



Hawaii's **Emerging** **New Economy**

October 2000

A Progress Report

Benjamin J. Cayetano
Governor of Hawaii



Hawaii's Emerging New Economy:

A Progress Report



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FOREWORD

It gives me great pleasure to present this report, which charts the course of Hawaii's economic recovery from its most severe post-Statehood slump to its entry into the New Economy. I believe it is an appropriate and important time for us to take stock of where we are, what we have accomplished and what we need to do in the years ahead to further build our global competitiveness and maintain our globally competitive quality of life. Mainly through charts, this report helps us appreciate where we have been and where we need to go.

When this administration took office in 1995, Hawaii was mired in a deep economic slump. Job counts were declining, unemployment rates were at high levels, income growth was minimal and the State faced a huge budget deficit. It became clear that fundamental structural adjustments were needed in order to restore growth and increase our competitiveness. Now, six years later, Hawaii's economy is growing at its fastest pace since the late 1980s and unemployment is down to about the national average. Moreover, our economy has become flexible, efficient and technologically *akamai* -- ready for the 21st century.

This recovery has not happened on its own. The State administration, the Legislature, and particularly our small and large businesses, citizens and consumers, took bold actions to help the State's mature economy meet the demands of the New Economy.

These efforts are bearing fruit. To keep the momentum going, we will continue to pursue policies that enable entrepreneurs to succeed. Together we can look forward to a more competitive State, improved educational opportunities for our children, and an even higher quality of life for all island residents.

Benjamin J. Cayetano
Governor of Hawaii

PREFACE

From time to time we believe it is important to update the community on the progress being made to revitalize Hawaii's economy. This document, the fourth in a series of reports the Department of Business, Economic Development & Tourism (DBEDT) has prepared since 1996,¹ is a brief overview of Hawaii's recovery from the economic slump that gripped the State for most of the 1990s. The report shows what we did as a community to escape from that economic malaise and recapture our economic momentum. It looks at the results of those efforts and also identifies some important tasks that lie ahead if we are to sustain this momentum.

As the Governor noted in his foreword, our efforts are yielding results and we have begun to see very positive outcomes in the State's economic performance. The credit for what has been achieved must be widely shared. As the Governor indicated, our recovery is the result of both the public and private sectors recognizing what needed to be done and working together to create change. The key was recognizing that what Hawaii faced in the early 1990s was not just a temporary business slump, but rather the end of a 30-year, post-Statehood economic boom. To restart long-term growth, Hawaii's economy needed to begin a *structural* transition from an aging, sun-and-surf tourist destination to a diversified and technology-savvy economy for the 21st century. With the commitment of the Administration, Legislature, business and the community, we are well into this transition, as this report documents. Not only is economic growth at its highest level in a decade, but there is a thriving, high technology sector emerging in the State and productivity in the economy is higher than at any other time in our post-Statehood period.

We must ensure that this trend continues. Therefore, I urge all those interested in Hawaii's successful transition to the New Economy to review this report and let us know your views about the tasks that lie ahead. It is this kind of input from those who are closest to the front lines of Hawaii's economy that can best ensure our success.

Seiji F. Naya, Ph.D.
Director
Department of Business,
Economic Development & Tourism

¹ They include: *Restoring Hawaii's Economic Momentum*, 1996; *Hawaii's Economic Action Program*, 1997; and *A Millennium Growth Strategy for Hawaii's Economy*, January 2000.

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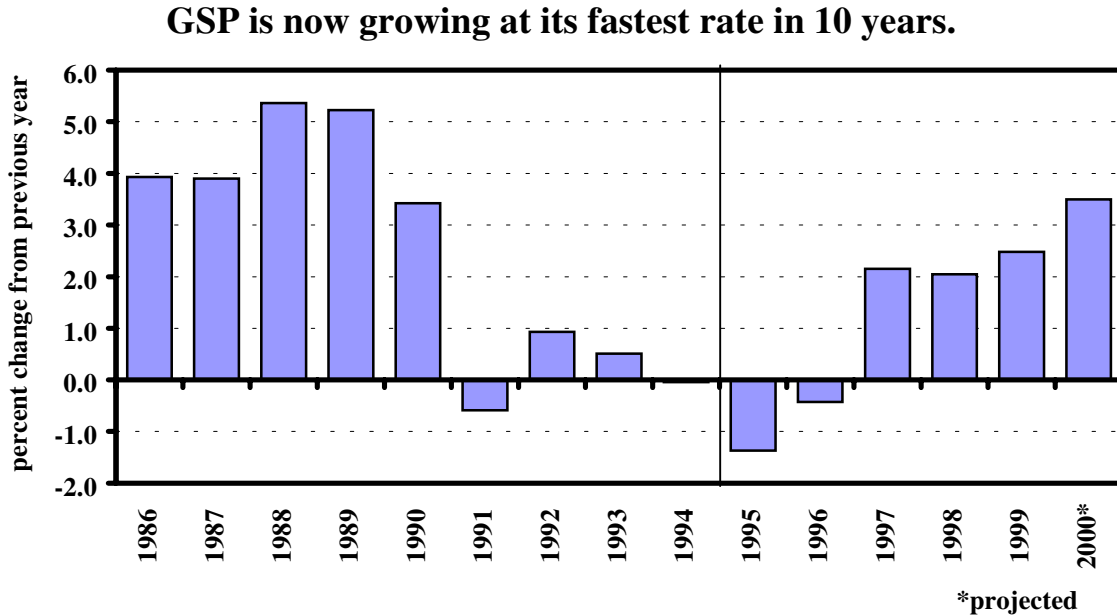
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Hawaii's Emerging New Economy *A Progress Report*

HAWAII'S ECONOMIC TURNAROUND

Hawaii's economy is well on the way to recovery from its longest economic slump in the post-World War II era. Since 1997, the Gross State Product (GSP) or total output of the State has been growing moderately. Growth in the year 2000 should be the highest since the end of the 1980s.

Figure 1. Annual Growth of GSP



This recovery has not simply happened on its own. The State Administration, the Legislature, and particularly, the private sector have taken actions to reorient the underlying structure of our tourism-dominated economy to the high-tech, global marketplace of the 21st century. What is emerging is a *new* Hawaii economy that is more flexible, efficient, and technologically *akamai*. This brief report is meant to highlight the transition Hawaii's economy has experienced and consider the tasks that lie ahead.

This report documents the story of Hawaii's economic challenges, the policy responses undertaken to meet these difficulties, and the emerging economic effects of these policies. It shows that while much remains to be done, substantial progress has been made. More-

over, the State's focus on education and technology should lay the groundwork for solid economic growth in the years to come.

DIAGNOSING THE PROBLEM

Hawaii's dramatic turnaround has ended a bleak period of economic lethargy that covered most of the 1990s. That period began with a series of external economic shocks that ended the boom economy of the 1980s. These shocks began with the bursting of the Japanese prosperity bubble, which caused a decline in investment and construction in Hawaii. Other shocks included the 1991 Persian Gulf War, the recessions in the U.S./California and Japanese economies, and Hurricane Iniki in 1992—all of which contributed to a rapid drop in visitor arrivals. Stronger competition from other destinations also negatively impacted the recovery of Hawaii's visitor industry long after the U.S. economy had emerged from its recession.

Thus, the boom economy of the late 1980s came to an abrupt halt. Between 1991 and 1996 Hawaii's average annual growth rate fell to less than zero. This was accompanied by a decline in total jobs, higher unemployment, a fall in visitor arrivals, and a drop in investment and construction activity (Table 1).

Table 1. Measures of the Declining Economy

Measure	Peak		Value in 1994	Change
	Value	Date		
Total jobs (12 month moving average)	552,438	(9/92)	544,188	-1.5%
Unemployment Rate (percent)	2.5	(5/91)	5.8	+3.2 points
Visitor Arrivals	6,723,386	(1990)	6,364,429	-5.3%
Monthly Private Building Permit Value (12 month moving average) (in millions of dollars)	208.5	(3/91)	134.4	-35.5%

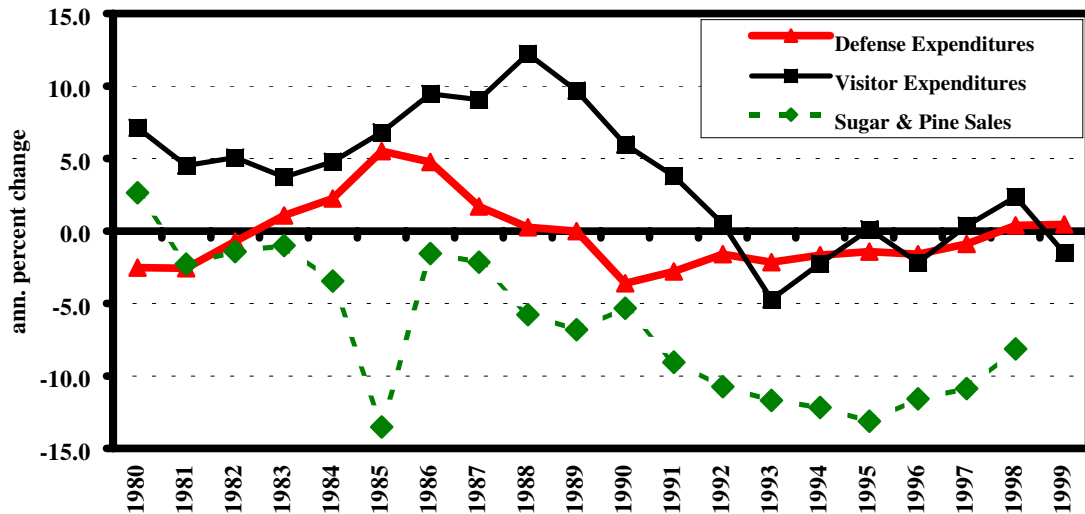
In the first few years of the economic slide many believed that the State was simply facing a passing business cycle, perhaps just more severe and slightly longer than in the past. But by 1995 it became clear to many that Hawaii's economic problems ran deeper than a series of outside economic shocks. Rather they appeared to be rooted in Hawaii's economic structure, and its difficulty in adapting to change.

