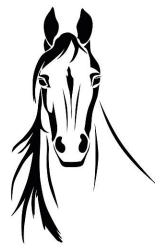


INTRODUCTORY SECTION

(Not Covered by the Independent Auditor's Report)

Letter of Transmittal
Constitutional Officers
Organizational Chart
GFOA Certificate of Achievement
Controller's Annual Report



**RON KNECHT,
MS, JD, PE (CA)**
State Controller

STATE OF NEVADA

JAMES W. SMACK
Chief Deputy Controller



**OFFICE OF THE
STATE CONTROLLER**

January 7, 2019

To the Citizens, Governor and Legislators of the State of Nevada:

In accordance with Nevada Revised Statutes (NRS) 227.110 and the State Accounting Procedures Law (NRS 353.291 through 353.3245), I am pleased to present the State of Nevada Comprehensive Annual Financial Report (CAFR) for the fiscal year ended June 30, 2018. The objective of this Report is to provide a clear picture of the government as a single, unified entity, in addition to traditional fund-based financial statements.

Introduction to the Report

Responsibility: The Controller's Office prepares the State of Nevada CAFR and is responsible for the accuracy, completeness, and fairness of the presentation, including disclosures. To the best of our knowledge and belief, the information contained in the State of Nevada CAFR is accurate in all material respects and is reported in a manner that fairly presents the financial position and results of operations of the State's primary government and the component units for which it is financially accountable. Additionally, this report includes all disclosures necessary to enable the reader to gain a reasonable understanding of Nevada's financial activities.

Generally Accepted Accounting Principles: As required by State Accounting Procedures Law, this report has been prepared in accordance with generally accepted accounting principles (GAAP), applicable to State and Local Governments as established by the Governmental Accounting Standards Board (GASB). The State also voluntarily follows the recommendations of the Government Finance Officers Association (GFOA) for the contents of government financial reports and participates in the GFOA's review program for the Certificate of Achievement for Excellence in Financial Reporting.

Internal Control Structure: The State of Nevada has established a comprehensive internal control framework designed to both safeguard the government's assets against loss from unauthorized use or theft, and to properly record and adequately document transactions. As a result, the transactions can be compiled into the presentation of the State's financial statements in conformity with GAAP. Since the cost of internal controls should not outweigh their benefits, the State's comprehensive framework of internal controls has been designed to provide reasonable, rather than absolute, assurance that the financial statements will be free from material misstatement.

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Many of our essential control features are decentralized. Hence, the State relies upon the controls in place within its various departments and agencies. NRS 353A.025 requires the heads of agencies to review their internal controls on a periodic basis to determine if the agency is in compliance with the Uniform System of Internal Accounting and Administrative Controls adopted pursuant to NRS 353A.020. On or prior to fiscal year end of even-numbered years, agencies are required to report the status of their internal controls to the Department of Administration.

Independent Auditors: The independent accounting firm of Eide Bailly LLP has audited the accompanying financial statements in accordance with generally accepted governmental auditing standards. Their opinion appears in the Financial Section of this publication. The goal of the independent audit is to provide reasonable assurance that the financial statements of the State of Nevada are free of material misstatement. We received an unmodified opinion on the basic financial statements for this fiscal year. The independent audit of the financial statements of the State of Nevada is part of a broader, federally mandated Single Audit designed to meet the special needs of federal grantor agencies. The standards governing Single Audit engagements require the independent auditor to report not only on the fair presentation of the financial statements, but also on the audited government's internal controls and compliance with legal requirements, with special emphasis on internal controls and legal requirements involving the financial statements. This report can be found in the Compliance Section of the CAFR, and in the State of Nevada's separately issued Single Audit Report.

Management's Discussion and Analysis: GAAP requires management to provide a narrative introduction, overview and analysis to accompany the basic financial statements in the form of Management's Discussion and Analysis (MD&A). This letter of transmittal is designed to complement the MD&A and should be read in conjunction with it. However, as is the normal course of business, the audit by Eide Bailly LLP does not extend to or cover this transmittal letter nor the Controller's Annual Report (CAR) included herein.

Profile of Government

Background: The Nevada Territory was carved out of the Utah Territory by Congress in 1861 and its boundaries were subsequently expanded eastward in 1862 and eastward and southward in 1866. In 1864, Nevada was granted statehood after transmitting its newly ratified constitution to Congress in the longest and costliest transmission by telegraph in history. This allowed statehood to be conferred on October 31, just days ahead of the November 8 presidential election at a time President Lincoln thought he might need Nevada's electoral votes to secure reelection.

The Great Basin Desert dominates the Nevada landscape, with the Sierra Nevada Mountains to the west and the Rocky Mountains to the east. Federal agencies own and control approximately 85 percent of Nevada's 70,264,320 acres, meaning most of Nevada's land area is restricted from use and development by private citizens. Local governments are also unable to collect property taxes on these lands to sustain vital public services, although they do receive less valuable Payments in Lieu of Taxes from the federal government. Due greatly to the shortage of land available for citizens, more than 90% of our 3.0 million residents are squeezed into one of two distinct population centers: the Reno/Sparks/Carson City area near Lake Tahoe and Clark County at the southeast tip, separated by 400 miles.

Nevadans enjoy the absence of a personal income tax but labor under a variety of indirect taxes that are assessed on businesses and thus mostly passed onto consumers in the form of higher

prices and to workers in the form of suppressed wage and employment growth. Nevada has offered a continuous legal market for gaming since 1935, allowing that industry to thrive in the state while also financing a significant share of public services. The State operates under a constitution that provides for a full range of services, including education, health and social services, highway maintenance and construction, law enforcement, public safety, business regulation, and resource development.

Reporting Entity: The State of Nevada, as the reporting entity, conforms to the requirements of GASB Statement No. 14 and No. 34 as amended by GASB Statement No. 61. The accounting and reporting principles reflected in these statements are based primarily upon the fundamental concept that publicly elected officials are accountable to their constituents, and to distinguish between the primary government and its component units. The State's legally separate component units include the Nevada System of Higher Education, Colorado River Commission, and Nevada Capital Investment Corporation. In addition, the Nevada Real Property Corporation is reported as a blended component unit. The State also includes the presentation of its trust and agency funds. The State Legislature sets statutorily the parameters within which all these entities operate.

Financial Information

Debt Management: The State Constitution limits the aggregate principal amount of the general obligation debt to two percent of the total reported assessed property value of the State. Additional disclosures regarding the State's long-term obligations are provided in the notes to the basic financial statements.

Long-Term Financial Planning and Financial Policies: State law (NRS 353.205) requires a balanced budget. The Governor must submit a proposed budget for the Executive Branch to the State Legislature before each regular session, which convenes every odd-numbered year. Spending levels under this Executive Budget proposal may not exceed the amounts that existed during the biennial budget period that began July 1, 1975, adjusted for population growth and inflation. However, the Legislature enacts the budget through passage of the General Appropriations Act and the Authorized Expenditures Act and the legislatively approved budget is not constrained by this growth limitation. Once passed and signed, the budget becomes the State's financial plan for the next two fiscal years.

In accordance with State statute, The Economic Forum, comprised of private economic and financial experts appointed by the Legislature and the Governor, sets the General Fund revenue forecasts which are binding on the budget. If revenues fall below those originally anticipated during the course of the fiscal year, the Governor must revise the budget to ensure that State appropriations do not exceed revenues. If the revisions exceed thresholds specified in NRS 353.220, they must be submitted to the Legislative Interim Finance Committee for approval.

