

**“The Economics of Education:
Educating for the Future”**

**Address by Governor, Dr. Marion Williams
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& Education Awards Ceremony
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Introduction

Thank you for that most generous introduction.

Mr. Master of Ceremonies, Mr. Matthew Farley, Chairman of the Educational Forum, Mrs. Goodridge and other members of the Goodridge family, Permanent Secretary - Ministry of Education, Mrs. Atheline Haynes, Chief Education Officer - Mrs. Wendy Griffith-Watson, distinguished ladies and gentlemen.....

Let me first express my appreciation to the Forum of Education for the opportunity to be a part of the public discourse on a subject which most will concede is of paramount importance. This lecture honours one of the Caribbean's outstanding sons, and the series has already contributed and will continue to contribute to the development of Caribbean thought. During much of his career, Rudolph Goodridge would have spent a great deal of time on the economic issues of optimal allocation of scarce national and regional resources for education. I therefore feel assured that the choice of tonight's topic "The Economics of Education -with special reference to Barbados" would have received his blessings.

Why involve economics

Since education involves policy choices with financial consequences, there is a strong case for involving the discipline of economics. This lecture will not deal with the management of education in Barbados – I wouldn't dare in this audience - as that is a subject properly befitting the efforts of practitioners like yourselves.

Following some brief remarks on the status of our educational achievements in Barbados, I will focus firstly on what is required from our educational system if it is to be the pivot of accelerated economic growth and development in the 21st century, secondly on the sectoral and strategic areas of emphasis which future global and regional trends indicate to be necessary and thirdly the implications for public and private financing of meeting these objectives. The perspectives will be those both of an economist and a user of the products of our educational institutions.

In evaluating the delivery of any product or service, economists aim to optimise returns, that is, to get the best possible result subject to constraints. Economists are also well known for focussing on

factors of production. Early economists spoke of land, labour and capital as the main factors of production. Today technology has been added to the list. They also speak of various markets, particularly the goods market, the labour market and the money market.

Contribution to the Economy

The linkage with the labour market has been explored by several economists, including Nobel Laureate Sir Arthur Lewis in his celebrated work “Economic Development with Unlimited Supplies of Labour”. A World Bank discussion paper on education and development cites the positive impact on the Gross Domestic Product and the increased physical productivity of specific groups as they learn new processes and techniques in all fields. In addition, evidence also shows that the additional value to society from the income of educated persons is much higher than the sum of their forgone output and costs incurred while they are being educated, confirming that net returns are positive.

Social & Public Benefits

In addition to the economic benefits, education, by producing knowledge, skills, values, and attitudes, is also essential to social and human development and there is general agreement that there are tremendous public benefits from education, both in the sense of contributing to a literate work force, and in instilling socialising behaviour which make for a well-woven social fabric. In Barbados, education has proven itself to be a means of avoiding poverty and creating upward mobility both at the individual level and at the national level, through its cumulative ability to assist in the delivery of a higher quality of goods and services, consequently raising the country's standard of living.

In addition, education supports good governance, since an educated population is more likely to see the benefits of, and therefore comply with laws and regulations, and is more inclined to understand and accept difficult policy decisions. This was also the conclusion of the Commission on Law and Order. The importance of education is therefore unassailable; the issue often is what should be delivered, how it should be delivered and who should fund its delivery.

Our past achievements in education

In making recommendations about the future we must also acknowledge the tremendous achievements of the past and the major contribution of our educators. Statistics for the period 1999 to 2001, published by the United Nations (UN) in its latest Human Development Report indicate that there is a clear divide between developed and developing countries with respect to educational attainment.

On the index of literacy and enrolment, the top 20 developed countries scored 99 from a possible 100; the countries at the bottom of the Index had an average of less than 50. However, in the Caricom region, Barbados and St. Kitts and Nevis with indices of 95 and 98, respectively, were the best performers. Among other developing countries in the Western Hemisphere, only Argentina, Uruguay and Cuba were rated above 90.

An important indicator is public expenditure on education expressed as a ratio of Gross Domestic Product (GDP) or Gross National

Product (GNP). Simply put, this is a rough measure of how much of the national wealth is devoted to public education. Between 1999 and 2001, the 20 most developed countries recorded an average share of 5.5%, compared to one of 2.9% for developing countries at the lower end of the scale. On average during the period, rich countries allocated about 90% more of their national resources to education than the typical very underdeveloped country.