The real problem was that the kinds of economic activities that supported Hawaii's post-Statehood boom had aged. For some key industries, growth had already flattened, if not declined. Moreover, the U.S. and world markets that these industries had targeted were changing while the products our industries were producing were not changing, or were not changing fast enough.

It was not difficult to find examples of how the structure of Hawaii's economy was eroding. For instance, plantation agricultural production (sugar and pineapple), which held up under foreign competition through the 1970s, began declining rapidly in the mid-1980s as plantations closed down. The military presence, which had been an important stabilizing force in the economy, also began to shrink as military tensions in the post-cold war era began to ease. As the 1990s began, tourism itself experienced an abrupt slowing, which continued through most of the decade.

Figure 2. Hawaii's Exports

Growth in Hawaii's major export industries stalled out in the early 1990s.
(percent change in 5-year moving average of 1992 dollars)



Unfortunately, while Hawaii's older industries were slowing, new economic activity was not growing fast enough to make a significant contribution to GSP growth. High costs and risk were factors discouraging new industry, as was the competition for resources posed by established industries like tourism.

One of the many impacts of the economic slowdown was a growing State trade deficit. We began spending more to import goods and services than we were earning on the sale of

goods and services outside the State. In 1998, our imports of goods and services exceeded our exports by \$2.7 billion or 7.7% of GSP.

Table 2. Hawaii's Current Account Balance, 1998
(in millions of dollars)

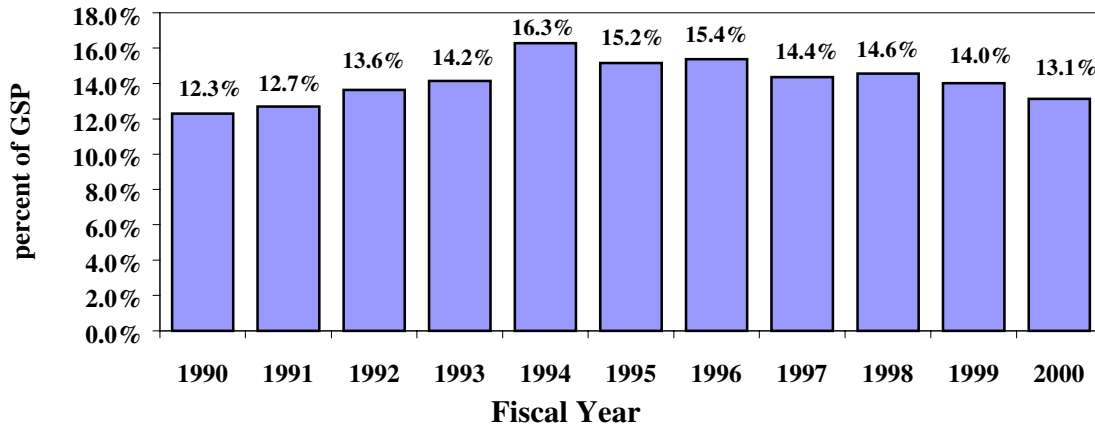
	Exports	Imports	Balance
Goods	1,501	12,801	-11,300
Domestic	1,183	10,091	-8,907
Foreign	318	2,710	-2,393
Visitor Spending	10,865	1,037	9,828
Domestic	5,823	622	5,201
Foreign	5,042	415	4,627
Other Services	4,552	5,784	-1,232
Total	16,918	19,622	-2,704
Percent of GSP	48.5%	56.2%	-7.7%

Government was also part of the structural problem. As tax revenues generated by the 1980s boom economy grew, so did State government employment and spending.

Despite the declines in tourism and construction, government revenues and expenditures were not impacted until 1996. Thus in the early 1990s, government was growing out of proportion to the rest of the economy and became a larger share of GSP and the workforce. Outdated government regulations that focused on controlling and limiting economic growth also limited the ability of the economy to adjust.

Figure 3. State Expenditures as Percentage of GSP

State Government's Share of the Economy peaked in 1994



Finally, the overall contribution of technology to the State's economy was also in decline. Technological change is the driving force behind increased productivity and efficiency in the economy. Technology helps increase the size of the economic pie, making it possible for everyone to receive a larger share.

At the U.S. level, from 30 to 50 percent of the growth in Gross Domestic Product comes from increased *productivity and efficiency*, which are driven by technological improvements. Estimates show that in Hawaii, the contribution from technology has been much lower than at the national level. Moreover in the first half of 1990s, estimates of technology's contribution to Hawaii's economy fell below zero. Calculated in constant 1999 dollars, this loss in technology-driven productivity is estimated to have cost the economy an average of \$380 million per year between 1990 and 1995 (see Figure 5).

ENGINEERING A TURNAROUND

The Governor and the Legislature recognized that the long-term solution to Hawaii's economic dilemma was a revitalized economic base that would support Hawaii's participation in the emerging global, technology economy, or "New Economy" as it is called. The knowledge- and idea-based New Economy redefined the rules of business and competition, creating an increasingly global market for goods and services. In this New Economy, ideas, technology, speed, cost reduction and adaptation to change are the keys upon which economic growth and prosperity rely.

Responding to the demands of the New Economy meant focusing development efforts on new growth markets such as information technology, biotechnology, communications services, health maintenance and medical research, which are expected to experience rapid growth in the new century.

Even more important, it meant embracing technological progress in all industries, old and new. This meant looking at how market wants and needs had changed and how Hawaii's agriculture, tourism and services to the military could be retooled to meet these competitive market forces and sustain their growth in a New Economy environment.

Hawaii also had to change the way it did business. It would have to compete more vigorously in global markets for tourism and technology business. At the same time it

would have to compete more aggressively for the outside investment needed to build the New Economy.

In order to accomplish these goals it was recognized that *both* the public and private sectors needed to improve productivity, reduce regulation and enable firms to be more competitive both locally and overseas. Hawaii had to invest in its people, both those currently in school and those already on the job, to ensure it had a skilled workforce prepared to meet new market demands.

Thus the streamlining and restructuring of State government was identified as important in the restructuring process. Steps had to be taken to reduce the State's looming budget shortfall, to promote a more positive business environment, and to encourage new investment, especially in technology. Through reorganization and better management, State government had to become more efficient in order to accomplish more with fewer people and resources. The State needed to partner with the private sector to accomplish economic restructuring. This meant reducing or even eliminating unnecessary regulation and instilling a spirit of service to business and the public within State government.

While economic restructuring was identified as the key long-term solution to Hawaii's problems, by 1995 the State was in desperate need for immediate economic stimulation to start bringing it out of its deepening economic slump. It was recognized that addressing Hawaii's economic crisis would require both a short run program of measures with more immediate economic impact to accompany the structural changes. The strategy to translate these goals into action was first spelled out in the Governor's *Restoring Hawaii's Economic Momentum* in 1996 and re-emphasized in *Hawaii's Economic Action Program* in 1997. The economic revitalization efforts have encompassed an ongoing series of actions initiated by the Governor and Legislature since 1995, and extending through the most recent 2000 legislative session.

Table 3. Economic Revitalization Program	
▪	Economic Stimulation Measures
▪	Economic Restructuring
•	Regulatory and Economic Policy Reform
•	New Market Development and Industry Revitalization
•	Technology Development Incentives
•	Hawaii as the Geneva of the Pacific

Economic Stimulation

Economic stimulation was a high initial priority, designed to provide an immediate boost to business activity. However, it also contained the seeds of the long-term restructuring program by providing investment incentives for such new, high value activity as aircraft maintenance facilities, filmmaking and hotel construction. This phase of the revitalization effort was pursued in a series of legislative and economic development efforts.

Table 4. Economic Stimulation Program
▪ State Capital Improvement Projects were accelerated adding more than \$1 billion to the construction-spending stream (1997).
▪ A \$10 million increase in tourism promotion was authorized to jump-start the visitor industry (1997).
▪ Efforts to complete the Hawaii Convention Center were intensified (1996).
▪ Investment tax incentives for aircraft maintenance facilities (1997), film production (1999) and hotel renovation (1997/2000) were enacted.
▪ The State worked with the airlines and Federal Government to secure direct flights from Japan to the Big Island of Hawaii, providing a major boost to that Island's economy (1996).
▪ Infrastructure investments in Kakaako to encourage private sector redevelopment, new construction and jobs.
▪ Development in the Ewa Plain was stimulated with attention focused on Barbers Point redevelopment (1996-1998), identifying a site for the West Oahu campus of UH (1996), and shifting some State offices to the new City of Kapolei (1998).

Regulatory & Economic Policy Reform

Regulatory reform – to promote productivity, allow Hawaii firms to compete better in the global market and improve the business climate for investment – was a high priority. Reform included reorienting State economic laws, regulations and policies to reduce barriers for doing business in Hawaii, lowering business costs and developing a partnership between the public and private sector for economic development. Reform also meant reducing the size of State government in the economy while improving its efficiency. Finally, reform also meant making education more accountable by granting more autonomy to the State's Higher Education System and establishing computer literacy and education goals for the Department of Education.

