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Lessons from Taiwan

Skills Development, Trade and SMEs

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The Role of Education in Taiwan's Economic Development: Lessons for South Africa

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Introduction

Technological and vocational education is said to be one of the driving forces behind Taiwan's miraculous economic growth. The education system has trained students in job skills and provided the manpower needed for social development. It is for this reason that some observers argue that one of the distinguishing features of the success of vocational education in Taiwan has been the ability to forge a working relationship between learning institutions and business for the betterment of the country. This is not a static but a dynamic relationship: as the technological revolution affects Taiwan's industry, so reforms in the education system are initiated.

Garth Shelton, in describing the overall Taiwanese education system current today, has this to say:[2]

> Taiwan's education system is based on what is known as a 'six-three-three-four' system. This system includes two years of kindergarten for ages four to six; six

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[2] Shelton G, 'Taiwan's economic success and the role of education and small medium sized enterprises in development', *Working Paper Series No. 28*. Johannesburg: East Asia Project (EAP), International Relations Department, University of the Witwatersrand, 2001.

> years of elementary school for ages six to twelve; three years of junior high school for ages twelve to fifteen; three years of senior high school for ages fifteen to eighteen and four years of university study. Postgraduate Masters programmes last from one year to four years and doctoral programmes from two to seven years.

Upon completing their nine years of compulsory education, students have the option of choosing between an academic education and a vocational education. It is the latter that will be the main focus of this paper.

After undergoing various testing procedures, students enrol either in a senior vocational school for three years or in one of several different five-year junior colleges. Senior vocational schools have seven areas of specialisation: agriculture; industry (engineering); commerce; maritime; medical technology; nursery and home economics; opera and the arts. After graduation students can either seek technical and vocational employment opportunities or pursue higher education in junior colleges, institutes of technology or university departments of technology. Supplementary and special education are also available in senior vocational schools.[3]

Taking vocational education as its main theme, this paper gives a brief account of Taiwan's education systems under the Japanese occupation, and in the period between 1945–2000. Educational reforms mooted by the Council for Education Reform and Review in 1996 are described, as well as the changes that Taiwan will have to make to the education system to meet the requirements of membership of the World Trade Organisation (WTO). The last part of the paper suggests the lessons South Africa could derive from the Taiwanese experience in transforming its own education system to bring about rapid socio-economic development.

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[3] Wen-chuan Hsie, et al, *The Story of Taiwan: Education.* Republic of Taiwan: Government Information Office, 1998. See also Ministry of Education, ROC, *A Brief Introduction On Education in the Republic of China.* Online at *http://www.edu.tw/statistics/multi/index.htm.*

Taiwan under the Japanese occupation

Apart from the controversial way in which Japan as a colonising power conducted itself in the Asia–Pacific region, Tokyo's occupation of Taiwan in the period 1895–1945, generally speaking, had a positive influence on the island's economic and educational development. This occurred despite the fact that Japanese rather than Taiwanese occupied many of Taiwan's management and technical positions. The Japanese, one could argue, were simply reacting to what they saw as a massive penetration of the island by mainland Chinese.

Japan's efforts to introduce Japanese-style schools in Taiwan, albeit made for their own ends, brought about marked improvements in the island's literacy rate and technological skills. At the end of Japanese colonial rule in the middle of the 20th century, there were at least 591 Taiwanese who had completed higher education qualifications.[4] Although only a few local students were admitted to the tertiary level, which was represented by one university and three colleges, the Japanese made provision for scholarships that allowed islanders to study in Japan. Under Japanese occupation most Taiwanese people received a kind of education which made possible the transformation of the island from a labour-intensive agricultural economy to a hi-tech economy in the sixties.

Apart from implementing policies aimed at high economic growth, the Japanese allowed light industry to be established, as well as introducing economic reforms which contributed to Taiwan's later prosperity.

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[4] Sun Chen, 'Investment in education and human resource development in post-war Taiwan', in Harrell S & Huang Chun-Chien (eds), *Cultural Change in Post-War Taiwan*. Taipei: SMC Publishing Inc, 1994.

Taiwan after the Japanese occupation

In the post-war period, from 1945 to the early part of 1960s, Taiwan's economy was focused purely on labour-intensive industries, with no specific attention paid to educational goals. As a result, the educational level of most industry workers was low. In the 1950s the government introduced six years of compulsory free education. Over time this created a massive surplus of workers with basic or entry level technical skills who could not find employment, for reasons associated with age or a preference in many for careers in the academic field.

In the 1950s and early 1960s the Taiwanese education system was not in step with broader economic and social developments on the island, because there was an overall bias on the part of government and society in favour of academic rather than technical skills. People preferred to enrol in the senior high schools rather than in primary and secondary vocational schools upon completion of their six years of compulsory education. The government responded by expanding and establishing more senior high schools, colleges and universities. Humanities departments outnumbered those specialising in the natural and applied sciences at tertiary level. This was at the expense of vocational education in Taiwan, the goal of which was to train people in the various types of basic technical skills needed for the development of agriculture and basic industries.

The logic behind the glorification of academic education is embedded within Chinese traditional thinking. As Li puts it, 'Traditionally, Chinese have believed in the scholar-official sequence or "learning tops all trade". Those involved in trade and commerce have generally been looked down on'.[5] Another factor contributing towards the perpetuation of this attitude was the

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[5] Li K T, *The Evolution of Policy Behind Taiwan's Development Success*. New Haven and London: Yale University Press, 1988.

higher pay scales that applied to people with academic knowledge employed as white-collar workers.

In the mid-1960s the Taiwanese government implemented a series of economic development policies which culminated in the First Manpower Development Plan. To supply the highly skilled manpower required to match the demands of the growing economy, the government extended compulsory education from six to nine years. Here the focus was on encouraging the establishment of industry-oriented vocational schools to cultivate the skills needed in the job market. Existing vocational schools evolved into institutes of agriculture and technology, while additional technology and vocational colleges were constructed to cater for the needs of the booming industrial sector.[6]

In the 1970s and 1980s the government continued this trend, discouraging the establishment of additional senior high schools and revisiting the faculties of all colleges and universities to give considerable attention to their training of engineers, scientists, technologists and business managers. As Flora Tien puts it, '...almost all levels of educational policies, especially those related to vocational education, have been led by economic goals'.[7] The government did everything possible to make the vocational education sector more attractive. This included ensuring better salaries and greater availability of jobs in that field. Money was raised to fund vocational training through legislation establishing a Vocational Training Fund. Every firm was required in terms of this legislation to make a contribution to the fund of an amount commensurate with 1.5% of its total wages bill. Moreover, random national skills contests were organised with lucrative rewards, to enhance the social status of skilled workers.

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6 Tien F F, 'How education drove Taiwan's economic development', *Economic Reform Today*, 4, 1996.

7 Kwoh-ting Li, *Economic Transformation of Taiwan, ROC*. London: Shepheard-Walwyn Limited, 1988.

The 1990s saw a drastic transformation in the industrial structure consequent on the rapid emergence of information technology, accompanied by the readiness of the vocational students to pursue advanced education in that field. The government responded by allowing technical colleges to evolve into institutes of technology and permitting the universities to implement two-year technology programmes in line with the extensions in higher vocational education policy.

Since the launch of the nine-year compulsory education programme in 1968, vocational education in Taiwan has experienced fast expansion to meet the demands of economic development. In the 1999–2000 academic year, there were 199 vocational high schools, 48.7% of which were public. There were 86 senior high schools offering vocational programmes, with 22.1% of these being public. In 1998 the number of students in this category had risen to 493,055, as opposed to 94,547 in 1968. Among these students, 191,523 majored in business; 206,199 in industry; 18,166 in agriculture; 24,075 in nursing; 7,612 in marine products; and 3,890 in theatre and arts.