Major State Initiatives

Nevada is working on major transportation projects expected to be completed in coming years, including the massive Project Neon in Las Vegas. These will be followed by the I-11 corridor developments between the two population centers, and the state is developing a comprehensive freight plan. NDOT project schedules are contingent on the availability of funding, including the I-80/I-580 Interchange (also known as the Spaghetti Bowl Xpress), which is likely to be aided

significantly by recent passage of the federal FAST Act. In addition, Nevada has awarded substantial packages of cash grants, tax abatements, and other incentives to a few select private firms, including Tesla Motors and the Raiders football team.

Awards and Acknowledgments

GFOA Certificate of Achievement: The GFOA awarded a Certificate of Achievement for Excellence in Financial Reporting to the State of Nevada for its CAFR for the fiscal year ended June 30, 2017. To be awarded a Certificate of Achievement, a government must publish an easily readable and efficiently organized CAFR that satisfies both GAAP and applicable legal requirements. A copy of the GFOA Certificate of Achievement is included in the Introductory Section of the CAFR. A Certificate of Achievement is valid for only a one-year period. We believe that this current CAFR continues to meet the requirements of Certificate of Achievement Program, and we are submitting it to the GFOA to determine its eligibility for another certificate.

The State also received an Award for Outstanding Achievement in Popular Annual Financial Reporting for its Controller's Annual report (CAR) for the fiscal year ended June 30, 2017. An image of the certificate for that award is included in this year's CAR, which is a part of this CAFR. We believe the current CAR continues to meet the requirements of the Award for Outstanding Achievement and we are submitting it to the GFOA to determine its eligibility for another certificate.

Acknowledgments and Conclusion: This report would not have been possible without the hard work, dedication and professionalism of my staff and the cooperation and assistance from all State agencies, Executive, Legislature and Judiciary. I sincerely appreciate the efforts of all the individuals involved, especially the Controller's Office staff. We are committed to advancing transparency, accountability, continuity and efficiency in the State's financial operations.

At the end of this introductory section, we present the 2018 Controller's Annual Report (CAR) as an addendum to this Transmittal Letter to provide additional and essential context for users of these statements. It provides a detailed overview of Nevada's performance in specific functional areas, a summary of financial results for the past year, an Economic Outlook for the foreseeable future and policy recommendations.

Sincerely,



Ronald L. Knecht, MS, JD & PE(CA)
Nevada State Controller

STATE OF NEVADA CONSTITUTIONAL OFFICERS



MARK HUTCHISON
LIEUTENANT GOVERNOR



BRIAN SANDOVAL
GOVERNOR



BARBARA CEGAVSKE
SECRETARY OF STATE



DAN SCHWARTZ
TREASURER

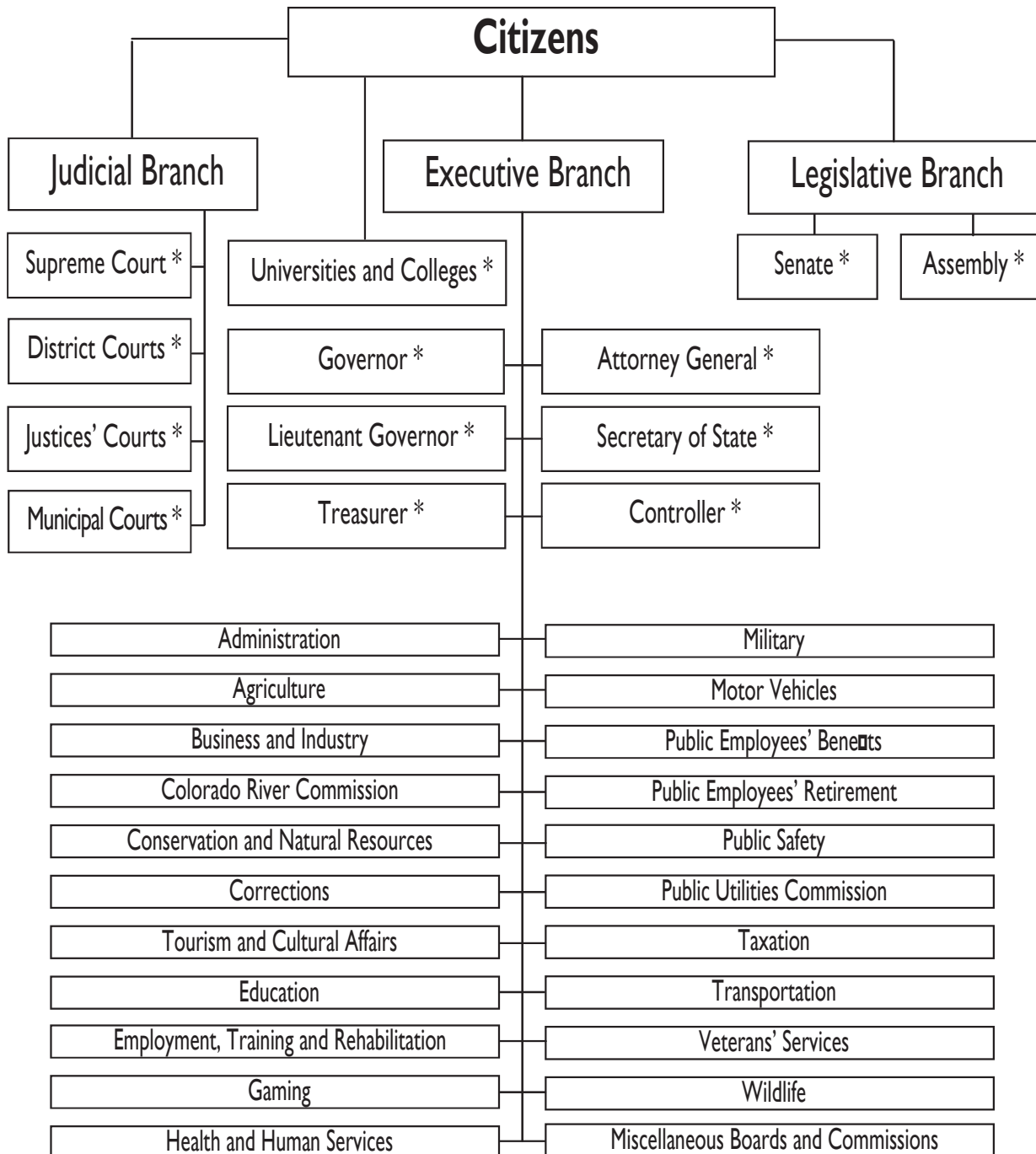


RON KNECHT
CONTROLLER



ADAM PAUL LAXALT
ATTORNEY GENERAL

ORGANIZATIONAL CHART



* Elected Officials



Government Finance Officers Association

**Certificate of
Achievement
for Excellence
in Financial
Reporting**

Presented to

State of Nevada

For its Comprehensive Annual
Financial Report
for the Fiscal Year Ended

June 30, 2017

Christopher P. Morrell

Executive Director/CEO



STATE OF NEVADA

CONTROLLER'S ANNUAL REPORT

RON KNECHT, STATE CONTROLLER

FOR FISCAL YEAR ENDED JUNE 30, 2018

HIGHLIGHTS AND TABLE OF CONTENTS

I. State Spending (pages 2-3) – Over the last dozen years, state spending has grown faster than Nevada's economy, thus imposing an ever larger real burden on Nevada families and businesses, whose real incomes have declined over that time. Rapid increases in spending on Health and Social Services (HSS) and K-12 education are driving state spending growth. HSS and education (K-12 and higher) grew to comprise 79% of total state spending of \$12.8 billion in FY18, while all other state spending in total declined significantly in real terms since FY06.

