to benefit by enhancing the bi-lateral relationship with our Australian friends in the era of the New Economy and the WTO. We shall further develop our strengths and based on such strengths, cooperate with our Australian counterparts to maximize the mutual benefit.

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