Many countries in the Caribbean reached expenditure ratios in the range of developed countries: Barbados (6.5%), St. Kitts and Nevis (7.7%) St. Lucia (7.3%), Jamaica (6.3%) and St. Vincent and the Grenadines (9.3%) were all above the average for developed countries, underscoring why most Caricom countries are characterised as middle income developing economies with comparatively high human development indicators.

It is instructive, as well, to examine how expenditure is allocated among the various levels of education. The Statistics from the UN reveal that affluent countries tend to allocate relatively more of their expenditure to higher-level education while developing countries tend to spend more on primary education. With respect to higher

education, between 1999 and 2001, the poorest countries, on average, spent 26.8% on secondary schooling and 20.6% on tertiary education, compared to averages of 40.1% and 24.8%, respectively, for the rich countries. In Barbados, 33.9% went to secondary and 29.9% to tertiary education, the latter being higher than in many developed countries.

The Cost of Education

It is not as easily appreciated in Barbados however, that a good educational system is very expensive. Many countries with the best intentions are unable, because of competing budgetary demands, to devote the required level of resources to education.

Let me now provide some general information on the trends in expenditure on education in Barbados. Education increased its share of Government expenditure from 15.2% of total expenditure in 1957, that is prior to free education, to an average of 21% of total expenditure over the last five years. Spending on education expanded more quickly than total spending by government; this of course means that other Government activities were losing resources

in the interest of education. What is perhaps even more significant is that education's share in total expenditure was maintained even during the periods of recession in 1981-82 and 1990-92. This is not to say that Barbados is among the highest spenders on education. Some countries spend a much greater share of their budgets. In Israel, Japan, Korea, US and Zimbabwe this figure is closer to 40% and is 30-40% in Latin America. However, without doubt this country has a profile of public spending on education which is more like that of developed countries.

However, the required quality of education and its increasing costs have made it difficult for private institutions to survive or to compete with the services offered by government educational institutions. As a result, Barbados' educational system, which had a large private school component up to the 1980s, with a few exceptions, has now been taken over almost completely by Government.

A view of the future

Though our educational achievements are laudable; can our present educational system properly prepare our citizens for the 21st Century?

In order to answer questions about future trends and their relevance to education, one needs to consider what the future is likely to hold for Barbados. We can attempt a quick prospective view of global, regional and national prospects - say over the next 20 years. I am sure that this kind of strategic assessment has been done by the education authorities but I would like to share my own perspectives and some global views with you on this topic.

At the international level, studies suggest that there are four important functions which will influence the future; the number and distribution of people on the planet, the world's geopolitical organizations and interaction, the world's economic processes, the effects of new technologies and the constraints imposed by the natural environment.

Other developments expected are the formation of a complex international regulatory environment, and a further rise of the multinational corporation. The technological, internet and space travel revolution are expected to continue and new knowledge will be available at an exponential rate. The individual cultures of states on the periphery of the world stage could influence global cultures, and

people will move and work around the globe much more in an average lifetime. An aging population in post-industrial states and a growing young population in developing countries are likely. There is likely to be migration from the cities in developed countries as people work in an integrated framework from distant locations but migration to the cities in developing countries is likely to continue.

Microstates similar to Singapore and Hong Kong are likely to proliferate (good news for small countries like Barbados) and other power-centres will emerge, the EU, Japan, China and some think perhaps Brazil and Russia. Transnational corporations such as automotive, fashion and entertainment industries will continue to influence cultural lifestyles, and the world will become more conscious of protecting the environment, as the stress on the environment grows. The labour force in post-industrial countries will want more leisure.

Ultra-fast interactive computer information databases that are globally networked are likely to be further developed. Nanotechnology and microminimsation of computer chips will expand the use of robotics in

daily life. Artificial intelligence systems supported by supercomputers will grow.

The divide between the “haves” and “have nots” will widen and there is likely to be a greater clash between private and public goods as resource limits lead to competition and possible trade and other conflicts (the WTO Tribunals have already anticipated this). Globally, with companies growing faster than governments, the role of the state may change from the paternalistic approaches which we have come to expect.