II. State Revenues (pages 4-6) – Non-tax revenues – grants and contributions to the state, charges for services and contract revenues – have grown very rapidly (59% faster than Nevada's economy) to comprise 56% of total state FY18 revenues of \$13.6 billion. Total tax revenues grew at the same rate as the state economy, and they provide the other 44%. Gaming and property tax revenues fell sharply in real terms while tax revenues from non-gaming businesses (including unemployment assessments) rose greatly. The burden carried directly by consumers and residents (not including the pass-through effects of business taxes) grew slower than their incomes.

III. Health and Social Services (pages 6-7) – Large amounts of revenues from federal HSS grants cannot be redirected to other areas. HSS spending is the largest category of state spending, and it has grown fastest, driven mainly by federal mandates. Medicaid is 64.5% of the HSS total, and that percentage has increased due to Nevada's decision to embrace provisions of the federal Affordable Care Act of 2010. Nevada Medicaid spending will increase in coming years, and federal funding that has supported it is uncertain, even as it delivers poor health care results. The doubling in the last 25 years of the fraction of national income spent on health care reflects inefficiency from increasing socialization of health care and insurance.

IV. Primary, Secondary and Higher Education (pages 8-9) – State funding of K-12 education has increased at more than twice the rate of incomes of Nevada families and businesses over the long term. Research has continuously demonstrated little correlation between student achievement and spending; so, in the absence of K-12 policy reform, it is unsurprising that the quality of Nevada education has remained low despite major funding increases. Substantial parts of the cost of higher education have been shifted from taxpayers to students and their families in Nevada, as elsewhere. Higher education compensation in Nevada and all states is very high. All

levels of education suffer administrative bloat and operating inefficiency.

V. Public Employee Compensation and Benefits (pages 10-11) – Current compensation of state employees, except those in higher education, is overall at market levels, but higher for lower-level positions and lower for top-end jobs. Nevada local government compensation is among the highest in the nation and continues to require increases in taxes that are already very high. Public Employee Retirement System contributions required of state employees (higher education does not participate in PERS) and from taxpayers continue to rise in real terms. PERS's coverage of local government employees is almost completely paid by taxpayers and is rising to unsustainable levels. PERS relies on high estimates of future investment returns and member growth to hide a growing under-funding problem that threatens financial disaster for Nevada. We propose reasonable levels: 5% expected returns; and 2.5% annual membership growth based on experience. On the other hand, in investment management PERS has rightly embraced indexing in all areas that can be indexed.

VI. Economic Outlook (pages 12-21) – We identify four secular trends that have suppressed U.S. economic growth in the last decade, thus explaining the "new normal" of long-term slow economic growth. The first trend is the continuing growth of government relative to the economy, reflected in public spending, taxes, deficits, debt, regulation of all kinds, and other government interventions. Until 2000, this growing deadweight loss was offset by three growth-inducing factors: 1) demographic and other trends that increased labor-force participation; 2) the growth of financial leveraging (debt); and 3) rapid growth in emerging economies, plus globalization of firms, increasing trade and foreign direct investment. Turnarounds in recent years in all

DEMOGRAPHIC INFORMATION

	FY 2018	FY 2006	% Change
Population (end of fiscal year)	3,056,824	2,522,658	21%
Per Capita Income	46,581	38,535	21%
Debt per Capita	979	1,504	-35%
Personal Income *	142,389	97,211	46%
Gross State Product *	163,386	123,228	33%
Inflation	259	203	28%
K-12 Public School Enrollment	492,416	413,252	19%
Higher Education Enrollment (FTE)**	70,450	62,456	13%

*Figures in Millions

**FTE stand for full-time equivalent



To see additional information, visit: controller.nv.gov

STATE SPENDING

three trends mean they too now create an ever greater drag on our economy and produce slow real economic growth of 2% or less annually (1% per-person). Recent federal reforms may help reverse losses due to government over-reach, if they are maintained and greatly supplemented for decades, but tariff increases and other trade skirmishes will vitiate these reforms. We also address innovation, technological progress and productivity; cost disease; income and wealth distribution; and state-specific data that show Nevada is not an exception to national trends.

VII. Policy Prescriptions (pages 21-23) – Public policy should serve the wellbeing of the people of Nevada and the broad public interest. This means maximizing economic growth, because growth determines aggregate human wellbeing and the policies that maximize it are also those fair to all. Thus, for a long time to come, Nevada needs to rein in the size, scope and reach of government to get it back within optimal levels. We also need to adopt policies

that help reverse the other three long-term adverse secular trends and that move Nevada away from cronyism toward true entrepreneurship and economic dynamism.

This Controller's Annual Report (CAR) provides Nevada citizens, officials and others a summary of key facts, data, analysis and issues on the state's fiscal condition and challenges. For additional detail, please see our Comprehensive Annual Financial Report and other materials available at controller.nv.gov. The Controller has a statutory charge to recommend plans for: support of public credit; promoting frugality and economy; better management of the state's fiscal affairs; and better understanding of them. This CAR first summarizes and analyzes state spending and revenue sources over the last decade, and provides detail and policy recommendations for major spending areas. Then it presents the long-term economic outlook for Nevada. It ends with some policy prescriptions for better serving the public interest and the Controller's statutory charges.

I. STATE SPENDING: HOW DID NEVADA SPEND YOUR TAX AND FEE DOLLARS?

Table 1 below analyzes Nevada state spending by category. Key conclusions follow.

TABLE 1: NEVADA STATE SPENDING ANALYSIS

State Spending by Category	FY2018 \$ Figures in Millions (1)	FY2006 \$ Figures in Millions (1)	Percent of FY18 Spending	Growth Rate % 2006-18	2006-18 Real Per Person % Growth	% Growth in Tax & Fee Payers' Real Burdens (2)
Health and Social Services	\$ 5,844	\$ 2,199	46	166	70	81
K-12 Education (3)	2,344	1,240	18	89	24	29
Law, Justice and Public Safety	729	578	6	26	-19	-14
Higher Education (3)	718	706	6	2	-29	-31
Unemployment Insurance	298	239	2	24	-20	-15
Recreation, Interest & Miscellaneous	368	404	3	-9	-42	-38
Regulation of Business	148	102	1	45	-7	-1
General Government	288	371	2	-22	-50	-47
Transportation	851	508	7	68	7	15
Subtotal	11,588	6,347	90	83	17	25
Discretely Reported Component Units						
Higher Education, Net of Payments from State of NV (3)	1,193	594	9	101	39	37
Other Discretely Reported Component Units	47	125	1	-63	-74	-74
Discretely Reported Component Units Total	1,240	719	10	72	20	18
State Total Spending (Gov., Bus., Disc.)	\$ 12,827	\$ 7,066	100	82	16	24
Subcomponents and Statistics of Interest						
All Other Gov't. (Except HSS, K12 & NSHE)	\$ 2,729	\$ 2,328	21	17	-25	-20
Nevada Economy: Personal Income (FY) (\$M)	\$ 142,389	\$ 97,211	NA	46	-6	NA
Nevada Economy: Gross State Prod. (FY) (\$M)	\$ 163,386	\$ 123,228	NA	33	-15	NA
Inflation (BLS West-Urban CPI-U Index, FY)	258.9	202.6	NA	28	NA	NA
Nevada Population (FY average)	3,027,432	2,477,401	NA	22	NA	NA
Nevada K-12 Students (Fall Count)	492,416	413,252	NA	19	NA	NA
NSHE FTE Students (Fall Count)	70,450	62,456	NA	13	NA	NA

(1) Data are taken from CAFR and CAFR workpapers. For consistency, Cultural Affairs spending is reported both years under General Government, where it is now classified; before 2014, the CAFR included it under Education. Also, for consistency, Nutritional Education Programs are classified both years under K-12, as they were before 2014, although they are now classified as Regulation of Business for CAFR reporting.