Table 5. Regulatory & Economic Policy Reform
<ul style="list-style-type: none"> ▪ Legislation was enacted that lowered the cost of Workers Compensation Premiums in 1996 by an average of 40 percent. This resulted in more than \$100 million per year in savings for Hawaii businesses.
<ul style="list-style-type: none"> ▪ In 1995, Act 225 opened up the telecommunications industry for competition and new investment. This law resulted in many new firms entering the telecommunications market, and as a result Hawaii has one of the most advanced telecommunication networks in the nation and is a Pacific hub for new businesses which rely on high capacity Trans-Pacific fiber optic and wireless communication for successful operation.
<ul style="list-style-type: none"> ▪ The Small Business Task Force (1996) was formed to evaluate and recommend changes in the regulatory environment that would ease the burden on business while still allowing government to fulfill its responsibilities to the public.
<ul style="list-style-type: none"> ▪ The State reactivated the Consolidated Application Process (1996) for large projects, enabling developers to meet with all of the major permit issuers at one time.
<ul style="list-style-type: none"> ▪ In 1998, Act 168, the Hawaii Small Business Regulatory Flexibility Act, was enacted. This legislation established the Advisory Committee on Small Business and required State and County agencies to address the negative impact of rules and regulations on small business. Among other things, Act 168 required the preparation of a small business impact statement prior to the approval of new rules and regulations affecting business.
<ul style="list-style-type: none"> ▪ Permit processes for clean water were accelerated (1996).
<ul style="list-style-type: none"> ▪ Permit processing at the county levels was streamlined and accelerated.
<ul style="list-style-type: none"> ▪ Numerous boards, commissions, and some State entities were consolidated (1996-present).
<ul style="list-style-type: none"> ▪ Hawaii Community Development Authority made amendments to eliminate unnecessary requirements and reduce the cost of new projects (FY 1996-97).

The Economic Revitalization Package of 1998 was a major milestone and the most comprehensive of the actions taken for both economic stimulation and longer-term structural adjustment.

Table 6. Highlights of the Economic Revitalization Package of 1998
<ul style="list-style-type: none"> ▪ Personal and Business tax cuts amounting to \$2 billion over six years
<ul style="list-style-type: none"> ▪ Establishment of the Hawaii Tourism Authority and doubling the tourism marketing budget
<ul style="list-style-type: none"> ▪ Autonomy granted to the University of Hawaii to secure grants for cutting-edge research and participate more directly in economic development of high technology and other economic initiatives
<ul style="list-style-type: none"> ▪ Computer education and literacy goals established for the public schools to create a computer literate and globally competitive workforce

These measures were designed to empower a more efficient, competitive and faster-moving private sector. These efforts needed to be matched by a more efficient and effective government. Streamlining regulations was a step in the right direction. However, more fundamental change was needed in the management of State government's human resources in order to make government more responsive. Act 253 (SLH 2000) was a first step in the process of civil service reform designed to permit government to respond to changing priorities for its services in the New Economy.

Table 7. Highlights of Act 253 -- Civil Service Reform	
▪	The public employment system is separated into nine jurisdictions, including the DOE and UH, each with some independent flexibility to negotiate supplemental agreements with unions.
▪	For the State, the Civil Service Commission is replaced by a Merit Appeals Board, with jurisdiction restricted to subjects and persons not covered by collective bargaining.
▪	Arbitrators must consider the public employer's limits in using special funds and cannot consider tax increases as a basis for determining public employer's ability to fund pay increases.
▪	Authorization is granted for a new Separation Incentive Program, using performance-based pay for excluded managerial personnel, new procedures for recovery of indebtedness from public employees, discharge of employees for failure to meet performance requirements, and drug testing.

New Market Development and Industry Revitalization

The measures recognized that both new market/industry development and the revitalization of older industries are essential to meeting the demands of the 21st century, global economy. This did not mean government deciding what industries would be winners or losers in the future. Rather, it meant helping traditional industries find and compete for new markets and encouraging new, leading edge industries to take root in Hawaii.

Table 8. Economic Development Programs	
Trade missions of business and government leaders were made to Asia and the US Mainland to attract investment and market Hawaii's expertise in developing:	
▪ Resorts	▪ Medical care
▪ Energy research	▪ Educational Services
▪ Infrastructure	▪ Hawaii products
▪ Info-technology	▪ Bio-technology

Technology Development Initiatives

Research has shown that technology - or more broadly, technical change - is a major factor in determining how fast economies grow and how well they can compete in national and international markets. Economists have found that as much as half of U.S. economic growth in the past has been the result of technical change. It is technical change, for instance, that has permitted just 2 to 3 percent of the U.S. work force to produce enough food to feed the entire nation with billions of dollars left over for export.

Two important benefits of technology development for Hawaii were recognized. First, a technology sector can develop new products and services for export that will help broaden the State's economic base in an era of slower tourism growth. Such a sector would also have the added benefit of raising Hawaii's profile in the worldwide technology community, which in turn could help attract more respect, interest and investment in Hawaii as a site for serious scientific and technology activity. Second, such a sector can introduce new technologies that will increase the productivity of Hawaii industry as a whole and make it more competitive. For instance, as Hawaii attracts more and more globally competing internet software and web page development firms, local companies can take advantage of this expertise to market more effectively on the web.

Due to its importance and promise, the development of Hawaii's technology capabilities has become Governor Cayetano's top economic policy goal. The major focus of the 1999 and 2000 Legislative Sessions was technology development initiatives. In particular, **Act 178** of the 1999 legislature was a major milestone. This law attracted attention across the country for its incentives for high technology development.

Table 9. Major Elements of Act 178, Technology Development Incentives
<ul style="list-style-type: none">▪ A cafeteria of incentives and tax breaks for research and technology companies including:<ul style="list-style-type: none">• Prohibition of discriminatory State-level internet taxes;• High-technology business investment tax credit;• Tax credit for increased R&D in Hawaii; and• Tax exemption for income received from stock options.
<ul style="list-style-type: none">▪ Funding for the Governor's Millennium Workforce Initiative to fast-track training for high skill technical occupations in demand by growth industries such as biotechnology, healthcare, information technology and others.
<ul style="list-style-type: none">▪ Establishment of the Governor's Special Advisor for Technology Development position to bring industry and government together into a partnership for high-tech growth.

Appointment of the Governor's Special Advisor on Technology Development has been a major step in focusing the State's efforts on common objectives. The Special Advisor is charged with spearheading and facilitating the State's technology programs.

Further, **Act 297** of the 2000 legislative session added more incentives for technology activity. This act expanded the scope of tax breaks available for technology development.

Table 10. Additional Technology Incentives: Highlights of Act 297 (HSL 2000)
▪ Increases the R&D Tax credit to 20 percent of increased research with some qualifications
▪ Permits the sale of unused net operating losses by technology companies
▪ Adds tax exclusion for royalty income from qualified patents, copyrights and trade secrets
▪ Increases the period for the Capital Loss Carry forward to 15 years

Geneva of the Pacific

State and private sector leaders have long recognized Hawaii's strategic, mid-Pacific location as an economic revitalization tool. With its technology infrastructure, superior meeting facilities, and resources such as the East-West Center, the new Hawaii Convention Center, and the University of Hawaii's Asia-Pacific programs, Hawaii is seen as a potential *Geneva of the Pacific*. In Hawaii, leaders of Pacific Rim nations and multi-national organizations are able to meet in a location that is both convenient and conducive to negotiation and thoughtful exchange of ideas. This effort has already achieved significant results.

Table 11. Hawaii Host to Two Major International Policy Meetings
▪ Pacific Basin Economic Council 2000 International General Meeting In March, Hawaii hosted the year 2000 international general meeting of business executives of the Pacific Basin Economic Council (PBEC). The meeting issued important PBEC Policy Statements concerning e-commerce, biotechnology, and patent law treaty representation, among others. It provided countless opportunities for group and individual discussions of potential business ventures.
▪ Asian Development Bank 2001 Board of Governors Meeting In May 2001, Hawaii will host the prestigious 34 th Annual Board of Governors meeting of the Asian Development Bank. The ADB is the largest multilateral investment finance institution in the Asia Pacific Region, arranging more than \$5 billion in loans during 1999. The meeting will attract 3,500 participants including ministerial-level officials and private financial executives from every region in the world.

THE RESULTS

The restructuring efforts of the last six years have produced a growing technology base, a leaner more focused government, and a business climate that has generated significant economic growth in the last two years.

Emerging High Tech Economy

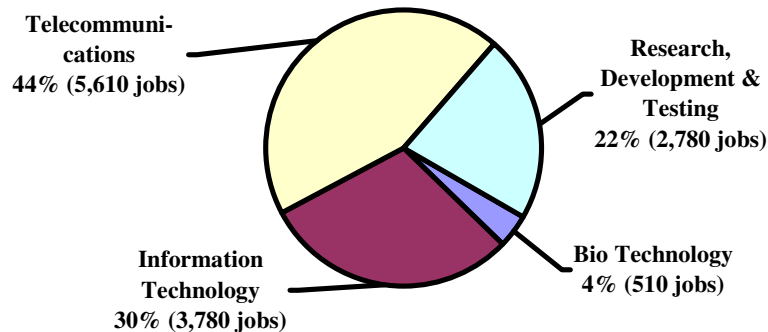
Hawaii is carving out a series of strong technology niches for itself based on recent tax measures and its unique resources. Moreover, overall productivity has accelerated as local business has adopted new technology and become more competitive.

Technology Niche Markets

Hawaii is nurturing a growing High Technology sector that encompassed 13,000 jobs in 1998 and is growing larger by the day. In addition to support by State agencies such as the University of Hawaii and the High Technology Development Corporation, the attraction of technology business to Hawaii has been buoyed by the newly established Hawaii Technology Trade Association (HTTA).

Figure 4. Distribution of Technology Jobs

**Technology-intensive sectors now encompass
13,000 jobs and \$560 million in wages.**



With the far-reaching tax incentives for high tech investment enacted in 1999 and 2000, the State has positioned itself to take advantage of expected growth in globally generated technology-related activity.

Attracting new companies to Hawaii's high tech sector has been a focus and accomplishment of the State's efforts. In the late 1990s Hawaii attracted such major

technology players as **Square USA**, **Avant!** and **Uniden**. The State also served as a launching pad for such New Economy start-ups as **Digital Island** and **Cheap Tickets**. More recently, the State attracted the information technology firm **Axean** to Honolulu, and the Japanese biotechnology firm **Micro Gaia** to the Maui Research and Technology Park.