At the regional level

At the regional level, it is expected that the Caribbean region will be a single market and a single economy and that costs will be lower as goods and services are freely traded and capital will move more freely within the region. Some businesses will gain and some will lose and each country within the region is likely to try to identify and concentrate on the specialty activities in which it is more efficient.

Persons will be able to move freely across borders in the region, and corporate mergers and acquisitions are likely to continue while Caribbean companies seek to internationalise by setting up operations outside the region. Travel, using various means of transportation within the region, is likely to increase to allow for easier relocation of more frequently mobile CARICOM residents and their families.

The region is likely to be taken more seriously in international affairs as it becomes a larger, more cohesive and sophisticated market.

Domestically

At the domestic level, the economy is likely to grow at about the same rate as in the past – possibly slightly faster – and a few large corporations are likely to predominate. Dwindling global oil supplies could press Barbados (and other countries as well) to wake up to the importance of developing alternative energy sources.

Barbados is likely to continue to be a market for highly technologically improved products and because of the emphasis on leisure, the travel

industry and the tourism industry are likely to become even more important.

The international financial sector could survive as large increasingly powerful corporations pressure their governments to permit them to continue to use these jurisdictions, and this could be a continuing opportunity for Barbados' financial services, provided they are of the highest level of sophistication as the metropolitan countries, and are transparent and of the highest probity.

There is likely to be an increasing number of non-Caribbean Community persons living in Barbados and this could create a demand for the delivery of a wider range of services.

The implications of international, regional and national trends

It is important that we project what the world will be like so that we plan our educational system accordingly as these international, regional and national developments will require the repositioning of Barbados' educational and training approaches.

- We will require new oversight skills at the corporate and institutional level, with an international focus.

- There is likely to be an increasing emphasis on scientific and mathematical approaches to many disciplines.
- There is a need for greater openness to the sciences and to languages.
- Macroeconomic planning and provisioning and astute financial management at the state and private levels will be more important.
- There will be a need for greater computer familiarity and there could be opportunities for the development and training in cultural industries.
- An opportunity to establish linkages with the Asian Pacific countries and Latin America may require greater knowledge of these countries.
- Given the continued importance of tourism, there will be a need for continuing tourism studies.

Additionally, there will be:

- A need for greater innovation in civic planning and a greater emphasis should be placed on technological development and on skills to cope with the repair, maintenance and upkeep of

- new highly technical and digitised products and systems in banks, corporations and other offices.
- The need to revisit at the academic level, the role of the state, to learn other languages such as Spanish, French and possibly Portuguese, perhaps Chinese,
 - To have greater negotiation skills in trade and other areas, and the development of a cadre of financial analysts will be other areas of emphasis.
 - In the financial sector, training and development of regulators, compliance personnel and risk managers will also be required.

We have already seen some steps taking place, particularly at the UWI within the last two years, in some of these areas. Also, there is already an increasing acceptance of the need for lifelong learning as opposed to loyal, lifelong employment as the way of the future as more adults retrain. A rapidly increasing knowledge base is also forcing individuals and institutions to be versatile and adaptable and to concentrate on developing transferable skills. There is increased pressure on higher-level educational institutions to support job mobility by providing accreditations which are internationally acceptable. Educational institutions are pressured to provide costly

up-to-date facilities to make access to modern technologies widely available.

These pressures on the education system have spurred a tremendously greater involvement of the private sector in the University and in University administration than before. Pressures on the allocation of government expenditures have led to increasing questions as to the appropriate levels of government spending at varying levels of the educational spectrum, particularly given the concerns about the performance of many secondary school graduates and their readiness for tertiary level education.

The Knowledge Gap – what drives it?

While we in the Caribbean and in Barbados have been responding to these pressures, the response of developed countries has been much more rapid so that a knowledge gap has been developing. The knowledge gap is defined by the World Bank as the disparity in the capability of countries or groups within countries to participate in the process of technological innovation and new product processes. They have concluded that this gap is likely to grow unless developing

countries take immediate action to arrest it. In the computer discipline it is called the digital divide.