Junior colleges of technology, like senior vocational high schools, offer almost identical practical skills programmes. The only distinguishing feature is that junior colleges of technology focus more on applied sciences and technology, and produce personnel with mid-level technical or managerial skills. In the academic year 1998–99, there were 120,886 students who graduated from this category, most of whom entered the job market. By 2000, there were 36 junior colleges of technology with 457,020 students. The category of industry accounted for the greatest number of students, at 48.3%, followed by commerce with 25.6%.

Colleges/universities of technology in Taiwan are responsible for developing a higher level of personnel for the fields of technology, engineering and management and also provide a channel for vocational school graduates with several years of working experience to continue their education. These institutions have upgraded vocational education to the tertiary level. In the 1998–99 academic year there were 47 institutes/universities of technology with 13,608 graduates, including 42 who received doctorates, 921 who received

master's degrees and 12,645 who received bachelor's degrees. By 2000, the total number of students enrolled in these institutions totalled 110,062, with 105,062 in undergraduate programmes and 4,429 in graduate programmes. Students majoring in chemical/ electrical engineering; business administration; medical sciences; mathematics and computer science; textiles and construction outnumbered those in other fields.[8]

In the 1951 financial year, expenditure for public and private education at all levels totalled NT$213 million, accounting for 1.73% of GNP. By 1998 this figure had risen to 6.51% of GNP. In 2000 the figure had decreased to 5.5%.[9]

Education reforms in Taiwan

While education reforms in Taiwan are not guided solely by the country's economic plan, education is still crucial to enable the government to implement its national economic strategy. That is, educational institutions are expected to play a critical role in establishing Taiwan as a trade and investment centre in the Asia–Pacific region. This role includes cultivating capable, professional and globally competitive manpower in various fields, for example finance, communication, electronic information and international management. It is against this background that the Council for Education Reform and Review (CERR), under the chairmanship of Yuan-Tseh Lee, president of Academia Sinica, was established in 1994 to reform the Taiwanese education system.

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[8] Ministry of Education, *A Brief Introduction to the Technological and Vocational Education of the Republic of China*. ROC: Ministry of Education, May 2000.

[9] *Monthly Bulletin of Statistics of the Republic of China*, ROC, May 2002. See also Ministry of Education, *Education in the Republic of China*, ROC: Bureau of Statistics, Ministry of Education, 1999.

While the overall aim of the reforms is to maintain flexibility in the education system in the full range from elementary to higher education, the following are some of the recommendations included in the CERR report of 1996:

- make English a required course;
- improve and expand higher education;
- reform the entrance system;
- promote continuing education by way of demonstrating to working adults that life-long learning is both possible and desirable;
- promote special schools for disabled students;
- search continually for additional educational resources;
- assist private schools in continuous development;
- develop creativity by fostering independent personalities and abilities in students;
- trim classes and curricula;
- invest greater resources and effort in the field of science and technology; and
- persuade the government to allocate a budget of not less than 15% to education.

Challenges arising out of Taiwan's accession to the World Trade Organisation

While Taiwan is set to benefit from becoming a member of the WTO, membership entails the immediate implementation of the following major changes in the education system:

- allowing foreign educational agencies to offer multinational services (distance education) to students at, or above, the high school and vocational school levels;

- permitting foreign nationals to establish schools and educational institutions at the high school and vocational school levels, with the proviso that the principals, head administrators and chairmen be Taiwan nationals;
- encouraging famous Western institutions of higher learning to establish branches in Taiwan that have the power to recruit students from the local population and to confer degrees;
- organising co-operation between foreign educational institutions and Taiwanese schools, in terms of which the foreign institutions would send faculty members to teach in Taiwan, or arrange for students to spend some time studying abroad; and
- recognising degrees earned by Taiwanese students at mainland China's better-known universities.

Meeting these challenges should raise Taiwan's international stature. However, its success is also dependent on the answer to the critical question: How far is Taiwan willing to risk angering China by becoming an international player?

What can South Africa learn from the Taiwanese experience?

The provision of proper, relevant and necessary education and training, with equal access and opportunities to all citizens, was key to Taiwan's economic success. However, while vocational education and training drove the Taiwanese economy, South Africa, with its past racial segregation policies, remains stuck in the groove of overplaying the role of academic education. Prior to the change of government in 1994, in South Africa there were a reasonable number of technical colleges offering post-vocational training in fields such as motor mechanical engineering, bricklaying and metalwork to respond to the economic development needs of the country. But due to the political bias of the time, technical colleges catering for the black community

were under-funded and consequently seriously under-resourced. As a result, South Africa has too few people with the relevant knowledge and skills to boost and drive the country's productivity.

Comparison of enrolment at vocational/technical and technikon instititions in South Africa and the ROC–Taiwan (1999–2000)

Country	*Type of institution*	*No. of institutions*	*No. of enrolments*
South Africa	Technical colleges	152	271,900
Taiwan	Junior colleges of technology	36	457,020
South Africa	Technikons	15	199,089
Taiwan	Colleges/universities of technology	47	110,062

Source: Figures in South Africa are obtained from *South Africa Survey 2000/2001*, and *South Africa Survey 2001/2002*. Johannesburg: South African Institute of Race Relations, 2001.
Figures for Taiwan were gathered from *A Brief Introduction to the Technological and Vocational Education of the Republic of China*. ROC: Ministry of Education, May 2000.

It is against this backdrop that one observer said of the South African situation:[10]

> workers are poorly skilled and job seekers cannot fill posts in the new economic sectors like information technology and financial services because many are not even functionally literate. Those who lose their jobs in sunset industries like mining and clothing cannot be re-employed because they are not and cannot be made multi-skilled. Foreign and domestic investors often cite the low skills base as a reason for not investing.

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[10] Khan F, *Skills Revolution in the Making in South Africa*, Inter Press Service. Available online at *http://www.unesco.org/education/efa/know_sharing/grassroots _stories/south_africa.html*

What the Taiwanese experience teaches South Africa is that it is critical for the business community and industry to collaborate closely with the government so that manpower demand and supply may match each other in the various stages of the country's economic development. Linked to this is the requirement that both general education and any kind of training must serve the purpose of manpower development.[11]

While it is fair to say that in large part apartheid South Africa succeeded in bringing about the rapid industrialisation and skills needed to develop its economy, it is only now that the country has taken a more proper and relevant socio-economic development route. The government is pioneering a five-year national skills development strategy to improve the productivity of most of South Africa's companies while sharpening their competitiveness in the global arena. The skills development policy involves the payment of a 1% levy annually, taken from government and business payrolls, to fund training by 27 sectoral education and training authorities (SETAS). SETAS will identify the skills needed to improve the competitiveness of each industry,[12] and use 80% of the levies to give compensatory grants to those companies that take up the training challenge to promoting skills development.

According to the Department of Labour (DOL) chief director for employment and skills development services, Adrienne Bird, in terms of the objectives of the national skills strategy more than 70% of workers must have at least a Level One qualification on the National Qualifications Framework (NQF) (meaning that they must be literate) by March 2005. In addition, at least 15% must have embarked on a structured learnership,[13] while more than three-

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[11] Kwoh-ting Li, *op. cit.*

[12] *Ibid.* See also Zhuwakinyu M, *Setting the Country's Training and Education Wheels in Motion.* Available online at *http://www.engineeringnews.co.za/?show=17774*

[13] Learnerships include traditional apprenticeships, but go beyond them in important ways, one of which is that the learner is assessed at various stages to see if he or she is progressing and is able to perform the tasks for which he or she has been trained.

quarters of enterprises employing more than 150 people must be receiving skills development grants. The target for enterprises employing 50–150 people is 40%. Furthermore, at least 20% of new and existing registered small businesses must be the beneficiaries of skills development grants. It is also expected that 80,000 people under the age of 30 will have entered learnerships, and that more than half of those who have completed their learnerships will find a job within six months, unless they want to be self-employed, to pursue further studies or training, or to participate in a social development programme.[14] When describing this ambitious plan, the minister of labour, Membathisi Mdladlana, said 'the skills revolution will match workplace training with the needs of the growing economy'.[15]

To keep vocational education and training tied and up to standard, the minister of education, Kader Asmal, announced in February 2002 that he would reduce the current total of 152 technical colleges to 50 by April 2003 through a process of mergers which are intended to reflect more accurately the demographics of the country. A single reformed national unit would administer the 50 new colleges, with access, equity, quality and accountability as central goals. The government is also planning to build a specially dedicated information and communications technology university.