Moreover, Hawaii is posed to play an increasingly significant role in global biotechnology research, product development, and services. This role stems from the State's growing contingent of food, crop, and aquaculture research entities, public-private science consortiums, genetics research laboratories, environmental remediation firms, and its strategic Asia-Pacific location.

High-Tech Medicine in the "Health" State

Another growth force related to Hawaii's emerging technology *and* tourism sectors has been the development of an overseas-oriented medical and healthcare industry. This broad sector ranges from the fitness and wellness programs now offered at many of Hawaii's resorts, to the leading-edge medical technology reflected in our hospitals and at the University of Hawaii Medical School.

Hawaii is known as the *Health State* and this moniker reflects an extraordinary commitment to health, wellness and advanced medicine. Hawaii currently has nearly 5 physicians per 1,000 residents. This is 80 percent more than the U.S. ratio as a whole and 160 percent higher than the ratio in Japan. Our outstanding health care programs coupled with our environment and lifestyle have given Hawaii the highest life expectancy of any state in the nation. The average lifetime in Hawaii is nearly three years longer than the national average.

Table 12. Average Lifetime, Hawaii & the U.S.			
(years)			
Area	All	Male	Female
Hawaii	78.2	75.4	81.3
U.S.	75.4	71.8	78.8

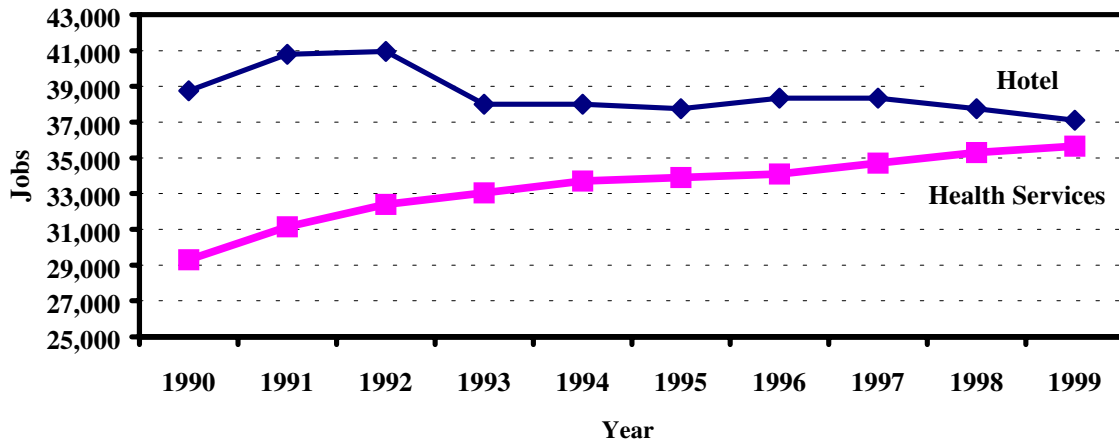
Early in his Administration, Governor Cayetano had envisaged Hawaii, with its superior medical, wellness and fitness facilities, as playing a major role in Asia-Pacific healthcare. Through personal contact with Mayo Clinic, M.D. Anderson Cancer Center, and other preeminent institutions, the Governor spurred an overseas medical and health outreach program, which was to result in a growing employment base. As shown in Figure 5, there

are now nearly as many jobs in health services than in hotels. In fact, increases in the former compensated for decreases in the latter category.

In 1998, Governor Cayetano launched one of the nation's first comprehensive statewide telemedicine networks through the Hawaii Health Systems Corporation, a 3,000-employee, 12-hospital, acute, long-term, and rural healthcare system. Major healthcare providers throughout the Islands have utilized network and internet technology to transmit the results of medical tests and medical imagery.

Figure 5. Health Service v. Hotel Jobs

The number of jobs in health services is now comparable to the hotel job count.



Medical imagery has become a leading-edge tool in health care and Hawaii is in the forefront of that technology. Through the efforts of Queen's Medical Center and Hamamatsu Corporation in Japan, Hawaii is home to one of only a handful of Positron Emission Tomography (PET) Scanners. It is a unique imaging technology that allows physicians and researchers to map biochemical processes within the body in a non-invasive fashion. The PET scanner's primary function is to assist in the diagnosis of metastatic cancer, neurological disorders and brain metabolism.

The partnering of health and wellness technology with and the visitor industry has resulted in a health-tourism niche that is serving a new and growing market. Many of Hawaii's hotels have developed spa and fitness programs for this market. In particular, the Big Island of Hawaii is striving to become known as the *Healing Island*. The Island has developed a range of health-wellness centers, from the spa-fitness activities at the Hapuna

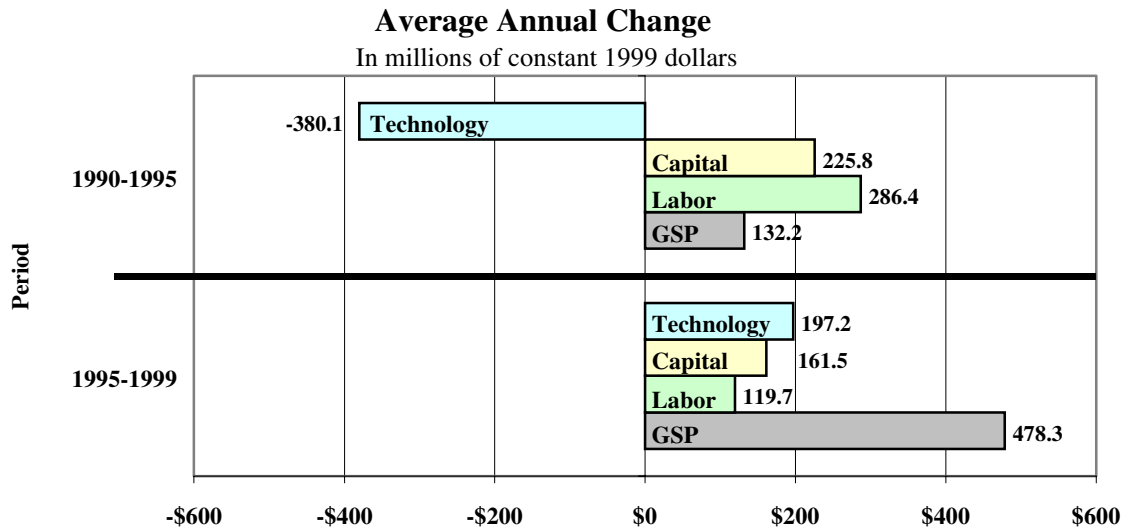
Beach and Mauna Lani resorts, to a number of custom-developed health and wellness retreats.

Technology-Driven Productivity

Productivity in the economy is surging as a result of the infusion of new technology into Hawaii's business sector. It was noted earlier that improved technology is a crucial factor in long-run economic growth. Economists have found that economic growth comes from three key sources—increases in the capital stock (machines and facilities); increases in the work force; and *technological change*. Technological change includes improvements in technology, innovation and training that can be applied to capital and labor, making them more productive.

DBEDT analyzed the role of capital, labor and technical change in Hawaii and the results help explain the period of low growth in the early 1990s and the improved growth in the last half of the 1990s. As shown in Figure 6, estimates for Hawaii show that from 1990 to 1995, GSP grew only \$132 million per year on average, measured in real 1999 dollars.

Figure 6. Contributions to GSP by Technology, Labor & Capital



During this period, additions of labor and capital alone *should* have produced more than \$500 million in additional GSP per year on average. But due to the lack of technological change coupled with inefficiencies in the economy, the Labor and Capital gains were countered by an average \$380 million loss of output.

However, data for 1995 to 1999 show that a significant change occurred. For one thing, annual GSP growth increased an average of about \$478 million per year. However, even more encouraging is that technical change and efficiency have returned as positive factors in our economic growth. Research indicates that accelerated technological change and efficiency contributed the majority of the GSP growth at an average \$197 million per year. This amounts to 40 percent of the GSP gain.

Responsive State Government

As shown in Figure 7, since 1996, non-education-related State government expenditures dropped by about 5 percent over the period from 1995 to present.

In the public sector, the State struggled to cut costs while continuing to provide critical public services. Figure 8 shows that, excluding the Department of Education (DOE), the number of full-time equivalent positions is now lower than in 1994. Over the same period, resources have been redirected toward education as indicated by the rise in the number of DOE positions.