While the knowledge gap between Barbados and many developed countries is not as wide as that of many other developing countries, the capability of our education and skills training to propel accelerated economic growth, brings into question the need for curriculum change.

A number of writers have argued that the focus of our education in Barbados has been on learning rather than on problem-solving and further that the emphases of our course offerings has been on the non-technical and non-scientific areas. Data on UWI admissions are used to emphasize the point. In 1996, 46% of admissions to the UWI were in the Social Sciences compared with 9% in engineering and 3.7% in agriculture. Since the rate of increase in new knowledge has been faster in the science and technology fields than in the liberal arts and social sciences, this could logically have led to a widening of the knowledge gap.

Need for Technological Skill Improvement

Winston Griffith, writing in the June 2000 issue of Eastern Caribbean Studies, makes the point that, considering the global trend towards a highly skilled labour force in production processes, Caribbean Governments must try to increase the pool of highly skilled labour.

He argues that the composition of the graduate pool needs to be changed to suit the development needs of the region. In sectors such as manufacturing, agriculture, services and technology, the need is for our workers to be creative, inventive and to devise and develop new products. I would add, or reproduce them. We do not need to reinvent the wheel as developed countries are likely to cede certain activities which developing countries can assume. The transport business, for example, has moved from bicycles to motorbikes, to cars, to trains, to planes, and in that time, while we have become great consumers of these goods and services, the Caribbean – except for a short stint by Trinidad and Tobago - produces none of these modes of transport. Yet we continue to be major consumers of these items - so the market therefore exists. Yet

we have not built a base on which these and other manufacturing skills can be developed.

Indeed, in the area of mechanical repair now that many items are digitised, we find ourselves technologically challenged. Meanwhile manufacturing has moved to robotics. We may need to skip a few generations of manufacturing and move directly to studies in robotics. Our preparedness need not be evolutionary. In addition, it may be necessary to introduce new topics such as entrepreneurship and competitiveness to the syllabus in order to coordinate these skill levels into productive activity. I was very encouraged recently by the introduction of trade negotiation as a subject offering and that other institutions were offering courses in intellectual property.

Barbados has already started to sell itself as a services centre; this will require a new set of skills if it is to be successful. We may notice that there is a greater need for skills in activities like marketing and design in response to the demands of the marketplace. Furthermore, the education, or more aptly the re-education, of adults could take on greater significance, as displaced workers seek to acquire new

competencies. The bottom line is, therefore, that there may have to be fundamental changes in the curricula which are currently in use at our educational institutions and this will cost money.

The use of Incentives in Education

There are two other challenges. How to encourage students into these fields of endeavour and how to finance them.

Firstly, how do we guide our students into these areas? We may need to consider selective assistance to target areas of education.

From a macroeconomic perspective, there are certain skills which are likely to be necessary in order to ensure the rapid growth of the economy. These often differ from the preferences of individuals.

Fewer people are attracted to mathematics and sciences, yet these are the critical areas of need in the 21st century. Even disciplines such as financial management, supervision and regulation are tending towards a more mathematical bias. It is important therefore to create incentives for study of mathematics for their use in other subject areas.

At the moment, scholarships by government, for the most part, are not targeted to the development of specific skills needed at the national level – so scholarships in any field tend to be equally rewarded. To the extent that students choose the other options, there is therefore likely to be a disconnect between the skills needed in the future and the skills available.

In some cases, the resulting underuse of certain key facilities can even lead to withdrawal of programmes in these areas because of the low level of interest and resultant diseconomies of scale. What is more worrying is that this skewedness is occurring at even undergraduate levels as management is being widely chosen as a specialty even at that level, with the result that many students do not specialise in any discipline but become generalists at a very early stage. As employers, we notice these developments.

Efforts at Reform

It must be acknowledged that there have been major efforts at reform of the system. The Government's 1995 White Paper on Education Reform which involved a wide-ranging programme of school

improvements, the details of which are developed in the Educational Sector Enhancement Programme or Edutech, is an example. Another study, “Curriculum 2000 Barbados: Rationale and Guidelines for Curriculum Reform in Barbados” outlines the rationale and implementation process of the major improvements planned for teaching and learning in our schools. In addition, in 1995 a Commission headed by Dr. Leonard Shorey provided a very important report on “Financing Education in Barbados”. We have therefore done a great deal of analysis and planning and have tried to implement many of these recommendations. However, since then, the challenges have become even more intense.