A person who successfully completes a learnership will have a qualification that signals occupational competence and is recognised throughout the country. Moreover, all sorts of learnership can be developed, including those for tour guides, accounts clerks, police officers etc. Some of the learnerships developed by the 25 sectoral education training authorities (SETAs) are said to be equivalent to university degrees. Two hundred and forty-eight applications for learnerships have been developed and lodged with the Department of Labour by SETAs, of which 103 have been registered already.

[14] Zhuwakinyu M, *op. cit.*

[15] Khan F, *op. cit.*

Conclusion

In Taiwan from the mid-1960s and throughout the 1970s, a high demand arose for specialised technical personnel to meet the growing needs of primary industry. The government responded by extending the six years of compulsory education to nine years, and placing a great deal of emphasis on industrial vocational education as opposed to knowledge-based education. This was relevant insofar as it produced a mid-level technical and managerial workforce. It was in the 1980s that the government established and developed higher technical and vocational schools, colleges and universities. With the emergence of information technology, institutes of technology and special university technology programmes evolved. The educational changes implemented from the 1960s to the end of the century were intended to keep in step with the country's economic development plan.

If it takes Taiwan as an example of educational development, South Africa has a lot to learn in terms of promoting vocational training and education. This is particularly true in the case of those millions of South Africans who have not been part of the vocational stream in education. By turning the country's technical colleges into high status institutions through a radical process of restructuring, South Africa will help to remove the stigma attached to vocational and technical education, and highlight the value that vocational education has in the labour market.

In South Africa, unlike Taiwan, there has been less emphasis on such fields as information technology, mathematics and science, as well as engineering, all of which are critical in enabling citizens to participate in the competitive world of modern technology, In other words, it is important that South Africa, like Taiwan, implement an intensive vocational and career training technical education system. This should include, among others, sub-fields such as accounting; design; information technology; computer science; engineering across all fields—mechanical, industrial and civil; pharmacology; architecture; communication and tourism. It is by offering marketable skills in these programmes at basic, median and high levels that the gap between industries,

communities and the country's broader economic development goal can be bridged.

As in Taiwan, human resource development comes at a price. First, the South African government needs to commit considerable resources to education and training, especially when it comes to improving the quality, training and experience of the teachers/lecturers or instructors concerned. A particular concern is felt by those dealing with the lack of mathematics and science teaching at schools. According to Dr Khotso Mokhele,[16] in 2001 only 19,000 South Africans matriculated with mathematics higher grade, out of the almost 450,000 who sat for the examination. This indicates that South Africa has few young people who qualify for tertiary scientific education. Second, the educational environment must be made learner-friendly, with better-balanced and upgraded facilites, resources and institutions.

South Africa has a long way to go in making up the gap between its current educational system and one that meets the needs of the global economy. An intensive drive towards improving vocational education and training, following the model of Taiwan, is the most likely path to success.

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[16] Dr Khotso Mokhele, President of the National Research Foundation (NRF), cited in 'SA's PhD ratio is dismal'. Available on *http://www. engineeringnews.co.za/ ?show=23497.*

Sustainable Export Performance: Lessons for South Africa from Taiwan

Carin Voges[1]

Taiwan is in every aspect an export-driven economy: its trade ratios remain exceptionally high, given the relatively small size of its economy. Between 1952–2000 Taiwan's exports increased a thousand-fold, from $116 million to $148.3 billion.[2] This export success has often been taken as a model for developing countries to emulate.

However, export success does not only entail good export growth: it also includes the ability to diversify the composition of one's exports in tune with the demands of the global economy. In this regard Taiwan has made remarkable progress, so much so that its trade and industrial policies have been designed to follow the defining global trends in international trade. These include the rising importance of knowledge-based trade and of the concomitant technological innovations. Not surprisingly, the bulk of Taiwan's exports today benefit from growing international demand for these products.

The development of Taiwan's trade policy has followed a pattern similar to that in most other developing countries, including South Africa. In the 1950s

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[1] CARIN VOGES joined Trade and Investment South Africa (TISA) as consultant trade economist in their economic research unit in April 2002. Previously she was the Asia-Pacific researcher at the South African Institute of International Affairs (SAIIA), based at the University of the Witwatersrand, Johannesburg. Please note that the views expressed herein are the authors alone, and in no way reflect those of SAIIA or TISA.

[2] *A Window on Taiwan's Economic Development Experience*. Taiwan, ROC: Council For Economic Planning and Development, Executive Yuan (Cabinet), November 2000.

Taiwan used import-substitution measures to build local industries using labour-intensive production techniques. Trade policy became more export-orientated in the 1960s, and included export incentives and the removal of administrative and other constraints which had hampered the efficiency of exporters. From 1980 onwards, the focus of trade policy was on science, technology and industrial upgrading. Policy initiatives included the establishment of new industrial parks and technology centres; the use of foreign labour; and a re-orientation of domestic education in favour of science and technical training. As a result the share of technology-intensive products in manufacturing output rose from 24% in 1986 to 45.3% in 1999.[3]

It is important to note that no single measure *per se* (whether the amount of import protection, the type of export incentive, the size of the industrial parks, and so on) led to Taiwan's export success. Rather, export growth and the production of high value-added exports were the culmination of the right policies at the right time and various domestic factors, which together encouraged expansion of exports. This combination of conditions for success will be difficult to replicate in other countries wishing to use Taiwan's export performance as a model.

The aim of this paper is to analyse areas where Taiwan's trade policy could assist in improving South Africa's export performance. It also identifies common challenges for South Africa and Taiwan relating to international trade.

South Africa: Trade lessons from Taiwan's export success

South Africa's export performance over the past two decades has been mediocre, even when compared with that of other developing countries.

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[3] *Ibid.*

Compared with the figures for the rest of the world, not to mention those of Taiwan, South Africa fares poorly.

Table 1. South Africa's export performance compared to that of other countries

1980–2000	*World*	*Developed countries*	*Developing countries*	*South Africa*	*Taiwan*
Export growth (%)	7.03	7.28	7.75	2.41	10.83

Source: United Nations Conference on Trade and Development, *Handbook of International Trade and Development Statistics, 2001*

Taiwan's exports as a percentage of GDP for 2000 were 48%,[4] while South Africa's were 19.3%.[5] Major export commodities for Taiwan were machinery and electrical equipment, metals, textiles, plastics and chemicals, while South Africa's were gold, diamonds, metals and minerals, machinery and equipment.[6]

Since 1993 South Africa's exports have shown an increased momentum. The ending of sanctions, increased market access due to South Africa's World Trade Organisation (WTO) membership, improved bilateral diplomatic relations and a depreciating currency are some of the factors which have contributed to this new trend.

However, even in these improved circumstances, South Africa can benefit from the experience of Taiwan, which in terms of export performance was once in the position South Africa is in today. It is therefore helpful to examine

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4 ANZ, *Economic Outlook*, March Quarter 2002. Australia: Australia and New Zealand Banking Group. Available online at *http://www.anz.com*

5 South African Reserve Bank, *Quarterly Bulletin*. Pretoria: South African Reserve Bank, June 2002.

6 CIA, *World Factbook*. Available online at *http://www.cia.gov/cia/publications/factbook*.

the use of government policies in the two countries, and to assess their impact on export performance.