Figure 7. "General Fund" Growth in Operating Appropriations

State of Hawaii - Executive Branch

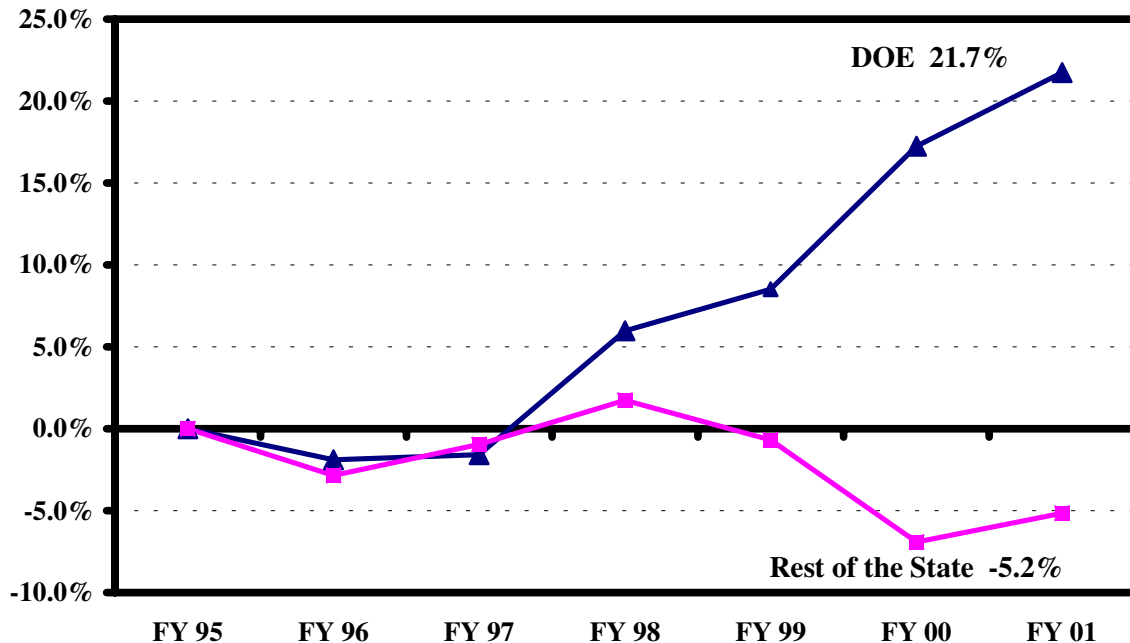
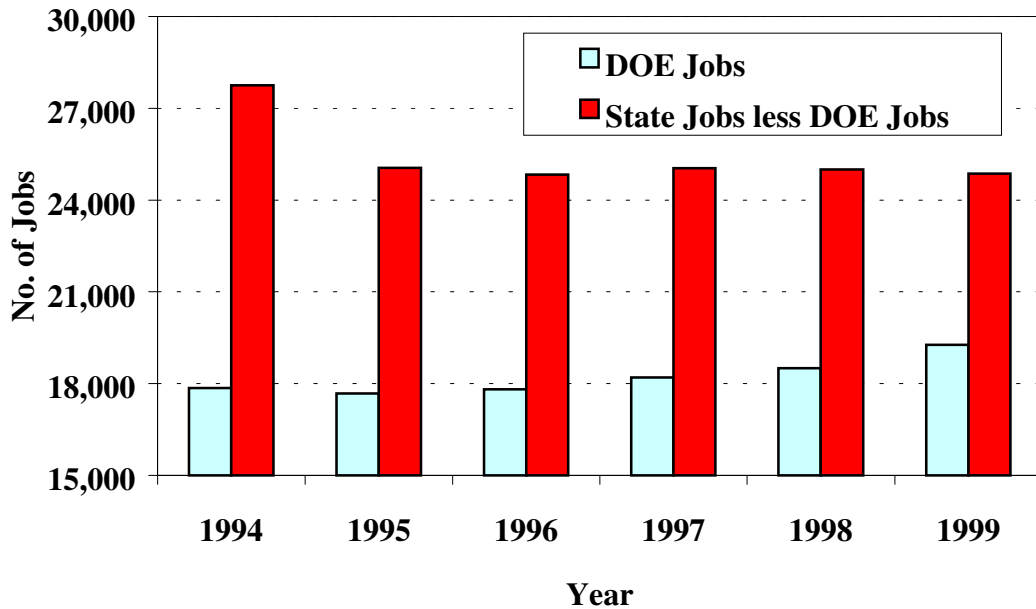


Figure 8. State Government Jobs

State jobs fell except in the Department of Education.



The number of State government jobs fell sharply in 1995. Approximately 1,500 full time equivalent jobs were eliminated in the State government from 1994 to 1999. This is despite the fact that the Department of Education expanded by 1,400 jobs. In other words, excluding DOE, nearly 3,000 State jobs were eliminated over the period. In 1999, there were 44,000 State jobs of which 19,000 were in the DOE.

Based on the changes made in State government policies, the Cato Institute—a respected conservative think tank—upgraded its Hawaii State government rating for fiscal policies and practices from a D+ in 1994 to a B+ in 1998. However, economic growth cannot be assured through workforce reductions alone. Measures to upgrade operational efficiency, as suggested in the State’s employment reform program, must be pursued with the highest priority.

Economic Progress

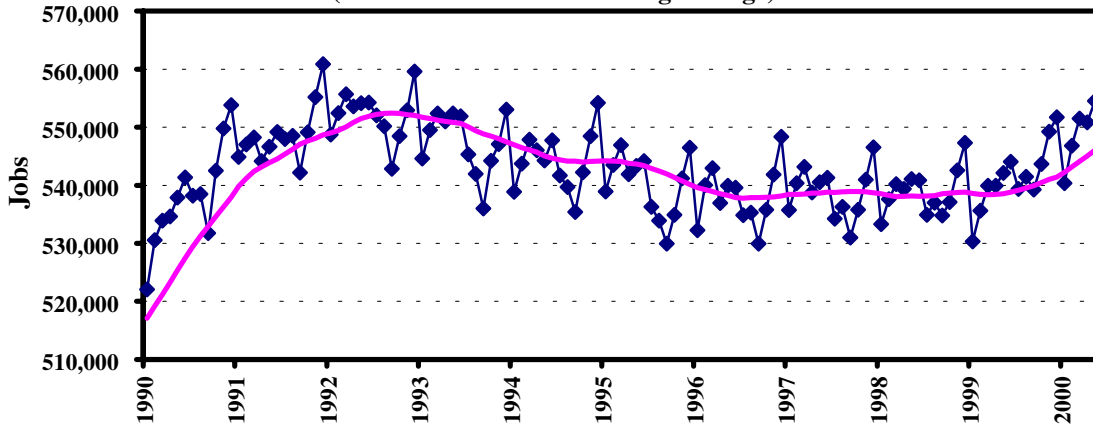
The extensive stimulative and structural adjustments Hawaii made to create a 21st century economic base are a major factor for the emerging recovery. The signs of recovery are widespread.

Jobs

In May 1999 the job count began a sharp upward turn that has so far resulted in 10,000 new jobs in the past 12 months. At this pace Hawaii could, by the end of this year, gain back most if not all of the jobs lost since the 1992 peak.

Figure 9. Total Monthly W&S Jobs, 1990 to 2000

The job count took off in mid 1999, adding 10,000 jobs over the past year.
(Actual and 12 month moving average)

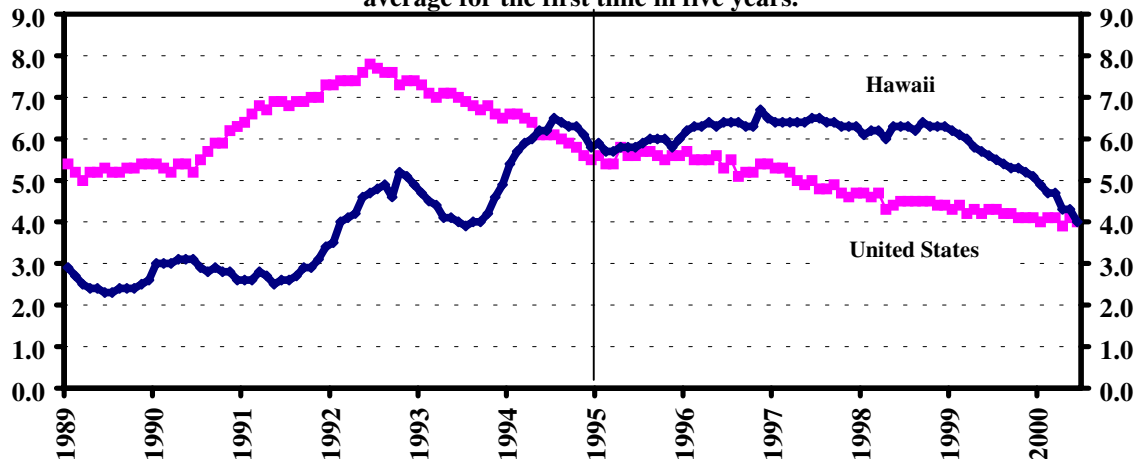


Unemployment Rate

The unemployment rate in Hawaii, which had surpassed the U.S. rate since 1995, has fallen precipitously. As Hawaii's job count accelerated, the unemployment rate fell rapidly to its present level of just over 4 percent. The improvement in jobs and the decline in unemployment are clear signs of a strengthening economy.

Figure 10. Hawaii & U.S. Unemployment Rates (Seasonally Adjusted)

Hawaii's unemployment rate has fallen nearly to the national average for the first time in five years.

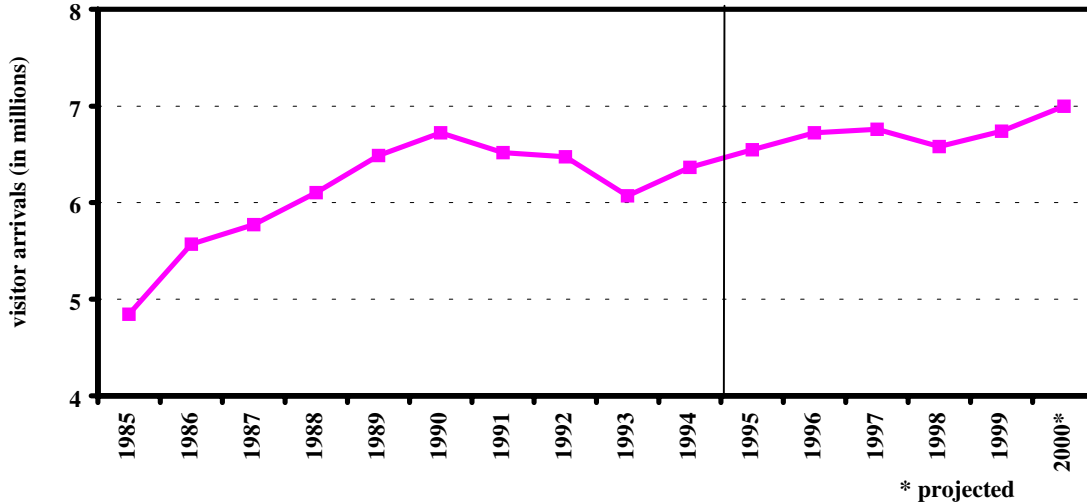


Tourism

The visitor industry has been slowly building momentum over the last five years. In 2000, it is expected that we will welcome an all time high of more than 7 million visitors.