**Changing the emphasis of the curricula:
education and scientific developments**

It has been argued that the emphasis of our education has been more toward a liberal education and I am convinced that some liberal education is important. Indeed, human development would suggest that there should always be a certain basic level of general education which allows students to understand the world around them and which facilitates their interaction with it, through subjects such as history, geography, science, language and the arts.

At the same time, the emphasis placed on certain disciplines at early levels of education determines the students' ability to take certain other disciplines further, later in life. Because of the building block nature of some of these disciplines, it is difficult to learn them at an advanced stage. Mathematics is one such discipline and some science subjects as well. In later life, the non-mathematical aspect of the skills can be taught, but the absence of a proper mathematical base, limits the ability to be fully in charge of the topic. I am not suggesting that mathematics is an end in itself. It is a tool which can be applied to many areas of study. So selection of a later specialty is usually required.

All the indications are that, given the technological advances in mathematics, computerization and sciences, these disciplines will become even more important and will need to be more heavily emphasised in the curriculum at the primary and secondary levels. They should not be options – they should be as compulsory as liberal arts. The point here is that revision or redesigning of the curricula at the tertiary level may not be enough, as students need to have an appropriate foundation on which to build.

How Employers may Influence the Curricula

Employers too must become more involved in dialogue with the educational institutions and so give themselves greater opportunities to influence curricula by conveying their needs to the administration of the universities, colleges and polytechnics, so that the syllabus can be made more relevant to the kind of changes needed.

The more rapidly changing the discipline, the more feedback is essential from the employer to the universities and colleges. Sometimes however, employers are only able to determine after the fact, whether they are satisfied with the graduates they receive and are unable to pinpoint the changes required beforehand to achieve their objectives even when their opinions are sought.

Training by Employers

Employers need also to take greater responsibility for training. While the educational institutions are generally the institutions which have the responsibility for the education of our youth, training is the responsibility of the employer. Training is defined here as a

systematic effort to elicit specific well rehearsed problem-solving responses to predictable and sometime unpredicted occurrences and to apply responses which are rehearsed and perfected over time, and which are specific to the goals and objectives of the organisation. Many employers fail to budget for it and expect it ready-made from the Universities and Colleges.

Generally, training for the world of work tends to be done on the job, or through professional qualifications and associations of professionals. Invariably however, in order to become a member of such associations one has to be already in the discipline or on the job. There is generally no opportunity for pre-induction training.

Financing Higher education

To take our place at the table in the 21st Century, this monumental leap forward in education has to be financed. Given that there are government budget constraints and competing claims on government expenditures, and that other sectors need to share in the benefits of government expenditures, choices need to be made.

Expenditure on education in Barbados already accounts for over 21% of the budget. In Barbados, during the mid-nineties the share of education peaked at 24.6% in 1993 as government tried to make education more relevant to the 21st century. It was becoming clear that despite the much vaunted 98% literacy, education was not sufficiently functional to take the country into the new millennium. Even greater outlays are needed now: but other sectors are also in need of support. How then can it to be financed?

One issue is whether the consumers of education should be asked to bear some or a higher proportion of the needed outlays. Put another way, can universally-free education survive? In a country whose per capita income is relatively high – US\$9,500 - and where income distribution is not as highly skewed as in most Caribbean countries and indeed in most countries around the world, should there then be a greater attempt at cost sharing? Conventional wisdom states that if there is to be some cost-recovery, it should take place primarily at the tertiary level. I would qualify this to say – at the University level.

There is great support for free primary and secondary education because the ages of the persons involved qualify them overwhelmingly as minors for whom the state is still responsible. In addition, evidence suggests that primary education benefits more of the poor than does higher education. Therefore, in a situation where there are competing claims for limited government funds, government spending on higher education, and in particular on University education, should be logically the area which would suffer cutbacks.