South Africa's trade policy shifted from import substitution towards an export orientation in the late 1980s, nearly two decades after Taiwan underwent a similar transition. Both countries have employed relatively similar export incentives (such as export subsidies, tax holidays, duty rebates, and marketing support). Strategic targeting, which involves directing government resources towards supporting and developing certain key industries or businesses, has also been used by Taiwan and South Africa.

One fundamental difference in policy formulation is that Taiwanese authorities gave economic objectives first priority.[7] Therefore, support measures introduced by the government were designed to supplement market forces and not to work against them. The Taiwanese government provided subsidies to priority sectors, and nurtured selected industries. For example, in the 1950s it allowed for import substitution for light industries such as textiles. In the 1960s it focused on the export of labour-intensive products, while in the 1970s it embarked on the upgrading of heavy industry. In the 1980s the government redirected its assistance from sectors to firms, shifting from a focus on measures to attract foreign investment towards measures which encouraged research and development (R&D). As far as strategic investment is concerned, Taiwan's state-owned enterprises concentrated on sectors such as petroleum refining, petrochemicals, steel, aluminium and heavy machinery, the main objectives being to ensure stability

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[7] Taiwan's trade policies were relatively free from political agendas, compared to those of South Africa in the apartheid era. However, seen in the light of Taiwan's struggle for independence from China, one can see some correlation between Taiwan's focus on becoming a major international player (primarily via its trade with the rest of the world) and its campaign to get official international recognition as an independent state. Hence, its trade policy was not totally free from political considerations.

of supply for private downstream sectors, to achieve economies of scale, to socialise investment risks[8] and to build forward linkages.

In contrast, during the apartheid years, economic goals came second to political objectives in South Africa. The South African government protected, and deliberately encouraged, large-scale investment in projects that would enhance the country's strategic self-sufficiency. These included state initiatives such as Armscor, Sasol, Atlantis and Mossgas. The outcome of these policies is that South Africa, according to the Trade Performance Index compiled by the International Trade Centre,[9] currently displays its best performance in export products such as minerals, basic manufactured goods, chemicals, and transport equipment. Taiwan, on the other hand, performs best in products such as consumer electronics, textiles, electronic components and clothing.

The general assumption of analysts is that a country's comparative advantage in exports depends on the general abundance of its inputs (such as labour). Interestingly enough, both Taiwan and South Africa today export capital-intensive commodities, whilst both have an abundance of labour relative to capital. The important difference, however, is that Taiwan's capital inputs mainly take the form of human capital and thus reflect its true comparative advantage, while South African trade does not. This also reflects Taiwan's having been able to shift its comparative advantage from unskilled labour to

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[8] Socialising investment risks usually occur where a government undertakes investment in projects that are crucial to the economic welfare of the country, but might be too risky (and too large) for the private sector to undertake. Since, indirectly, tax payers' money is used for investment, society bears the risk.

[9] The Trade Performance Index is the most common measure used to assess a country's export performance relative to the rest of the world. Trade data from 184 countries is used to compile the index and includes factors such as export growth, world market share, product diversification and correlation with the dynamics of international demand. It is available at *www.intracen.org/itc/menus/countries.htm*

highly skilled labour. The latter is a domestic factor which has been instrumental in Taiwan's export success.

In order to derive lessons from the Taiwanese experience that may guide South Africa's policies, it is important to review other domestic factors that have contributed to Taiwan's export growth, and which are currently absent in South Africa.[10]

Also, this analysis highlights the peculiarities of South African foreign trade, in order to assess what the major shortcomings are.

Domestic factors contributing to Taiwan's economic success not present in the South African economy

There were a number of domestic factors present in the Taiwanese economy that contributed to its economic success, particularly its export performance. Some factors are the result of the successful implementation of policies, while others are exogenous to the domestic environment.

- Taiwan has an extremely active small, micro and medium enterprise (SMME) sector, resulting from a well-established culture of entrepreneurship. SMMEs export the majority of their output, since the

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[10] It is important to note that these are only selected factors which are considered to have been essential to Taiwan's trade performance. A comparative analysis on macro-economic conditions i.e. the impact of the exchange rate on exports, inflation and international price competitiveness, the tariff structure and its relevance for the anti-export bias, etc would enable the reader to develop a comprehensive understanding of Taiwan's export performance. However, due to the complexity and space required, such an undertaking does not fall within the ambit of this paper. For more details of these aspects see: Chiang PK, 'Taiwan's economic development and outlook', *Review of Pacific Basin Financial Markets and Policies*, 3, 2, 2000; and Myers RH, 'The economic transformation of the Republic of China on Taiwan', *China Quarterly*, 99, 1984.

Taiwanese market is too small to achieve economies of scale. The SMME sector in Taiwan is renowned for the ease with which these businesses can close one enterprise and start another, or adapt in response to international fluctuations.

- High-quality tertiary education is accessible to all Taiwanese.[11]
- Taiwan is relatively untroubled by work disruptions and strikes.
- Taiwan's development was given early assistance in the form of aid and market access by the US. This aid was conditional on changes in government policy toward the liberalisation of exchange control and trade regulations.
- Because Taiwan is lacking in natural resources, it was necessary for Taiwan to export its abundant labour in the form of value added to imported materials and components.
- Taiwan supports an ethical system that requires intellectual leaders to share their knowledge. In return they are rewarded with status. This system is markedly different from the Western practice of having respect for intellectual property rights. This system also encourages the culture of fast technological diffusion and imitation, given the low level of technological creativity among individual firms (especially SMMEs), which do not have sufficient resources to develop new technology.
- Taiwan enjoys a large-scale inflow of foreign investment and a high savings rate of over 30%, which have increased the amount of capital available to expand production capacity.

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[11] See contribution by William Mabena entitled 'The Role of Education in Taiwan's Economic Development: Lessons for South Africa' in this report.

Factors specific to South African exports[12]

The following aspects of South Africa's exports are peculiar to its history and government policies:

- Export growth was mainly driven by surplus domestic capacity in the 1980s and early 1990s. However, the steady rise in exports since 1993, in spite of a recovery of domestic demand, suggests that the shift to international markets has become more permanent.
- Despite progress made in export diversification in terms of destination, South African exports still remain heavily concentrated towards the Organisation for Economic Co-operation and Development (OECD) countries. As a result, fluctuations in the OECD's gross domestic product (GDP) are reflected in South Africa's export performance.
- South Africa has a dual structure of trade relations with developed and developing countries. Exports to developing countries (in particular members of the Southern African Development Community—SADC) tend to be more sophisticated and technology-intensive than exports to developed countries, which are mainly primary commodities and basic manufactured goods. This trend reflects South Africa's current comparative *disadvantage* in technology-intensive products.
- The majority of South Africa's exports are directed towards markets where international demand is declining. In markets with potential, imports from South Africa constitute a relatively low share, which suggests that there is still significant scope for market penetration.
- The importance of manufactured exports has increased substantially in recent years, and currently accounts for 43.8% of total exports. This has not

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[12] For more detailed information on this topic, see Edwards L & V Schoer, *The Structure and Competitiveness of South African Trade;* and Rankin N, *The Export Behaviour of South African Manufacturing Firms.* Both papers were delivered at the Trade and Industrial Policy Strategies (TIPS) 2001 Annual Forum at Misty Hills, Muldersdrift. They can be downloaded at *http://www.tips.org.za.*

translated into employment growth in the manufacturing sector, however, since these exports are predominantly capital-intensive.