Figure 11. Total Visitor Arrivals

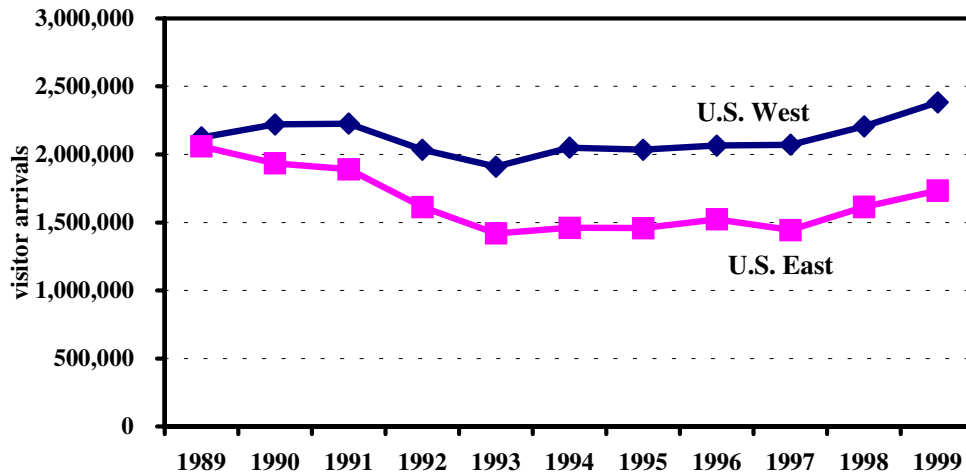
Hawaii's post-Statehood tourism boom ended abruptly as the 1990s began. Growth has returned, but at a more modest pace.



One reason for the new growth in tourism has been the resurgence in the U.S market since 1998. This has countered weakness in the Japanese and other Asian markets and encouraged new investment. In 2000, the Japanese and other Asian markets began to strengthen.

Behind the increase in the U.S. market are positive economic conditions and improved marketing. A strong emphasis on building the tourism base east of the Rocky Mountains by the newly formed Hawaii Tourism Authority has been extremely successful. The drop in U.S. visitors in the early 1990s was predominately from the Eastern part of the U.S. Visitors from this market began to increase in 1998. This growth is significant because visitors East of the Rockies are more likely to be first time visitors, stay longer, and spend more per day than those from West of the Rockies.

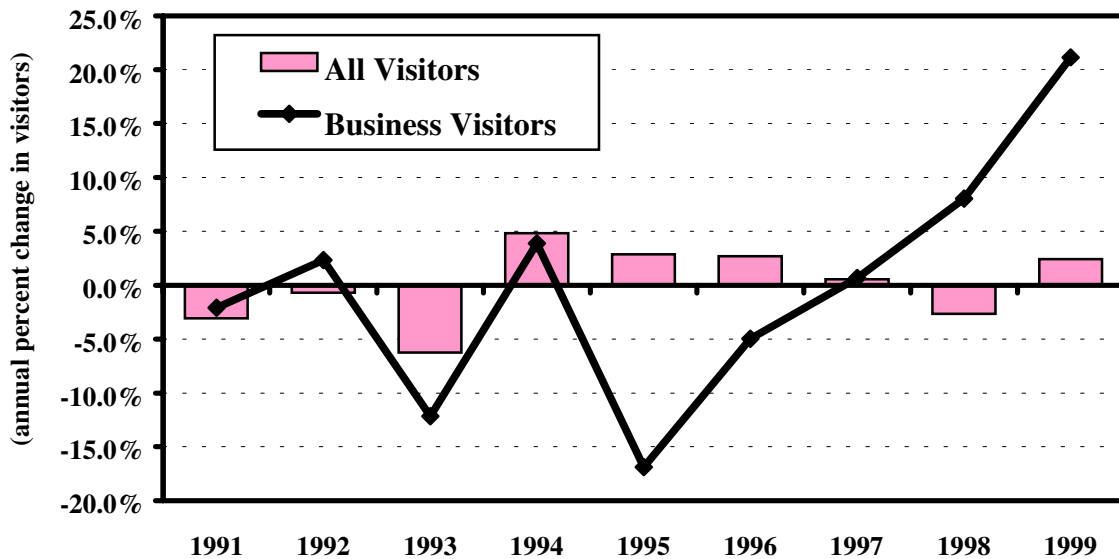
Figure 12. Visitor Arrivals from U.S. West and U.S. East
 Both the U.S. West and U.S. East markets grew substantially beginning in 1998.



Increased business travel to Hawaii has also helped reinvigorate growth. As shown in Figure 13, growth in business-related visitor arrivals has been sharper in the past several years than overall tourism growth. The new convention center is certainly a factor in this trend. Business travelers now account for about 10 percent of Hawaii's total visitors, up from 8 percent in 1995.

Figure 13. Growth in Business Travel

Business travel has outpaced overall tourism by a wide margin over the past several years.

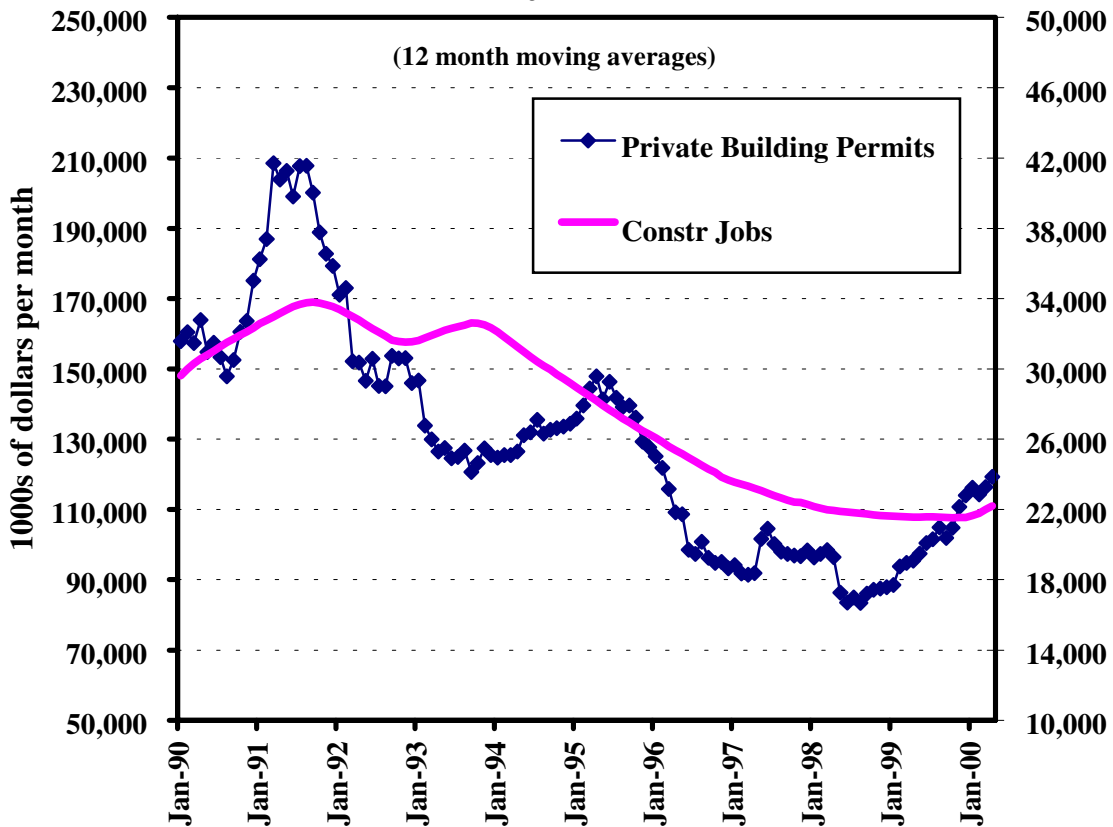


Construction

The industry most affected by the end of the Statehood boom was construction, which began to decline in 1991 and did not bottom out until very recently. New building authorizations rebounded in mid-1998, which appeared to stabilize the construction job count. However, construction jobs did not begin to reflect the improving economic environment until early 2000.