At the same time, the region has a problem of falling behind much of the developed world and some emerging markets in terms of the number of university graduates per population. Cutting public funds on higher education may not help to improve this statistic. There is therefore a dilemma for government and for educational institutions, particularly since cutting back on Government spending on University education could lead to a reduction in enrolment, precisely what has been identified for improvement. It is suggested that a system of partial cost recovery may not have the effect of reducing University education enrolments if it takes place after education has been

delivered. This would require a commitment by students to honour their debts. The record in this regard has not been good.

It is important that the poor do not pay educational costs. However, public sentiment might support some kind of means-testing which would allow government to impose charges selectively on those who are able to pay, as present high income students are really enjoying an income transfer from the rest of the society. After all, in high income countries, means tests are used to distinguish between delivery of free funding to those who need it as opposed to those who do not.

Yet in Barbados these options seem socially unacceptable and incompatible with our cultural norms of equal treatment for all. A perceived reluctance to adopt measures of this kind may exist because many beneficiaries of free education, while agreeing that some change may be necessary, see a conflict in being the persons to advocate that change. Economists however, tend to be realists and have the training to suggest dispassionately what is optimum while leaving it to the decision-makers.

Coping with Disincentive Effects

Economists also tend to measure disincentive effects as well as incentive effects. On that basis, the theory behind incentive and disincentive is the likelihood of influencing required behaviour through the use of incentives, and a sensitivity to whether incentives have ceased to work or have negative effects.

International economists used this argument for removing incentives to the export sector. In the lively debate which prevailed in the 1990s. It was argued that in order to force producers to become competitive, the crutches – in the form of subsidies - had to be removed.

At a similar level, this argument is sometimes made about the delivery of free education – that in order to force greater performance from beneficiaries and to give parents a stake in their children's performance, some of the support must be assumed by the parent. This had proved to be a highly contentious point as there are few ways to determine who abuses the facilities and who does not, and to

hurt the triers in order to force greater results from the non-triers, one may disadvantage both, and may still not ensure improved parent care.

Because of the difficulty in distinguishing the triers from the abusers, the disincentive effects or “low parent care” bias continues.

Using the Credit Market to finance Education

Commercial bank financing is also another means of supplementing the cost of education which may need to be further explored. It is quite common in North America for banks to offer credit programmes geared to financing students’ educational needs. This is not the norm in Barbados, nor indeed in the Caribbean - possibly because education is almost completely free up to the University level. Yet, even though student costs are low; they may still be unattainable by some. Since the aim is not to deny but rather to encourage higher education, commercial banks may wish to consider offering loans to students with moratoriums over the study period, so that more students are able to access higher education. An arrangement where guarantees by Government could be provided for collateral-short

persons could also be explored. (A suggestion made by Dr. Shorey many years ago). It may even help to encourage a greater number of males, who may not wish to be dependent on parents for extended periods, to attend University. In the long run, the commercial bank is likely to have a loyal client who will be positioned to bring business as that student enters the world of work.

Improving efficiency and effectiveness

Partial cost-recovery and new sources of financing apart, an in-depth examination of expenditure on education may reveal the need for improved efficiencies and effectiveness in other areas. For example – the very valuable text book scheme. How does a system of returning all text books at the end of year encourage reading or self study?

There are many other implications of achieving our educational objectives which educational administrators are in a better position to examine. For example, will the traditional classroom setting be the most cost-effective way of delivering the new curricula? Would distance teaching or on-line instruction bring more value for money in some areas? This is already being introduced by the University and

recently by the Polytechnic, and is likely to assist in cost control while widening the availability of educational facilities. The conventional wisdom is that it will work better for some subjects than for others, but these are issues for the educators and the administrators.

Conclusion

Ladies and gentlemen, our educational system has been a beacon in the Caribbean and the developing world. However if we are to cope with the pressures for change which lie ahead, the cost of education will be immense, if we are not to be left behind. In order that we are on the right side of the divide, the new requirements will necessitate that we restructure and find ways to deliver relevant and high quality education which meet the needs of the 21st century without altering the basic social principles which have got us this far.

Let me add that these are not the official views of either the Central Bank or the Government. I trust however that the issues which I have raised have offered us the opportunity to reflect on these challenges once again as we position ourselves and our children for the future.

As an economist I am relieved that I do not have the responsibility for making these difficult decisions.

I thank you for your indulgence.