- Domestic value-added declines as the propensity to export increases.
- Labour costs, an important factor in export competitiveness, are not competitive in almost all developing countries that are major exporters of industrial commodities. Compared with wages in other middle-income countries, average metropolitan industrial wages in South Africa are effectively 1.7 times higher. In addition, exporting firms in South Africa have higher labour costs than those which produce only for the domestic market.
- Labour productivity is very high compared with that of other developing countries. Interestingly, South African labour productivity is higher in firms that export to countries other than SADC.
- Larger firms are more likely to export, suggesting that fixed costs may be an important constraint on exporting for smaller companies.
- Few firms export a significant proportion of their total output.

In view of these factors, it seems that the biggest challenge for South Africa is to diversify its export products and concentrate on those that are in international demand. This requires export of higher value-added products, which includes the use of more sophisticated technology.[13]

Although South Africa does not have Taiwan's educational advantages, it can certainly learn from the way in which Taiwan linked domestic and foreign technology so as to build indigenous scientific and technological capacity. Part of the foreign technology transfer was accomplished through the importing of embodied technologies (that is the acquisition of capital goods and repatriation of technicians) rather than disembodied ones (such as licences and patents). In addition, joint ventures (instead of wholly owned foreign

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[13] Naturally, it would help to address the socio-economic needs of South Africa if the progression towards higher value-added maintained some labour-intensity in the form of semi-skilled labour.

subsidiaries) were encouraged by government incentives. The Taiwanese government also contributed to the adaptation and dissemination of modern technologies through the establishment of public research institutions. This whole process was supported by a high level of expenditure on R&D—about 2% of GDP annually, the international average for R&D expenditure as a share of GDP being 1.4%. By comparison, South Africa spends only about 1% of GDP on R&D.[14]

Higher levels of technology used in production processes in South Africa will serve as an incentive for foreign investment, which in turn will supplement the low domestic savings rate in the country. Naturally, higher levels of investment will also contribute to increased production capacity, and enable the country to supply larger quantities to the international market. This would be of great value to South African exporters whose products have only a small market share, as is most often the case.

The dual structure of South Africa's trade provides the opportunity to use its technology-intensive exports to developing countries as a base from which it can develop and progress to more sophisticated technology which can meet the demands of developed countries. High-tech products exported from South Africa include products such as aircraft, televisions, automotive components, pharmaceuticals and optical instruments.

Taiwan provides an excellent example of how competitive collaboration can lead to an increase in small-scale exporters, which could be used as a guide in getting more South African firms to export. Owing to their small size, Taiwanese SMMEs collaborate with each other when they cannot meet an export order unassisted, even though they are competitors who specialise in the same service or product. This behaviour leads to an outcome which is optimal for everyone, but is seldom to be found in South Africa, where only large firms tend to export and inter-firm collaboration is not frequent. Because

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[14] United Nations Educational, Scientific and Cultural Organisation (UNESCO), *Where the Money Comes From. http://www.unesco.org/bpi/science/content/press/ anglo/7.htm.*

of the importance of building an export culture among SMMEs, competitive collaboration should be given priority. Not only does it reduce the fixed capital cost constraints; it also allows for the sharing of risk, market intelligence and perhaps also technology.

Recently, the Taiwanese government initiated a Warehouse Transhipment Special Zone Plan. The aim of this plan is to develop Taiwan into a high value-added global logistics centre, which includes large-scale international procurement of production inputs and an offshore shipping base. Taiwan's geographical location is ideal for such a strategy, as it is situated on the west Pacific rim, which bridges some of the largest economies in the world, such as Japan, South Korea and mainland China. Taiwan is also close to many major harbours and airports.

South Africa finds itself in a similar position, as it serves as the hub of the rest of Southern Africa, and is strategically placed between Latin America and South Asia. Therefore, a strategy aimed at developing a logistics centre in South Africa should have merits, including helping to increase the volume of foreign trade. Not only would this be good for export earnings, but it would also provide the opportunity for South Africa to become more familiar with foreign technologies and international marketing strategies.

However, the establishment of a logistics centre in South Africa would entail significant investment in infrastructure upgrading (particularly with regard to transport) and in the improvement of the capacity and operational efficiency of domestic ports and harbours. All of this would demand large capital outlays, which would require public and private sector co-operation and/or partnerships. In addition, foreign investment would also be needed if this type of strategy were to be adopted.

Both South Africa and Taiwan have recently embarked on what is termed national product branding. This involves giving a 'national stamp of approval' to products which qualify under certain terms and conditions. Concerns about Taiwan's image as a leading producer of counterfeit consumer goods has led

to the adoption of the logo 'Innovalue', which is used as Taiwan's national stamp of approval. The logo represents two important qualities, innovation and value, and is used to advertise Taiwan's unique ability to use innovation to create value in the design and manufacture of leading edge products.[15]

South Africa has a similar national brand strategy. It uses the logo 'Proudly South African', which stands for high quality standards, sound environmental and labour practices, and, where necessary, compliance with the South African Bureau of Standards (SABS) specifications.[16] It also requires local content of up to 50% of production costs. Important ingredients in the package are the inclusion of labour and environmental standards. Both the United States and the European Union, the two main export destinations for South African products, give high priority to the use of such standards.

Naturally, it would be advantageous if South Africa's progress to more technology-intensive exports were to be accompanied by national branding which also includes technological expertise as a selling quality. Taiwan's success in that field could provide valuable lessons on methods of marketing technological excellence.

In any event, to be of any value, national product branding needs to be sustainable and pay heed to the standards it sets. Just as a national brand can promote South African exports, it can also do the opposite if there is a mounting perception in countries buying South African goods that the brand in no way guarantees the quality of the goods exported.

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[15] For more details on this strategy, visit *http://innovalue.cetra.org.tw/ci/content.htm.*

[16] For more details on this strategy, visit *http://www.proudlysa.co.za.*

International trade and its challenges for South Africa and Taiwan

It is worth reviewing some of the challenges which both South Africa and Taiwan face in the international trade arena, since such areas of concern, once identified, could be used as a basis for future co-operation.

- Both countries must maintain international competitiveness, in spite of rising labour costs.
- The migration of labour from traditional manufacturing industries into new branches of economic activity, such as electronics, bio-genetics and robotics, should be encouraged.
- As in all other countries participating in the global economy, the education system in Taiwan and South Africa should be aligned so that the skills requirements of their growing economies can meet global challenges.
- Environmental protection management should be included in businesses' production cycles. Environmental issues are fast becoming a great concern for Taiwan, due to its unsustainably high levels of pollution. For South Africa, it is not so much domestic pollution, but rather compliance with the environmental standards likely to be enforced by the WTO.[17] Since Taiwan has also recently joined the WTO, this should be an added incentive for its government to start planning to make Taiwan a 'green silicon island'.
- Increased international market access should be negotiated during the WTO trade talks. It is possible that South Africa and Taiwan could build common positions on strategic issues such as preventing more protectionism in the form of high environmental standards, and promoting the application of multilateral regulations, including tariffs, in e-commerce.
- The dependence of both countries on OECD markets for exports should be reduced. Although these markets will always be important, export

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[17] Environmental standards are currently included in the WTO's agenda for a new round of trade negotiations.

diversification would reduce the risk of a decline in demand for imports resulting from a simultaneous downturn in these economies, as happened in 2001.

Conclusion

South Africa, the powerhouse of Southern Africa, is a relatively small participant in international markets. Although it might assume market leadership positions in sectors such as agriculture and basic manufacturing, it is still a newcomer to markets for technology-intensive products. However, the latter is an extremely powerful tool which South Africa could use to improve its export performance and promote socio-economic development. Taiwan, which has already been through the learning curve of shifting comparative advantage, offers the most important lessons for South Africa in terms of the different facets of technology in trade: technology building, diffusion, integration and marketing.

In summary, even though the trade structures and performance of these countries differ considerably, they share common challenges, whether these take the form of WTO alliance building or of export diversification away from OECD markets. This common ground provides the opportunity for active collaboration and mutual assistance with trade-related matters in the future.