(2) These percentage changes are not due to inflation, population growth, increase in student or HSS client head counts, etc. They are the changes in the Nevada tax-and-fee-payers' burdens in addition to increases in those burdens to cover inflation, population, etc. These percentages are computed based on personal income; if they were computed based on GSP, the increase in burden would be greater because GSP grew slower over the 2006-18 decade than personal income (33% versus 46%).

(3) Real Per-person Growth Rates computed based on state population figures for all categories except K-12 and Higher Education, which are based on student head counts.



To see additional information, visit: controller.nv.gov

STATE SPENDING

1. Health and social services and all education accounted for 79% of FY18 state total spending of \$12.8 billion.

Their growth totals 93% of the growth in state total spending from FY06 to FY18. In FY18, HSS consumed 46% (\$5.8 billion), with primary and secondary (K-12) education taking 18% (\$2.3 billion) and higher education another 15% (\$1.9 billion). All other activities – law, justice and public safety, transportation, unemployment insurance, general government, regulation, etc. – total 21% (\$2.7 billion).

2. HSS and K-12 spending grew rapidly while all other government spending, the Nevada economy and the wellbeing of Nevadans declined significantly.

The chart below displays the annual state spending growth by major category in real per-capita terms over the last twelve years. Table 1 shows the twelve-year real per-person growth totals: increases in HSS (70%) and K-12 (24%) drove up state total spending (16%), with higher education total spending growing at the rate of the economy, while all other total state spending declined (-25%; although transportation grew 7%). Meanwhile, personal income of Nevadans (-6%) and gross state product (-15%) also contracted significantly.

3. Most importantly, the burden of state spending on Nevada families and businesses, driven by HSS and education, was 24% higher relative to their incomes in FY18 than in FY06.

The right-hand column of Table 1 shows the growth in spending on each category as compared to incomes of Nevadans. The growth in burden from HSS spending was 81%. For K-12, it was 29%. Higher education saw a 6% decrease. The total of all other state spending grew 20% slower than incomes. These burden figures mean that, besides covering spending increases due to inflation and growth in HSS client and student headcounts, rising HSS and K-12 spending required families and business to pay taxes and fees 24% higher in FY18 than in FY06.

The following points also are noteworthy:

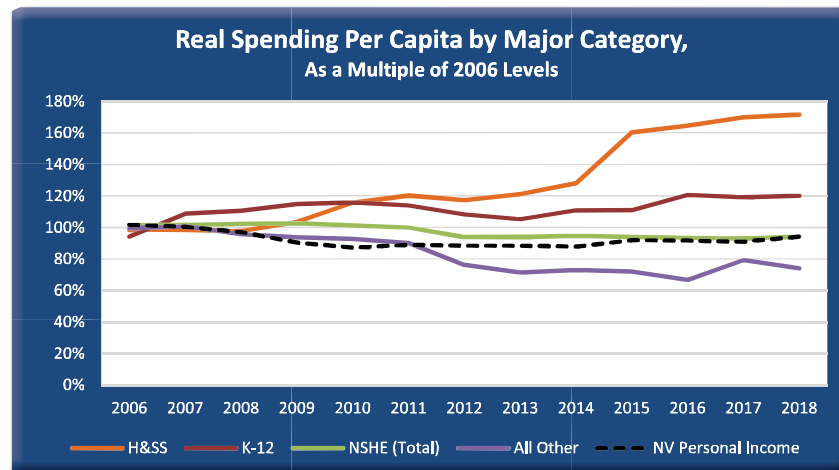
- More than \$3.77 billion (64.5%) of HSS monies was spent on Nevada Medicaid. This spending will likely continue to rise in coming years due to the state's decision to expand eligibility pursuant to the federal Affordable Care Act (Obamacare). However, federal contributions toward this spending decreased in 2018 and will continue to do so, requiring additional state dollars.

- More than \$1.6 billion (69%) of K-12 funds was paid from the Distributive School Account to county school districts to supplement their local revenues. By various measures, Nevada K-12 education continues to deliver poor results, despite rapid increases over the last decade in state K-12 spending. Despite the well-known lack of statistically significant correlation between spending and student achievement, in 2015 and 2017 the Legislature and Governor further increased K-12 budgets by hundreds of millions of dollars through FY18.

- Total higher education spending rose 37% over the dozen years, but the state-funded portion rose less than 2%. Large increases in tuition and fees, grants and contracts, and self-supporting operations (meal plans, housing, ticket sales, etc.) shifted significant portions of the cost burden from taxpayers to students and their families, who get most of the benefit of the services.

- Transportation spending rose from \$508 million in FY06 to \$802 million in FY12 before falling to \$180 million in FY16 and then rising back to \$851 million in FY18. Much transportation spending is capital investment in large projects, so there is no trend in annual spending.

- Unemployment insurance costs rose nearly ten-fold from \$239 million in FY06 to \$2.233 billion in FY12, before falling to \$298 million in FY18. The 24% growth rate in spending in FY06 to FY18 for UI is only a small part of the state spending growth total, and it was driven mainly by the Great Recession, poor recovery and federal UI policy. There is no meaningful time trend in UI spending.



To see additional information, visit: controller.nv.gov

STATE REVENUES

II. STATE REVENUES: WHERE DID THE STATE GET THE MONEY?

Table 2 below presents a comprehensive state revenue analysis. Revenues are classified either as program revenues, which include charges for services and grants and contributions received by the state, or as general revenues, which include mainly taxes and also smaller miscellaneous items. Both program and general revenues come from governmental activities, business-type activities of the state,

and three entities that file separate accounting reports in addition to the state accounting reports covering primary government spending. These entities are called discretely presented component units, and the Nevada System of Higher Education (NSHE) accounts for nearly their entire total.

The points below emerge from Table 2.

TABLE 2: NEVADA STATE REVENUE ANALYSIS

	FY2018	FY2006	Percent	Growth	2006-18	% Growth in
	\$ Figures in	\$ Figures in	of FY2018	Rate %	Real Per	Tax & Fee
State Revenues by Category	Millions (1)	Millions (1)	Revenues	2006-18	Person %	Payers' Real
Program Revenues					Growth	Burdens (2)
Governmental Charges for Services	\$ 901	\$ 769	7	17	-25	-20
Governmental Grants & Contributions (Op'g & Cap.)	5,296	1,875	39	182	81	93
Business-type Charges for services	134	99	1	36	-13	-7
Business-type Grants & Contributions (Op'g only)	83	103	1	-19	-48	-45
Discretely-presented Units Charges for Services	768	531	6	45	-7	-1
Discrete-unit Grants & Contributions (Op'g & Cap.)	514	378	4	36	-13	-7
Total Program Revenues (Gov., Bus., Disc.)	7,696	3,755	56	105	31	40
General Revenues & Other Net Position Changes						
Discretely Presented Units (NSHE, CRC, NCIC)	815	814	6	0	-36	-32
Less: Payments from State of Nevada (Primary Gov)	(706)	(706)	-6	0	-36	-32
Net, Discretely Presented Units	109	108	1	1	-36	-31
Governmental Activities	5,035	3,615	37	39	-11	-5
Business-type activities	790	334	6	136	51	61
Total General Revenues (Gov., Bus., Disc.)	5,934	4,057	44	46	-6	0
Total Program & General Revenues	\$ 13,630	\$ 7,812	100	74	12	19

(1) Data are taken from CAFR and CAFR workpapers. Data for Discretely Presented Units covers NSHE, (by far the largest component) CRC and NCIC.

(2) These percentage changes are not due to inflation, population growth, increase in student or HSS client head counts, etc. They are the changes in the Nevada tax- and fee-payers' burdens in addition to increases in those burdens to cover inflation, population, etc. These percentages are computed based on personal income; if they were computed based on GSP, the increase in burden would be greater because GSP grew slower over the 2006- 18 decade than personal income (33% versus 46%).