Figure 14. Construction Jobs and Private Permit Values

**Construction permits increased sharply in 1998,
while construction jobs increased in 2000.**



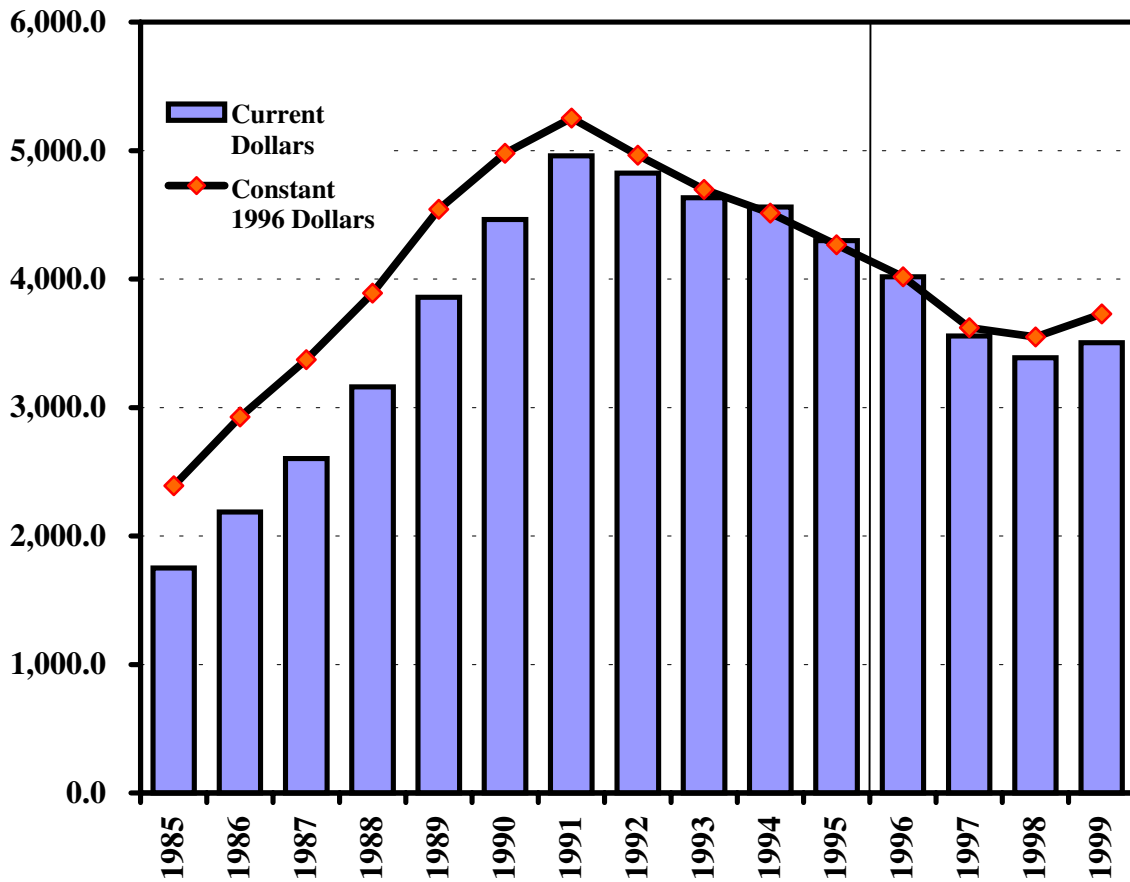
A DBEDT report on construction in the May 2000 issue of *Hawaii's Economy* discusses the impact of construction on the economy <www.hawaii.gov/dbedt/he5-00/index.html>. One billion dollars worth of construction spending creates more than 12,436 jobs and nearly \$600 million in household income. Thus efforts to stabilize construction activity not only benefit the industry and its workers, but also impacts thousands of other jobs and generates millions of dollars of income.

Investment

Decline in construction activity reflected the fall-off in investment following a period of over-investment during the late 1980s. Investment has shown an upturn similar to that of construction authorizations since 1999.

Figure 15. Gross Private Direct Investment (in current & constant dollars)

Investment in the economy increased in 1999, after declining for every year from 1991 to 1998.

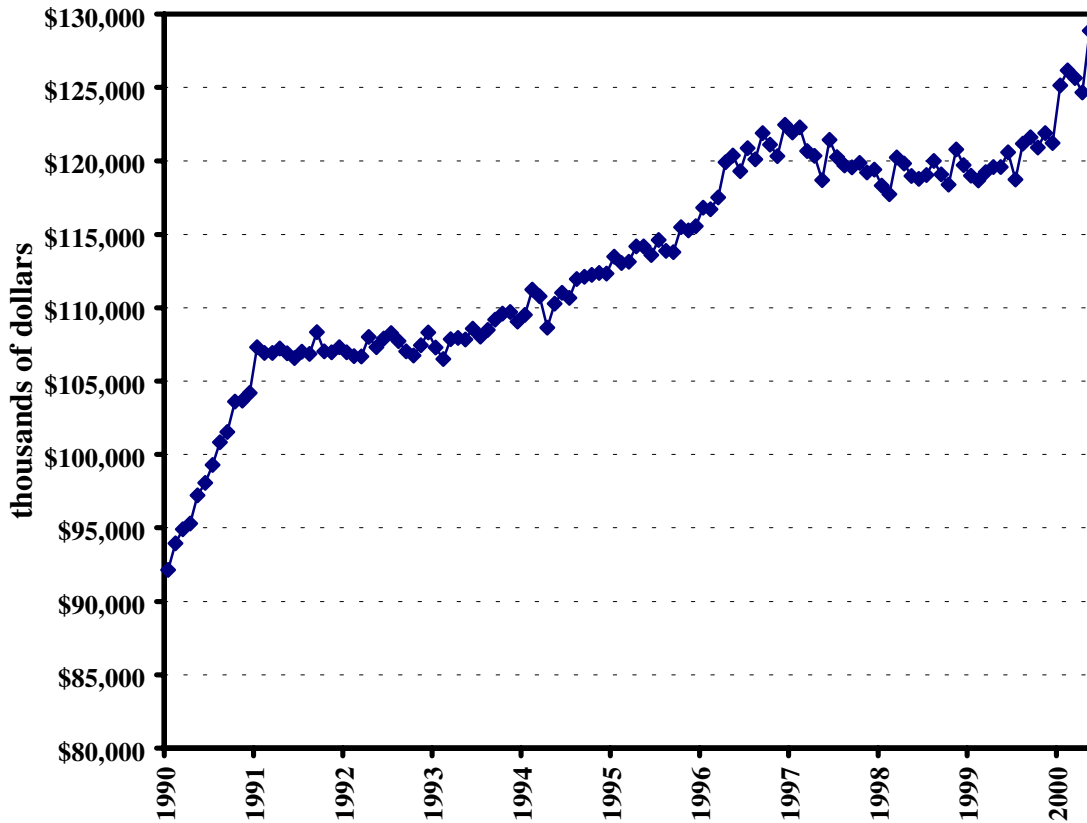


Business Sales

As reflected by general excise tax receipts, a turnaround in business activity occurred in the second quarter of 1999 and sales have been accelerating since that period.

**Figure 16. Monthly General Excise and Use Tax Revenue
(12 month moving average)**

GET collections show the 1997-98 period to have been the most difficult over the decade. Activity has picked up sharply since the beginning of 1999.



THE TASKS AHEAD

While the changes and accomplishments so far have been gratifying, there is still much to accomplish to ensure that the economy's structural transition remains effective for the long term.

The first major task is to follow through with the economic development program that helped engineer Hawaii's transition to the New Economy. This means setting new post-recovery goals and improving on progress and reforms already achieved.

A strategy for that was presented in the January 2000 DBEDT report, *A New Millennium Growth Strategy for Hawaii's Economy*

<<http://www.Hawaii.gov/dbedt/millennium/index.html>>. The strategy identifies six major goals designed to maintain the progress in building Hawaii's New Economy.

Table 13. Six Goals for Hawaii's New Economy
▪ Attain a steady, sustainable rate of economic and employment growth.
▪ Achieve an economy supported by a variety of economic activities in order to reduce the impact of business-cycle swings.
▪ Make Hawaii a full and active participant in the global economy.
▪ Ensure a fair and equitable economy for all participants.
▪ Develop an economy that preserves and enhances Hawaii's environment and quality of life.
▪ Position Hawaii fully and firmly into the New Economy.

A series of policies accompanied the goals, designed to provide a framework for actions.

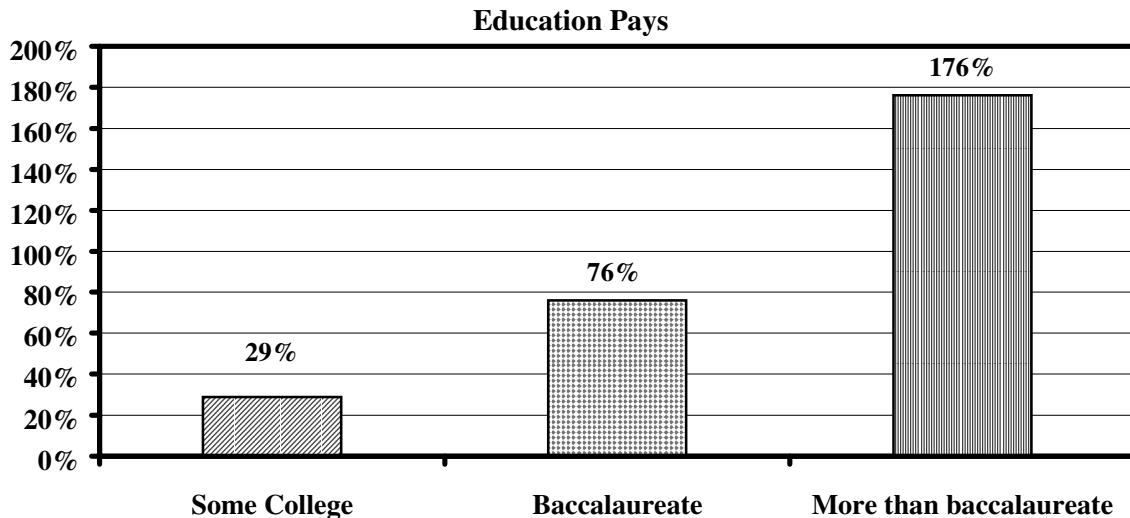
Table 14. Policy Initiatives
▪ Respond quickly to the opportunities arising from technological progress.
▪ Increase the rate of investment flowing into education, training, scientific research and technology development.
▪ Develop workforce programs that enable Hawaii's workers to prosper in a continually changing technological environment.
▪ Foster robust competition among Hawaii's firms.
▪ Help reorient intermediary services, such as marketing, finance, accounting and law, to better serve the needs of Hawaii's technology sector to transform scientific breakthroughs into technology products ahead of Hawaii's competition.
▪ Re-engineer government to make it fast, responsive and flexible in support of Hawaii's transition to the New Economy.
▪ Provide a full spectrum of support to new and developing businesses.