'Rather the Head of a Chicken than the Tail of a Bull': The Success of Taiwan's Small and Medium Enterprises

Monika Glinzler[1]

Before the advent of the Asian financial crisis in 1998, when it was still fashionable to talk of the 'East Asian Miracle', Taiwan was held up, along with the other Asian Dragons (Singapore, Hong Kong and South Korea), as a shining example of successful economic development and industrialisation achieved in a short space of time. In a period of less than 50 years, Taiwan had increased its per capita gross national product (GNP) from $167 in 1953 to $13,971 in 1997.[2] Illiteracy had dropped from 55% in 1946 to 4.3% in 1988.[3] Nine years of compulsory education were introduced in 1968, and by 1998 the proportion of the population over the age of 15 with a tertiary education (23%) was greater than the proportion with only primary education.[4] Unemployment and inflation have remained consistently below 5%. Taiwan is also characterised by an income distribution that compares very favourably

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[1] MONIKA GLINZLER was the Asia-Pacific researcher at the South African Institute of International Affairs (SAIIA) until February 2001. She is presently with the South African Department of Trade and Industry. The bulk of research for this paper was conducted during a research trip to Taipei in 2000, sponsored by the Taipei Liaison Office in Johannesburg. Please note that the responsibility for the views herein are the author's alone.

[2] Council for Economic Planning and Development, *Taiwan's Development Plan: Chronology*, 1997.

[3] The Institute of Economics, Academia Sinica, *Conference on Economic Development Experiences of Taiwan and Its Role in An Emerging Asia-Pacific Area*, Taipei, 1988, p.36.

[4] Council for Economic Planning and Development, *Economic Development, Taiwan, Republic of China, 2000.*

with that of advanced industrialised countries—the income inequality ratio is less than 5.[5]

In the aftermath of the 1997–98 financial crisis, Taiwan again stood out as faring very well in comparison with its neighbours. The reasons cited for this were a healthier financial system, high-tech exports, and the large and vibrant small and medium enterprises (SME) sector. The fact that Taiwan's economy was not crippled by the devastating 1999 earthquake (which saw over 2,000 people lose their lives and more than 10,000 people injured, and which caused large-scale damage to central Taiwan, including the disruption of power supplies, transport links and infrastructure, as well as the destruction of thousands of houses and high-rise buildings), was also in part attributed to SMEs, as the majority of the companies resumed production and business activity within only two weeks of the event.

South Africa still faces many of the development challenges already successfully overcome in Taiwan. Perhaps the most pressing need in South Africa is that for job creation. South Africa's official unemployment rate is 29.5%, and if the expanded definition is used, it is 41.5%.[6] The development of SMEs is seen as a priority for South Africa's development, especially as a vehicle for job creation and job retention. One of the ways to help achieve this national priority is to examine international examples of success and ask what, if anything, we can learn from these.

Taiwan's successful development of an SME sector is frequently mentioned in the literature on East Asia's development experience. Although Taiwan's

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[5] Measured as the ratio of income of the richest one-fifth of the population to the poorest one-fifth. World Bank, *The East Asian Miracle: Economic Growth and Public Policy*. New York: Oxford University Press, 1993, p. 31.

[6] Stats SA, *Labour Force Survey September 2001*, Statistical Release P0210, 26 March 2002. The expanded definition includes people seeking employment, but not taking active steps to find work in the four weeks prior to the survey—so-called 'discouraged' workers.

achievement can be attributed to special circumstances peculiar to the island's historical, cultural and developmental experiences, it is possible to sift out which aspects are unique to Taiwan, and which aspects can be replicated in other countries. This paper attempts to extract these lessons.

An overview of Taiwan's SME sector

SMEs form a significant portion of the Taiwanese economy in terms of employment, manufacturing, exports, and contribution to GDP, as the following statistics will show.

SMEs account for the vast majority of enterprises in Taiwan. In 1999, they comprised 97.73% of the island's 1,085,430 enterprises. Most of Taiwan's workforce is employed by the SME sector, and the numbers are rising steadily. In 1999, SMEs employed 7.34 million people, accounting for 78.3% of total employment. Manufacturing SMEs and commercial enterprises contribute roughly equally to employment (28.5% and 27.3% respectively), although manufacturing enterprises comprise only 13.5% of total SMEs.[7] Over 60% of SMEs are commercial enterprises, 8.3% social and personal service enterprises, and 7% construction enterprises.[8] It should be noted, however, that the definition of SME differs between certain sectors. Taiwan defines SMEs as those enterprises with less than NT$60 million (R20 million) worth of capital or employing fewer than 200 people in the manufacturing, mining or construction sectors. In any other sector (for example commercial and service) the enterprise must have sales less than NT$80 million (R26 million) or employ fewer than 50 people.[9] In terms of the age of enterprises, 24% are between 10 and 20 years old, 22% are between five and ten years old, and 15% are over

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[7] Small and Medium Enterprise Administration, *White Paper on Small and Medium Enterprises in Taiwan*, 2000, p.39.

[8] *Ibid.*, pp.28–29.

[9] *Statute for the Development of Small and Medium Enterprises*, Republic of China, 2000.

20 years old. Enterprises less than a year old accounted for 9.5% of the total, with the remainder being between one and four years old.[10]

The total direct export value of Taiwan's trade in 1999 was NT$5.675 billion (approximately R1.85 billion). The contribution of SMEs amounted to 21.1% of this, at NT$1.198 billion. This figure, however, showed a continuing and steady downward trend, having decreased by 2.9% from the previous year. The contribution of large enterprises, by contrast, showed a gradually increasing trend. The Small and Medium Enterprise Administration (SMEA) explains these trends by pointing to the change in role of Taiwan's SMEs from direct exporters of final products to producers of components and suppliers to large enterprises.[11]

How does South Africa compare? Although small, medium and micro enterprises (SMMEs)[12] also make up about 97% of the approximately 800,000 companies in South Africa,[13] micro enterprises account for 67% of all businesses, small enterprises account for 19.3%, and medium enterprises account for 10.7%. SMMEs contribute 34.8% to GDP, and employ 55% of

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[10] *White Paper, op. cit.*, p. 33.

[11] Interview with Mr Lei Shee-Chien, SMEA, November 2000.

[12] South Africa includes 'Micro Enterprises', hence the acronym SMME. SMMEs are defined in the *National Small Business Act (Act 102 of 1996)* in the following manner: Micro Enterprises—1-5 employees; Very Small enterprises—5-10 employees (5-20 in mining, manufacturing and electricity); Small—less than 50 employees, Medium—up to 100 (and up to 200 in mining, manufacturing and electricity).

[13] Estimate by South African Chamber of Business (SACOB). Interview with Mr Gabriel Msithini, Executive Liaison: Membership, SACOB, April 2000.

South Africa's labour force.[14] In terms of international trade, only 3% of South African SMMEs export their products.[15]

The proportion of SMMEs in each sector, and their contribution to that sector's GDP, calculated in 2000, was:[16]

- 94% of all enterprises in the agricultural sector, contributing 46% of that sector's GDP;
- 84% of all enterprises in the mining sector, contributing only 5% to that sector's GDP;
- 94% of all enterprises in the manufacturing sector, contributing 33% to that sector's GDP;
- 96% of all enterprises in the construction sector, contributing 50% to that sector's GDP;
- 98% of all enterprises in the transport sector, contributing 45% of that sector's GDP; and
- 99% of all enterprises in the business service sector, contributing 30% to that sector's GDP.

So whilst SMEs/SMMEs make up similar proportions of the total number of enterprises in both South Africa and Taiwan, their role in terms of employment, contribution to GDP, and exports, is far greater in Taiwan.

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[14] Ntsika Enterprise Promotion Agency, *State of Small Business in South Africa: Annual Review 2000*, p.35.

[15] Calof J &W Viviers, 'The promotion of exports in South Africa', *Africa Insight*, 25, 4, 1995.