1. Government grants and contributions accounted for 39% of total state revenues of \$13.6 billion in FY18, and they grew much faster than all other revenues from FY06 to FY18. Program revenues from government grants and contributions (operating and capital) totaled \$5.3 billion in FY18. This revenue increased more than \$3.4 billion from FY06, and it accounted for 59% of growth in total state revenues. These revenues are mainly comprised of federal government funding for Medicaid, Supplemental Nutritional Assistance (SNAP, or food stamps) and Temporary Assistance for Needy Families (TANF), and they are the revenue side of much of the increase in state HSS spending discussed above. That is, much of this spending is driven by federal mandate and also funded by federal government taxpayers, including Nevadans. A notable risk is that federal funding is sometimes reduced, but federal mandates rarely are. Now and in coming years, Nevada faces just such a problem with Medicaid revenues and spending.

2. Charges for services, grants and contracts for higher education comprise 9% of total state revenues, and they also grew rapidly. Program revenues totaled \$1.236 billion for NSHE in FY18, an increase of 36% (\$0.33 billion) over the last dozen years.

3. Other program revenues amount to 8.5% of total state revenues, and they grew very slowly. Other program revenues of \$1.164 billion grew only 21% (\$0.204 billion) since FY06, much less than the 34% nominal growth in incomes.

4. In sum, increases in program revenues, driven mainly by HSS and to a lesser extent by higher education receipts grew rapidly while tax revenues grew only at the rate of the economy. In FY06, most state revenues came from taxes. But over the last dozen years, program revenues grew 105%, becoming 56% (\$7.7 billion) of total state revenues. General revenues, consisting mostly of taxes, grew only 46% (\$1.9



To see additional information, visit: controller.nv.gov

STATE REVENUES

billion) and now account for only 44% (\$5.9 billion) of the state total spending (\$13.6 billion). Although past spending growth was supported mainly by increasing grants and contributions, the 2015 tax increases, plus uncertain federal support will place more burden of future spending growth on taxpaying families and businesses.

Table 3 presents analysis of state taxes by source. There is no definitive source for the right level of taxes relative to

incomes and the economy. However, as discussed in the section below on the economic outlook, the overall level of state and local taxes in the U.S. is already well above public-interest levels, yet still rising. In Nevada, local-government taxes are the really big problem (due to high spending and employee pay and benefits), and state taxes have been a lesser problem. Turning to trends, Table 3 shows the points stated below:

TABLE 3: NEVADA STATE TAX ANALYSIS

	FY2018	FY2006	Percent of	Growth	2006-18	% Growth in
	\$ Figures in	\$ Figures in	FY2018 Gen.	Rate %	Real Per	Tax & Fee
	Millions (1)	Millions (1)	Revenues	2006-18	Person %	Payers' Real
Taxes Analysis					Growth	Burdens (2)
Sales and use taxes	\$ 1,341	\$ 1,098	24	22	-20	-16
Gaming taxes	869	1,003	15	-13	-44	-41
Modified business taxes (3)	584	255	10	129	49	57
Insurance premium taxes	395	238	7	66	8	14
Property and transfer taxes	278	319	5	-13	-43	-40
Motor and special fuel taxes (3)	428	298	8	44	-6	-2
Liquor and tobacco taxes	223	161	4	38	-10	-5
Net proceeds of minerals tax	91	20	2	355	196	212
Auto lease and lodging taxes (3)	260	44	5	491	285	305
Commerce tax	205	-	4	NA	NA	NA
Unemployment assessments	702	367	12	91	25	31
Other taxes	272	172	5	58	3	9
Total Taxes	\$ 5,647	\$ 3,975	100	42	-7	-3

(1) Data are taken from CAFR and CAFR workpapers.

(2) These percentage changes are not due to inflation, population growth, increase in student or HSS client head counts, etc. They are the changes in the Nevada tax- and fee-payers' burdens in addition to increases in those burdens to cover inflation, population, etc. These percentages are computed based on personal income; if they were computed based on GSP, the increase in burden would be greater because GSP grew slower over the 2006-18 decade than personal income (33% versus 46%).

(3) Modified business taxes were increased significantly in 2010 and new motor vehicle and short-term-vehicle rental and transient-lodging taxes were also added in that year. These changes affect growth and burden rates.

1. The burdens on consumption and on persons of state taxes declined in the last decade. Revenues from the following key taxes fell significantly relative to the growth in incomes: sales and use, gaming and property. The incidence of these declining tax revenues lies greatly with consumption, not with savings, investment and employment; and on persons, not businesses.

2. To compensate for this decline, the state added new levies and increased taxes mainly on savings, investment and employment and on business. It did so via the modified business tax (MBT, which mainly taxes employment) and unemployment assessments; and also partly via the commerce tax, levies on auto leasing, lodging and insurance premium taxes. The large hike for unemployment assessments, was driven mostly by federal mandate. The upshot is that the growth of total tax burden is trending down, but that trend masks a shift of burden from consumption to savings, investment and employment; and from persons to business.

3. Special note on the commerce tax. Claims have been made that repealing the commerce tax, as some folks have proposed, would cause significant harm to K-12 education and that people seeking repeal should state what spending they will cut if the tax is repealed. These claims are wholly false and misleading. There is no direct connection between commerce tax revenues and state K-12 spending; commerce tax revenues flow into the general fund, not an education account. Also, the Legislative Counsel Bureau has determined repealing the commerce tax, considering that it reduces MBT revenues, would cut revenues by \$161 million in the first year and \$97 million in the second year. These figures are 60% and 36%, respectively, of the annual growth in state revenues, and revenues are growing faster than the Nevada economy. Hence, eliminating the commerce tax would require only that state total spending grow at about the rate of the incomes of Nevada families and businesses, and it would not require any cuts at all in current spending.



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HEALTH AND SOCIAL SERVICES

4. The shift in tax burden from consumption to investment and employment and from persons to business diminishes tax neutrality.

Neutrality is important because maximizing economic growth and fairness requires that taxes influence as little as possible the spending-versus-savings, investment and employment choices people and firms would make without them. The choices they would make in markets without taxes would maximize economic growth and also maximize aggregate human wellbeing and fairness, the fundamental public policy goals. Since individuals overwhelmingly use their dollars for consumption versus savings and investment, and businesses spend much of their revenue on goods and services, taxes should fall mainly on consumption of goods and services, and less on savings, investment and employment.

5. The shift in tax burden from consumption to investment and employment and from persons to business also diminishes transparency. Transparency is fostered by taxing people, not business; as economists note, businesses don't so much pay taxes in the sense of actually

absorbing their economic burden as they collect them for the government from consumers via increased prices and from employees by lower employment and compensation. So, taxing people directly increases transparency, accountability and economic growth by minimizing distortions, economic inefficiency and reductions in investment and employment caused by using businesses as the tax middlemen.

6. With ten taxes accounting for 2% to 24% of general revenues in Table 3, and considering their incidence mainly on persons and consumption, Nevada's tax base can be called reasonably well diversified.

Such diversity is important for the optimal balance between stability of public revenues and the revenue constraints that government needs to make it operate efficiently and not grow unduly large. Diversity also keeps rates generally low and the base broad, but in Nevada that benefit is offset by limiting the range of goods and services to which the largest tax revenue source, sales and use taxes, applies. So, no strong conclusion can be pronounced on this criterion.