The strategy places special emphasis on technology development using Hawaii's established assets in telecommunications, supercomputing, astronomy, ocean sciences, biotechnology, tropical agriculture, healthcare, information technology and abundant renewable resources. But the reinvigoration of mainstay industries like tourism and agriculture, and the acceleration of smaller industries like film and aquaculture, are also addressed in the strategy.

Emphasizing Education and Training

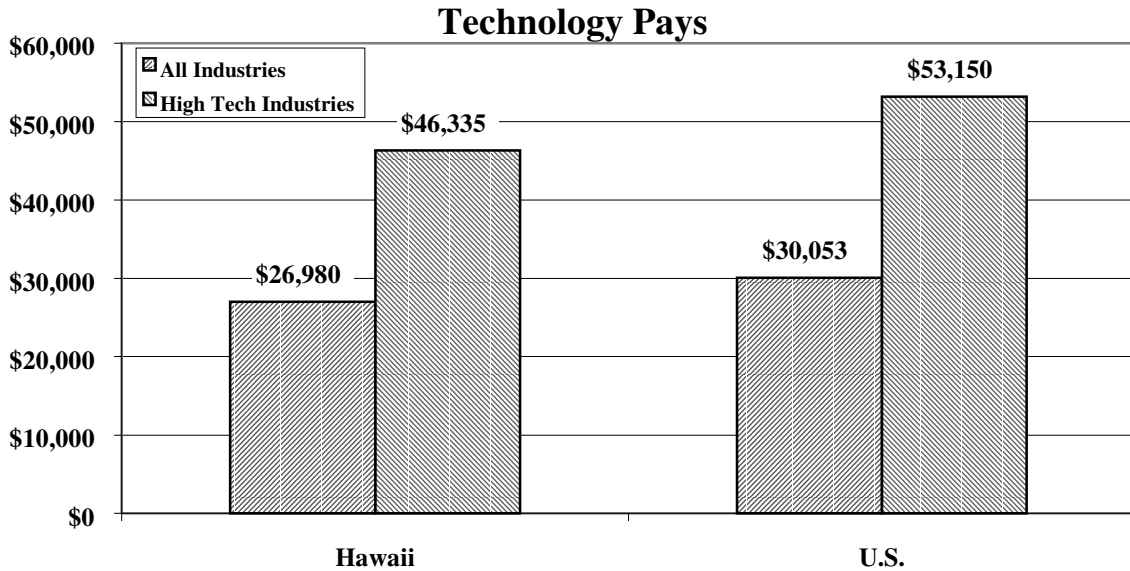
Another major task is to continue improving the State's educational and training base. Better education and training of the workforce are critical if we are to create and use advanced technology in industry and government. Education is also the main vehicle for individuals to raise their standard of living. The DBEDT report "Education and the Economy" noted the tremendous additional earning potential afforded by higher levels of education <<http://www.hawaii.gov/dbedt/he11-98/index.html>>.

**Figure 17. Percent Increase in Earnings by Educational Attainment
Over Those with Only a High School Degree: 1995**



In addition to education, technology-related jobs pay well. The following chart shows that both in Hawaii and in the U.S. overall, the average wage in private sector technology industries is almost twice the average for all industries. Expanding this sector will mean higher paying jobs for Hawaii residents.

Figure 18. Average Private Sector Wages: 1997



Educated and appropriately skilled workers are essential to the economy if we are to realize the diversification and growth potential of knowledge-based industries. Even Hawaii's traditional service businesses are compelled to adopt many new technologies and operating practices in order to remain competitive. This has resulted in a transformation of the types of skills needed to support business activity. New and existing companies need avenues to further train their current workers and the assurance that people entering the workforce will have a set of core skills and knowledge consistent with new workplace demands.

But as the mix of industries and required skills have changed, education and training providers have not been able to produce enough individuals with the skills and knowledge necessary to match changing market demand. This is not just a problem in Hawaii but is a problem nationwide. To stay competitive, Hawaii must expand its capacity to deliver the education and training necessary to meet the requirements of the emerging, knowledge-based industry.

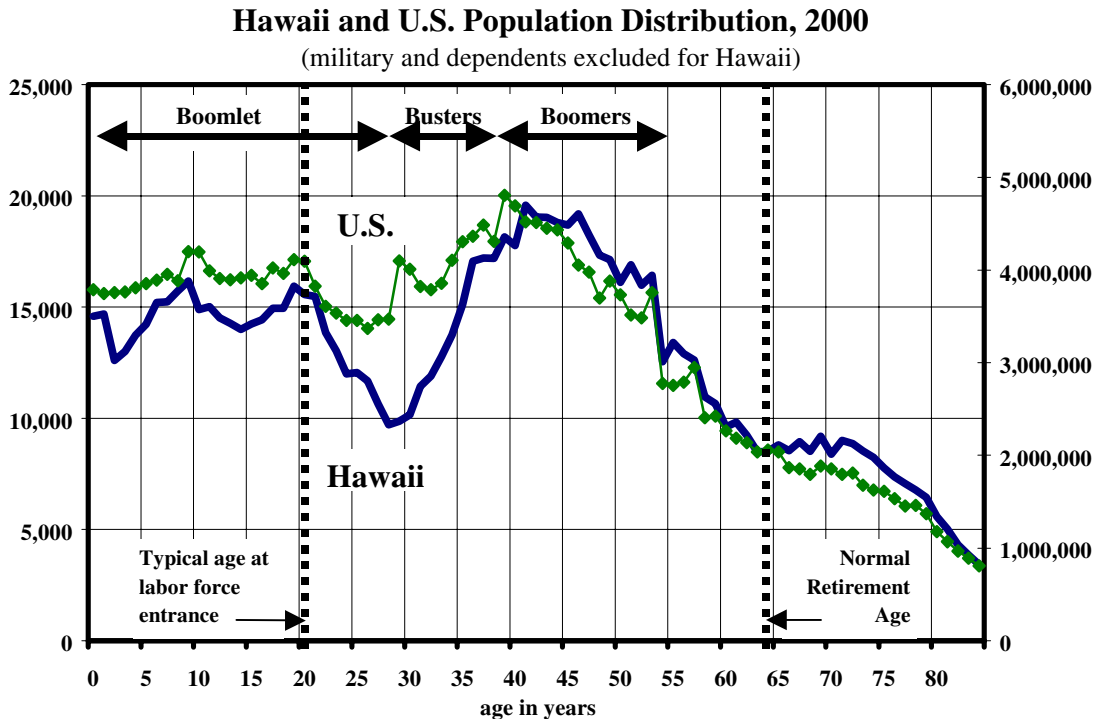
Preparing for Major Demographic Changes

Hawaii and the U.S. will face a demographic shift of major proportions over the next 25 years. It is often referred to as the aging of the baby boom generation. The baby boomers, born between 1946 and 1964 (now between their late 30s to mid 50s) are closing in on retirement age. On the demand side, aging and retirement of the baby boom generation is likely to raise demand for a range of goods and services to serve the elderly. There will be

an increased demand for health care services and other products meeting the special needs of older citizens.

On the supply side, the economy may be hard pressed to adjust to this significant demographic shift. Retiring boomers are going to be drawing on savings and retirement funds instead of contributing to them. This will tend to tighten national savings and put upward pressure on interest rates. Social Security, Medicare, Medicaid and many other sources of funds on which the boomers will draw must be paid out of the nation's current income. Since the overall level of demand in the economy will remain about the same but fewer people may be working, wages and inflation may accelerate and cut into both the earnings of the workforce and the fixed incomes of retirees.

Figure 19. The Changing Population Distribution



Behind the baby boom generation is the smaller baby bust generation (now roughly in the mid 20s to late 30s) and the baby boomlet generation (currently 0 to early 20s). These generations are smaller than the boomer generation. The labor pool of these generations may not be able to fill all of the positions that may be vacated by retiring boomers plus the new positions that will open up with normal economic growth.

These demographic changes have the potential to significantly slow economic growth and progress. Whether they will depends upon how well we anticipate the problems and counter them through other resources at our command. One of those resources is accelerated technological change. If we can manage to increase productivity fast enough, we may be able to make up for much of the potential labor shortage.

We will also need to fully develop our labor resources. Effective education and efficient training and retraining of the limited labor resources will be critical. We cannot afford to lose potentially productive labor force members to age, health problems, criminal activity, substance abuse, nor allow poverty and social conditions to limit the full development of their capability to contribute. There will be a strong economic incentive to use social service and health agencies as well as educational institutions to help as many people as possible lead productive lives as long as they can.

Moreover, workforce training and education programs can capitalize on Hawaii's strategic competitive advantages. These advantages include culture, location, and geography. Our rich Asian and Pacific cultural heritage and population provide us with ready entrée to developing economies in the region. Our location can allow us to play a role in educating and training people from throughout Asia and the Pacific. Our geography provides us with unique physical advantages. For example, our mountains, ocean, and relative isolation from the continental U.S. provide a natural laboratory for agricultural, biological science, oceanographic, atmospheric, and astronomical research, and the economic product development, education, and training that can evolve from these activities.

Building on Success

The tasks remaining may appear even more formidable than those already completed. However, over the past six years Hawaii developed an understanding of how to identify and manage change. Moreover, it has successes in hand. We know now that Hawaii is very capable of changing and competing in the New Economy. We must now draw on the energy of our knowledge and successes to continue carving out a niche for Hawaii's New Economy of the 21st century.

Ultimately the State's vision to attract high technology companies and to retain its economic driver, the visitor industry, rests on its ability to maintain its high quality of life. Hawaii's high quality of life reflects the advantages of its scenic assets, mild climate, friendly people, and recreational opportunities. The State is consistently rated as one of the

best places to live in terms of health and longevity, environmental quality and cultural adaptation.

Hawaii's ability to maintain these high quality attributes will enable it to attract and keep the firms that will dominate the global economy of the 21st century as well as to provide and retain the skilled workforce they need.