[16] Calculated from figures in Ntsika Enterprise Promotion Agency, *ibid.*, p.24.

Taiwan's economic development policies and their bearing on SMEs

Taiwan's SME sector should not be seen in isolation. Many other factors contributed to Taiwan's economic success story, and these also had a direct bearing on the performance of SMEs. Much has been written on the reasons for Taiwan's phenomenal prosperity.[17] The purpose of this paper is not to revisit the details of that debate at this juncture. However, certain government policies had an impact on the development of the successful SME sector, and therefore are directly relevant to the focus of this paper.

At the end of the Second World War, there were very few SMEs in Taiwan. However, the radical and very successful 'Land to the Tiller' land reform programme of the 1950s was the first step towards changing this situation. Under the slogan 'using agriculture to cultivate industry', Taiwan's agriculture and land policy laid the foundation for its economic development. The land reforms required landowners to sell all land above a certain acreage. In addition, public lands (appropriated from the Japanese after the Second World War) were sold to smallholders on easy terms. The government compensated the landowners in part with industrial stocks in confiscated Japanese factories.[18] This redistribution of assets formed the foundation for the equitable distribution of wealth evident in Taiwan today. The land reform also created many small, independent farmers, who, as tenants in earlier times, had some managerial experience. The government's import substitution policy bolstered domestic demand, and as the size of agricultural land decreased with the land reform, some farmers changed production on their

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[17] World Bank Report: *The East Asian Miracle*; Wade R, *Governing the Market: Economic Theory and the Role of Government in East Asian Industrialisation.* Princeton: Princeton University Press, 1990.

[18] Brautigam D, 'The state as agent: Industrial development in Taiwan, 1952–1972', in Stein H (ed.), *Asian Industrialisation and Africa: Studies in Policy Alternatives to Structural Adjustment*. New York: St. Martin's Press, 1995, p.152.

smallholdings from farming to such enterprises as small textile and leather factories. With the introduction of the export promotion policy in the 1960s, SMEs thrived even better, as labour-intensive industries such as textiles, garments and electronics, experienced high growth. The creation of export processing zones absorbed the labour moving from rural to urban areas.[19] Therefore, the main feature of Taiwan's economic development—the dramatic rise in the share of industrial and commercial output versus the rapid decline of the share of agricultural output—was a direct result of the land reform policy.[20]

Education has also played a major role in overall economic development. As a relatively small and mountainous island, Taiwan has a shortage of space and natural resources, but human resources abound. Considering this to be its most valuable asset, Taiwan embarked on rigorous education policies in pursuit of an educated labour force with skills relevant to the island's economic needs.[21] Taiwan has now reached the level where of the 130,000 high school students per year, over 60% are admitted to tertiary institutions. Of these, 99% graduate and 25% pursue master's degrees or go abroad to study further.[22] This has meant that Taiwan is well equipped to rise to the challenges of the knowledge-based economy (the new engine for the island's growth), and to develop it in the new millennium. More than 50% of the owners of Taiwan's semi-conductor companies (which fall into the SME category) have been educated abroad.

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[19] For a more detailed discussion on Taiwan's export promotion policy see the paper by Carin Voges in this publication.

[20] The Institute of Economics, Academia Sinica, *op. cit.*, p.263.

[21] For a more detailed discussion on Taiwan's education policy see the paper by William Mabena in this publication.

[22] Interview with Mr Cheng-chung Chu, Director of Research Division 2, Taiwan Institute of Economic Research, Taipei, November 2000.

The answer to the question: Why have the Taiwan government's policies proved so successful? is given simply by Mr Chu Yun Peng, Research Fellow at Academia Sinica. They were pragmatic, almost always in response to external conditions, almost always carefully considered, and not a quick response based on textbook theories.[23] He cites two examples of effective government policies: the shift to export promotion occurred in response to the shortage of foreign exchange and the cessation of US aid in the 1950s and 1960s. The lifting of exchange controls in the 1980s was a response to the upward pressure on Taiwan's currency from an oversupply of foreign exchange. In order to avoid the rapid appreciation of the currency, which would have hurt exporters, it was decided to liberalise the current account. The outflow of currency occurred because of a strong demand for dollars, and Taiwan's currency did not have to appreciate.[24]

The positive role played by government policies has been cited as one of the most important factors in Taiwan's success. For South Africa, many of these policies cannot be replicated, especially not in this age of ever-faster globalisation, ever-changing technological advancement, and WTO commitment to trade liberalisation. Generally these policies would be unlikely to succeed in an economic environment which is hostile to developing countries, against government intervention, and in which capital is highly mobile, and competition for foreign investment very high. Arguably, it is not so much the policies that we should be looking to replicate, but rather the diligence, far-sightedness, cohesion and pragmatism that Taiwan brought to the task of policymaking.

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[23] Robert Wade points out that until the late 1980s, 11 of 14 ministers of economic affairs in Taiwan were engineers. Wade R, *op. cit.*, p.219.

[24] Interview with Mr Chu Yun Peng, Research Fellow, Sun Yat-sen Institute for Social Sciences and Philosophy, Academia Sinica, Taipei, November 2000.

Taiwan's SME development policies

As mentioned in the previous section, SMEs thrived under Taiwan's development policies. The period 1953–60 was marked by policies favouring import substitution, in which high tariffs and other measures were used to reduce the reliance of the island on foreign exchange-consuming imports. SMEs producing for local consumption flourished as a result. The policy of export promotion was introduced in 1960. Exports grew rapidly, especially in the plastics, textiles, glass cement and plywood industries, and SMEs achieved remarkable export rates. As their importance to Taiwan's economic success became ever more apparent, government created the first institutions for the assistance of SMEs (in the second half of the 1960s). In the 1970s SMEs began producing computers and computer components.[25]

Whilst in the early stages of Taiwan's economic development, SMEs focused on labour-intensive low-tech industries such as clothing, textiles, plastics and so on, this gradually changed, for a variety of reasons. In the 1980s, SMEs were forced to alter their production methods in order to face the challenges arising from exchange rate appreciation, wage increases, labour shortages and competition from developing countries, especially Southeast Asia and the People's Republic of China (PRC). SMEs had to move their production off-shore to these countries, as many did, or to shift their focus to more high-tech value-added products, and increase productivity and marketing, use resources and technology more efficiently, and so on. These challenges intensified in the 1990s, with the new buzzwords 'globalisation' and 'the new millennium' giving a sense of urgency to the need for all economic players to change. Dynamism and flexibility came to be considered as two of the most important factors in economic growth. It is exactly these factors that are strong points in SMEs, which is one reason why the support and encouragement of SMEs is so important.

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[25] SMEA, *Growth and Guidance of the ROC's Small and Medium Enterprises*, pp.7–9.

It is interesting to note that the initial rise of SMEs happened 'by accident'.[26] There were no policies for the assistance or promotion of SMEs in the initial stages of Taiwan's economic development. This contrasts strongly with the active role currently played in SME development by Taiwan's government, which set up the SMEA in the Ministry of Economic Affairs in 1981. Since then the SMEA has been actively guiding and assisting SMEs in adapting to the fast-changing economic environment. In the early 1990s, it developed its '10 Guidance Systems' for SMEs to fulfil the following functions:[27]

- providing credit and assisting SMEs to improve their financial structures;
- assisting SMEs in setting up management systems, boosting management efficiency, and human resource development;
- assisting in the development of new products and supporting research and development efforts;
- collecting information and establishing information management systems;
- improving industrial safety;
- establishing or improving pollution control facilities;
- providing market intelligence to assist in the market expansion of SMEs;
- bolstering co-operation among SMEs in order to boost competitiveness; and
- assisting SMEs to raise the level of service and production quality.