III. HEALTH AND SOCIAL SERVICES

HSS has been the fastest-growing category of expenditures since FY10 in Nevada, and this growth continued in FY18. In total, Nevada spent \$5.8 billion on these services in FY18, up from \$2.2 billion in FY06. Much of this spending is financed through federal grants to support programs like Medicaid, food stamps and other welfare programs. At present, as Nevada spends money on these programs, the state gets some reimbursement from their federal sponsors. However, the reimbursements do not compensate Nevada fully for all expenditures, and certain programs such as Medicaid require proportional state commitment.

1. Medicaid is Nevada's largest single expenditure, and accounts for 64.5% of the health and social services total.

Federal operating grants to support this program fluctuate each year according to a formula based on the per capita income in each state. States with lower incomes are entitled to have a larger proportion of Medicaid costs reimbursed, but in no case does the federal reimbursement rate fall below 50% of eligible costs. For 2018, the reimbursement rate to Nevada was 65%, up from 54% percent in 2006. A prolonged decline in Nevada per capita incomes relative to the nation drove this increase in federal Medicaid financing. However, this also means that any prospective robust recovery in Nevada incomes will cause state Nevada taxpayer spending for Medicaid to rise even more rapidly.

2. The long-term rise in Medicaid spending has been accentuated by a rapid escalation within the past few years due to the expansion of eligibility parameters.

Historically, states that elected to participate in Medicaid were required to cover only certain highly vulnerable populations, including the elderly, disabled and children living below the poverty level. The federal Affordable Care Act of 2010, however,

encouraged states to expand eligibility rules to cover all individuals with incomes up to 138% of the federal poverty level, including single, childless, working-age adults with no disabilities. The ACA offered full reimbursement of eligible state expenditures for this expansion population through 2016. Federal reimbursements then fell to 95% in 2017, 94% in 2018, 93% in 2019 and 90% by 2020 and beyond. There remains some question as to whether these enhanced reimbursement rates will continue under a Republican senate and president, especially given the projections of increasing federal deficits.

In 2013, Gov. Brian Sandoval and Nevada lawmakers chose to expand Medicaid eligibility along the guidelines outlined in the ACA. Since that time, Nevada's Medicaid enrollment has nearly doubled, growing from 350,234 at the start of FY14 to 680,689 in November 2018, as shown in the graph atop the next page. A portion of this increase is attributable to growth of the legacy population, which grew by 107,106 persons over the period. Although many of these individuals had been previously eligible for coverage, new federal tax penalties for failing to acquire health insurance prompted enrollment, which they had previously spurned. This legacy population is subject to the standard federal reimbursement rate, whereas the 223,349 persons who enrolled as part of the expansion population get Nevada the enhanced rate.

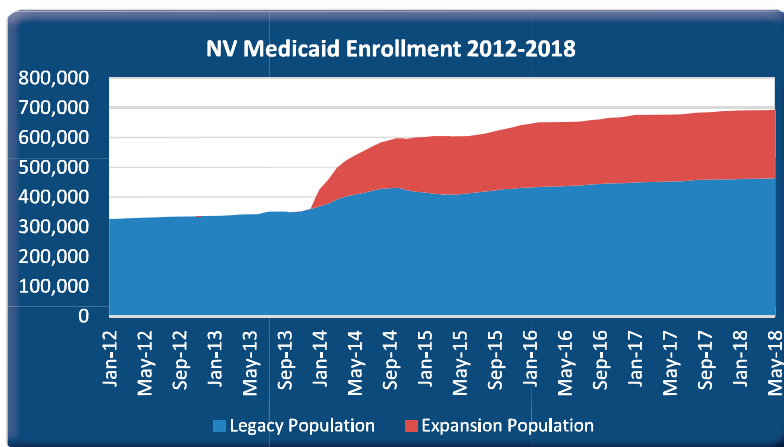
3. Expanded availability of publicly funded health care benefits has occurred alongside a decline in rates of private insurance coverage and other private spending.

In 2008, 68.6% of Nevadans held private insurance coverage. That rate remained steady through the end of the Great Recession in 2009 but fell to just 61.5% by 2012 before rebounding partially to 64.5% in 2015. One



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HEALTH AND SOCIAL SERVICES



explanation is that the mandates included in the ACA led to the closure of many private insurance plans and temporarily left policyholders without coverage until some purchased new, ACA-compliant plans. But the concurrent enrollment growth in Medicaid and other public health plans suggests that greater availability of these plans has displaced many consumers who previously could afford private insurance. In 2015, 33.5% of Nevadans were enrolled in some form of public health plan, up from just 20.6% in 2008.

4. There is evidence that expanding Medicaid to additional populations does not improve health outcomes and only further endangers the most vulnerable populations.

Medical reviews reveal that outcomes are better for holders of private insurance policies than for beneficiaries of public health plans. Mortality rates for surgical procedures are nearly three times higher for Medicaid beneficiaries than for private insurance holders and even higher than for uninsured individuals.

Policymakers have historically squeezed provider reimbursement rates as a cost-control method for Medicaid, while expanding Medicaid eligibility rules. One outcome of this approach is that some health care providers, including the most talented, refuse to accept Medicaid patients. The result is growing demand for Medicaid services as eligibility rules have widened while the supply of providers within the network has contracted. The resulting supply shortage has fueled widespread reports of Nevadans who nominally have coverage through Medicaid

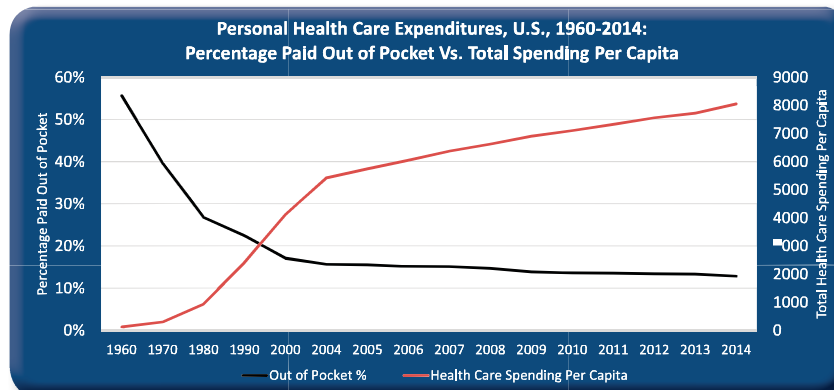
but who cannot get care. Thus, the increased competition for care wrought by eligibility expansion harms the most vulnerable populations who were previously eligible and who now face reduced access to care.

5. Whether public or private, most health care plans today are more accurately described as third-party-payer plans than insurance.

Insurance is a voluntary pooling of risks by participants to hedge against unforeseen events, but public and private health care plans offer payment for routine and foreseeable treatment, as distinguished from risk outcomes. These arrangements encourage individual participants to seek superfluous care because the cost

of additional care is socialized among the group. This perverse incentive, called “moral hazard” by economists, leads to rapidly escalating premiums for private plans and very swiftly increasing demands on tax revenues to finance public plans.

Decades ago, most personal health expenditures were financed out-of-pocket by individuals without third-party payer arrangements. Wage controls imposed nationally during World War II inspired employers to offer non-wage benefits, including all-inclusive health care packages, to attract and retain workers. As this system of employer-sponsored third-party payers has grown alongside public health programs, the costs of health care have skyrocketed, doubling as a fraction of our national economy in the last 25 years. The chart below reveals the near-perfect inverse relationship between the percentage of care financed by individuals’ out-of-pocket spending and the nationwide cost of health care per capita.