These guidance systems are aimed at addressing the age-old problems of access to financing and lack of human resource development that SMEs (including South African SMMEs) face. But the SMEA also offers programmes to help SMEs cope with new realities: the need for research and development, environmental controls, finding new markets, and improved quality, to satisfy the discerning First World consumer (in Taiwan as well as internationally,

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[26] Interview with Mr Cheng-chung Chu, Director of Research Division 2, Taiwan Institute of Economic Research, Taipei, November 2000.

[27] *Ibid.*, pp.19-20.

because Taiwan can no longer compete with other developing countries in its traditional products).

In concrete terms, Taiwan's government provides favourable tax rates for venture capital investments, and has itself provided NT$100 billion (R33 billion) in venture capital for over 4,000 SMEs.[28] Government also provides a credit guarantee fund and other financial assistance schemes. It has facilitated the creation nationwide of 48 SME Incubator Centres, housed at tertiary institutions. These incubators provide guidance for start-up SMEs, in terms of space, technical and human resource support, and business and information support. Taiwan also has SME training centres to meet the training requirements of the knowledge economy, and various other assistance and service centres geared specifically to the needs of SMEs.[29] The establishment of science parks has helped technology and skills transfer and development among companies.

A very interesting point to note in respect of SMEs in Taiwan is that all companies, large and small, are obliged by law to form part of an association, either in terms of the sector in which they operate, or the locality in which they are situated.[30] Thus government has an effective way of consulting with companies, and communicating information and policies. In return, companies also have an effective means of consulting government, lobbying on important issues and receiving (sector-specific) information.

This is not the case in South Africa. Often businesses do not co-operate well within their own sector, preferring to remain bitter competitors rather than

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[28] Interview with Mr Cheng-chung Chu, Director of Research Division 2, Taiwan Institute of Economic Research, Taipei, November 2000.

[29] Small and Medium Enterprise Administration, *White Paper on Small and Medium Enterprises in Taiwan, 2000*, pp.227–250.

[30] Interview with Mr Sam Ho, Executive Director, Chinese National Federation of Industries, Taipei, November 2000.

seeing the value of co-operating to achieve a bigger slice of the pie. High membership prices are also cited as reasons by businesses for not being affiliated to any chamber. A valuable channel of communication between government and business is thus absent in South Africa. Any failure of policies and assistance programmes must in part be attributed to this situation.

The policies described above all have bearing on SMEs, and helped create an enabling environment, which, together with the entrepreneurial spirit and cultural traits of the Taiwanese, allowed SMEs to thrive on the island.

'Rather the head of a chicken...': Taiwan's entrepreneurial spirit

Regarding factors other than government policy and the favourable economic climate it created, the rapid growth of Taiwan's SMEs must also be attributed to cultural attitudes. One such attitude is best summed up in the saying, 'Rather the head of a chicken than the tail of a bull', which was repeated to me often during research interviews, and should be interpreted as meaning that the Taiwanese have a strong entrepreneurial spirit, and a powerful preference for starting their own businesses rather than becoming employees of large companies. 'They like to be the boss.'[31]

Also, the family and kinship structures in Taiwan are such that the family is involved in the enterprise. Relations often provide loans needed to establish, run or expand a business, and participate actively, doing all kinds of jobs, which means that labour costs are low and the willingness to work is high. [32]

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[31] Interview with Mr Sam Ho, Executive Director, Chinese Naitonal Federation of Industries, Taipei, November 2000.

[32] The Institute of Economics, Academia Sinica, *op. cit.*, p.264.

In developing from basic to more and more sophisticated industries, Taiwan's SMEs have taken a many-pronged approach. The development of the computer industry provides a good example. Companies would start with the assembly of computers; then a new company would start manufacturing its own computers. The older assembly company would invest in the new company, while continuing its assembly operations. The success of one computer producer spawns the creation of other producers, but all the while the original assembly continues.[33]

The new and adventurous businesses tend to be SMEs founded by well-educated employees, or people returning from abroad. SMEs are also the most innovative when it comes to relocating business abroad to reduce production costs. In contrast to Japan, where government and big business tend to set the trends for offshore production, in Taiwan SMEs set the trend of moving production to the PRC, with bigger companies following later.

Taiwan's SMEs have proved adept at coping with the new challenges posed by the global economy in another way: They have formed part of a cluster economy, whereby a large company forms the head of the pyramid and the SMEs 'cluster' around it, playing a supportive role and providing a variety of inputs.[34] The nature of this structure in Taiwan is a highly competitive one, setting it apart from the Japanese or Korean models, where the large companies rely on preferred suppliers.

The advantage of an SME-dominated economy is that, as SMEs tend to be aggressive and flexible, they are able to achieve great success in economic boom times. During recessions, on the other hand, they are able to put their flexibility and tenaciousness to use to help stabilise the economy. However,

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[33] Interview with Mr Cheng-chung Chu, Director of Research Division 2, Taiwan Institute of Economic Research, Taipei, November 2000.

[34] Interview with Mr Shee-Chien Lei, Specialist, Small and Medium Enterprise Administration, Ministry of Economic Affairs, Taipei, November 2000.

while SMEs may be expert at adapting to changing environments, they are also very vulnerable. In Taiwan approximately 46,000 new SMEs emerge every year. Of that number, however, almost as many disappear again. Thus one of the weaknesses of that sector is that the failure rate of SME companies is very high.

South African SMME support programmes

Taiwan's entrepreneurial spirit is supported by the government's SME programmes, rather than driven by them. In fact, bodies like the SMEA were only created in the mid-1980s in response to the needs of entrepreneurs, as government realised the important contribution SMEs made to the economy. The key to the success of Taiwan's SME programme is thus that it provides assistance in areas which are high in cost but clearly necessary for any business to develop, thus bringing the advantages of large enterprise (access to finance, research & development assistance, and marketing assistance) to the flexible and nimble SME. This gives the SME the space and opportunity to focus on what it does best: the manufacture of a good or provision of a service.

The South African government also offers a range of support services to small, medium and micro-enterprises (SMMEs), in recognition of their importance for the country's economic development. For example, Khula Enterprise Finance was established to provide finance to SMMEs, although it must be noted that finance remains the largest obstacle to SME development in South Africa, and the demand far outweighs what Khula can provide. The government has also acknowledged that SMMEs have special needs and vulnerabilities. The National Manufacturing Advisory Centre (MAC) programme aims to assist SMMEs, specifically in the manufacturing sector, to improve their performance, growth and competitiveness in South Africa. In order to provide access to information, the South African government has established BRAIN, or the Business Referral and Information Network programme, to provide SMEs with Internet access to relevant business information.

Ten incentive schemes aimed at SMMEs have also been introduced, including the Competitiveness Fund, the Short-term Export Finance Guarantee, the Export Marketing and Investment Assistance Scheme, a Standard Credit Guarantee Scheme, a Venture Capital Scheme, and the Small and Medium Enterprise Development Programme. All of these programmes seek to improve technological innovation and entrepreneurship in SMMEs, increase exports by SMMEs, or provide them with much-needed finance. Unfortunately, the scope of this paper does not allow for an objective evaluation of these programmes.

It appears, however, that South Africa has firmly grasped the nettle of developing a strong and thriving SMME sector. As in Taiwan, where the government developed policies and programmes in response to the entrepreneurs' needs and economic trends, South Africa's policies will continually need to be fine-tuned to the entrepreneurs' needs and in response to global economic trends. For example, the fact that currently only 3% of South African SMMEs export is cause for concern.

South Africa's participation in the global economy since 1994 and its obligations under the WTO mean that it is opening its market through systematic tariff phase-downs. This brings both challenges and opportunities to South African producers. On the one hand they face increased competition from international producers. On the other hand they have vast opportunities in the international market. Producers need to be increasingly competitive, in terms of price, but also in terms of quality. SMMEs will have to be courageous in taking advantage of these opportunities, and the South African government will have to provide the necessary guidance and assistance.

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