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PRIMARY, SECONDARY AND HIGHER EDUCATION

IV. PRIMARY, SECONDARY AND HIGHER EDUCATION

Primary and secondary education has been the second fastest-growing category of state expenditures over the past decade, growing from \$1.24 billion in FY06 to \$2.34 billion in FY18. On a per-student basis, and without considering local funding, state spending for K-12 education increased from \$3,172 to \$4,760 over this period. Meanwhile, Nevada's ranking against other states in terms of student achievement has failed to improve significantly. In 2007, Nevada eighth-graders ranked 44th nationally in their performance on the federally administered National Assessment of Educational Progress (NAEP) reading and mathematics evaluations. By 2015, those rankings rose only to 43rd in reading and 41st in mathematics.

These facts show that Nevada has failed to translate higher spending for education into improved results. That's also true for the rest of the nation. Also, as shown in Table 4, among member countries to the Organization for Economic Cooperation and Development (OECD), the United States spends the fourth-highest levels per student but has below-average academic performance. Japan, the highest achieving nation, spends only 81.6% as much as the US per child.

times as much testable progress in a school year as those with average teachers. Harvard scholars have found that the best teachers are able to deliver effective instruction regardless of class size. So, Nevada's educational priority should remain the recruitment and retention of highly talented educators. Nevada should relax its current restrictions on who can receive a teaching license so schools can recruit from a wider array of professionals. Schools should also be freed to offer attractive compensation packages to attract the most talented professionals. Strict, formulaic salary schedules, especially those that reward job longevity instead of excellence, give insufficient flexibility to administrators looking to recruit top talent. Current pay arrangements for teachers also award a disproportionate share of compensation as benefits, as opposed to salary, even though many teachers would prefer greater salary to benefits. So, these strictures should also be relaxed.

2. Families are the consumers of public education, and each individual family is most familiar with its specific needs. Therefore, the allocation of education dollars among many alternatives, all subject to economic scarcity,

is most efficient when consuming families are free to exercise choices over various educational offerings in the marketplace, just as with other consumer goods and services. Schools of choice, including both private and public charter schools, frequently operate at lower cost than

**Table 4: Per-Pupil Spending and Student Achievement -- Data Available for 33 OECD Countries
Results of the OECD's Programme for International Student Assessment (PISA, 2015)**

Rank by Total Score	Country	Expenditures per Pupil, 2014, in US Dollars	Mean PISA Maths Score	Mean PISA Reading Score	Mean PISA Science Score	Mean PISA Total Score	\$/Point, Mean PISA Total Score	Ratio, Mean PISA Total to OECD Mean	Rank by Per-pupil Spending
1	Japan	\$9,934	532	516	538	1587	\$6.26	1.08	15
2	Estonia	\$6,991	520	519	534	1573	\$4.44	1.07	24
3	Canada	\$10,440	516	527	528	1570	\$6.65	1.06	12
4	Finland	\$9,779	511	526	531	1568	\$6.24	1.06	16
5	Korea	\$10,030	524	517	516	1557	\$6.44	1.06	13
23	United States	\$12,176	470	497	496	1463	\$8.32	0.99	4
	OECD Average	\$9,302	490	493	493	1476	\$6.30	1.00	NA

1. To improve the effectiveness of its education spending, Nevada must allocate that spending toward programs that have been shown to boost student achievement. Factors beyond the direct influence of education policies, including the household income levels of students, can greatly influence student achievement. But these factors are largely beyond the ability of schools to change and must be addressed through economic policies to encourage growth, entrepreneurship, labor-force participation and economic dynamism. Education policy must focus on the school-controlled variables that lead to improvements in student achievement in a cost-effective manner.

The academic literature shows no school-controlled variable has a greater influence on student achievement than the quality of the teacher. Peer-reviewed statistical studies show that students lucky enough to have a top teacher make 1.5

traditional public schools and produce higher student achievement. Of the twelve random-assignment studies to date on school choice, six have determined that all student groups benefit from participation in choice programs, five have found some groups benefit and one found no visible impact. No study has found that choice negatively impacts student performance.

Nevada took a major step toward introducing consumer choice into the education marketplace when the 2015 Legislature created a system of universal Education Savings Accounts. These publicly funded, but privately held accounts promised to separate the public responsibility of financing education from the physical administration of schools. There is wide agreement that the public should provide basic education to citizens. However, this can be accomplished through means other than government administration of



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PRIMARY, SECONDARY AND HIGHER EDUCATION

regional school monopolies, and experience has shown this arrangement leads to curricular politicization and fiscal bloat. Unfortunately, the Nevada Supreme Court upheld an injunction on the program until the Legislature can approve an alternative financing mechanism that does not divert funds first appropriated to the state Distributive School Account, which legislators failed to do in their 2017 session.

3. Strong evidence exists that technology-assisted learning leads to better student outcomes while also easing the workload on classroom teachers so they can more easily manage larger classes. A major 2010 study by the U.S. Department of Education found that “on average, students in online learning conditions performed better than those receiving face-to-face instruction.” Students enrolled in online classes tend to spend more time on task and are able to move at their own pace, improving the effectiveness of class time. Further, online learning can lower the facilities and transportation costs faced by schools and parents and bring more students from remote locations into contact with the best educators from across the globe.

A major initiative by the 2015 Legislature sought to modernize Nevada public schools by appropriating \$48 million to provide electronic devices for students. However, the initiative failed to recognize the cost reductions and productivity enhancements that should result from technology-assisted learning. Instead, the initiative was a single component of a larger package that continued to increase spending on the same cost items for which digital devices should reduce needs.

4. The 2015 Legislature was billed as “The Education Session,” but only a subset of the new programs enacted are associated in academic literature with improved student performance. The others appear designed instead to appease special-interest political constituencies by spending hundreds of millions of dollars to create new positions at existing public schools. Those programs most clearly supported by academic research include Education Savings Accounts, the creation of an Achievement School District to transform failing public schools into successful charter schools and a Charter School Harbor Master Fund to attract highly successful charter school operators into the state. Others, including the provision of digital devices to students and a policy that students be literate before exiting third grade, were implemented in ways that ignored their cost-saving potential, while still more new initiatives needlessly inflated the costs of the public education bureaucracy.

5. Nevada has significantly increased revenues extracted from higher education students and their families to reduce general revenue spending for higher education in real terms. Depending on the metrics used, the cost of undergraduate instruction was split about 2:1 between

taxpayers and students and their families a decade ago. With great increases in tuition and fees over the last decade, the ratio is now about 1:1. There is no standard yet devised for determining the “right” ratio. However, as a general rule, as students leave K-12 and move into undergraduate and then graduate or professional studies, public subsidy ratios generally decline. That is certainly the case in Nevada. This is consistent with the view that with additional schooling, especially beyond primary and secondary levels, the total social benefits from incremental education accrue more to the individual receiving that education than to the rest of society. However, with the cost allocation having changed so much in a decade, it is reasonable to halt that trend and address the issue of what ratio at each level is optimal – i.e., contributes most to economic efficiency (growth) and fairness. We hope that the NSHE and its institutions promptly stop tuition and fee increases and undertake such study.

Nevada higher education has also greatly favored universities over community and state colleges. In the wake of the Great Recession, funding especially of the smaller community colleges was most sharply cut because they lack enough strong advocates among the regents, legislators, executive and NSHE administration. Because those sectors are much dominated by alumni of the two universities and include many fewer community or state college graduates, the political attention for higher education in Nevada has degenerated into a continuing University of Nevada-Reno vs. University of Nevada-Las Vegas regional battle, and the two universities have reaped the benefits of the post-recession economic recovery in Nevada. The community and state colleges have sought to find additional missions in early college (for high school students) and career and technical education. These changing missions may be a healthy development, but nonetheless the community and state colleges deserve better allocations of funding relative to the universities than is provided under the NSHE formula. The formula should be scrapped because it has no sound theoretical basis or quantification, and a new allocation approach that has those characteristics should be adopted.

As does all of U.S. higher education, Nevada’s suffers from administrative bloat and excessive salaries, plus preoccupation with trivia such as micro-aggressions, trigger warnings and safe spaces, and identity politics. Also consistent with higher education elsewhere, compensation levels in higher education are above those in other public service and in private business. Nevada’s two universities are proud they recently became Carnegie Tier I research universities, a decent accomplishment. However, they continue to rank in the middle and low ranges in various national and international surveys of colleges and universities. The good news is they continue to expand the ranges of undergraduate, graduate and professional studies they offer.



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EMPLOYEE COMPENSATION AND BENEFITS

V. PUBLIC EMPLOYEE COMPENSATION AND BENEFITS

Previous sections of this CAR addressed Nevada spending by its purposes. Here we address the overall level of public-employee compensation, and especially the portion of that compensation managed by the Public Employee Retirement System (PERS). Both total compensation and retirement funding have long presented serious challenges to governments around the world, for state and local as much as federal governments. The good news is that, while Nevada also faces these challenges, it is doing one key thing right, as discussed below, and is in a better position than most states to meet its challenges.

Current Compensation Levels: Annual compensation, excluding benefits, for Nevada state employees (except those in higher education) is comparable to private-sector levels in our state and below average for public-employee compensation of other states as a group. Public employee compensation, excluding benefits, paid by Nevada local governments and higher education is greatly higher than that for Nevada state employees and private-sector employees. In fact, Nevada local government compensation is among the highest in the nation, especially when benefits are recognized, because the benefits are also extremely generous. This CAR does not address local-government fiscal matters, but we note that the extreme practices of local governments redound to the disbenefit of the state and to state employees and taxpayers. So, reforms would not only be fairer to state employees and taxpayers, but also help the state manage its fiscal problems. State pay scales are also flatter than those in private enterprise, with entry-level jobs paying more and executive and upper-level professional jobs paying less. So, while state reform may be in order, it is not clear that it would have net fiscal impacts.

Nevada Public Employee Retirement System: Nevada PERS runs various defined-benefit (DB) retirement funding programs, which we address as a group here to focus the key fiscal issues for the state. There are a number of other problems raised by the various aggregating practices of PERS that we can't address in this limited review.

In a retirement program, people put some of their current income into a fund that is invested for maximum risk-adjusted growth of the principal so that after their working/contributing years, they may draw retirement income from it. Under defined-contribution (DC) plans, the retirement draw of plan participants is determined by the amounts put aside and growth of the fund, which is determined mainly by how well the investments have fared. So, DC plans are inherently fair because all the fruits of saving and investment are returned ultimately to participants, and outside parties do not have any opportunity to divert the funds, nor are they

required in any way to subsidize the participants. Under DB plans, participants and the agents who govern the plan are allowed to socialize the risks and results of their saving and investment decisions to taxpayers and to future generations of participants who have no role in savings decisions, nor in managing the investment risks, and thus no opportunity to be fairly protected.

So, DB retirement programs inherently raise the following serious public-policy questions:

- What savings and investment management policies and practices are followed?
- What expected rate of return on future investments – or discount rate (DR) for future liabilities – is used in setting contribution and draw levels? The DR is one of the most important issues for retirement programs.
- What growth in plan membership is assumed? This is also very important.
- What lengths of working and thus contributory participation time, plus lengths of retirement draws are assumed, in addition to the other estimates used?

The DR, membership growth and these other parameters are key in determining the Annual Contribution Rates (ACRs) for currently working plan participants. Unduly high DRs and membership growth estimates used in the past have contributed significantly to lowering past and current taxpayer and employees' required contribution rates, and they will almost certainly raise future taxpayer and employee contributions significantly. The demographic factors also have similar but lesser impacts.

1. Investment Management Policies and Practices: Nevada PERS is doing the important things right in this area. Modern investment theory counsels that in efficient markets, such as investments, one cannot expect to beat the market by consistently reaping higher-than-market-average returns – and one can lose a lot of money by trying. Hence, one should seek essentially to buy a slice of the whole market (or a representative portfolio of it) and thereby come as close as possible to reaping market-average returns by keeping investment-management costs as low as possible. This is known as index-oriented (or passive) management, and the alternative is active management. There isn't space here to review the details, but Nevada PERS has done the best job in the U.S. of implementing index-oriented management on reasonable asset allocations and has realized greater returns than notable actively managed funds elsewhere.



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EMPLOYEE COMPENSATION AND BENEFITS

2. The Discount Rate (DR): Determining the DR is highly controversial, especially in deciding the purpose of discounting and thus what standards shall be used to set the rate. One view is that the purpose is to absolutely assure that plan resources from past contributions and investment returns will always be sufficient to cover all benefits and other claims the system may face, without having to raise additional funds in the future. This approach dictates use of a very low, so-called “riskless” rate – e.g., 2% per annum. One problem with this view is that retirement plans already have a long history of making adjustments to raise funds to cover liabilities incurred in the past because the past contributions and earnings were insufficient to cover the benefit levels granted to retirees. (In the few occasions high returns allowed cutting contributions, retirement system governors usually raised benefits instead.) Another problem is that it is impossible to assure the desired sufficiency because it is possible at any time for the plan to lose money unless it uses investment strategies that do not seek to maximize risk-adjusted returns and in fact reap much lower expected returns. Thus, this approach almost requires suboptimal investment management practices. A final problem is that if sound investment management practices are followed, the expected value of plan resources will normally exceed the liabilities using a riskless DR, and thus contribution rates and benefit levels for future employees will be subsidized by today’s plan participants and taxpayers. Because economic growth means that future generations will be wealthier than today’s generation, this implies a regressive intergenerational wealth transfer.

So, the proper fiduciary method for setting the DR is to soberly assess the expected net returns on the investments; then, probabilistic analyses such as Monte Carlo simulations should be conducted using return distributions that have as their expected value return the DR chosen. These simulations will tell the probabilities that the fund will be able to cover various future payout levels, and contribution requirements and benefit levels can be determined to satisfy the level of certainty chosen by the bodies overseeing the plan. Thus, the real DR question is simply: What are the reasonably expected returns? For decades, public-sector plans have assumed returns around 8%, although some plans, including PERS, have adjusted downward slightly in recent years. Our analysis in the Economic Outlook section below shows economic growth and thus investment returns are highly likely to be much lower than historic levels for the foreseeable future. Our conclusion is that a DR of 5% net of fees and costs is the most reasonable expectation. (this DR is a net-cost-of-capital rate and should not be confused with the gross-cost-of-capital rates of 7% to 8% that are more appropriate as general social rates of discount.)

3. Forecasted Membership Annual Growth Rates: PERS has been forecasting 6.5% annual membership growth rates, although it recently lowered them slightly. It has experienced roughly 2.5% actual growth. We believe that experience is consistent with the expected growth rates for the state population and with the ability of the state to afford spending growth. Thus PERS should use this rate.

4. Reference Working Lives and Retirement Periods: Expected life length has been climbing in the U.S. for decades until the last two years, and health status has been improving at every age, but these factors have not been reasonably reflected in the reference working lives and retirement terms assumed by pension funds, Social Security, etc. In short, today most working lives assumed in pension plans, including PERS, mean that retirement benefits maximum levels are reached after 30 years of employment or only slightly longer and often available at a mid-fifties age. Thus, many public employees, including Nevada state employees, get market-level pay for 30 years of service, followed by retirement draws that may run 30 years or more and are noticeably better than the retirement draws generally available in the efficient private employment markets. We cannot do full justice to this issue here. Our purpose in raising it is to initiate a broad and sustained conversation among all parties to properly plan for and finance the retirement of public employees.

5. Duty to the public interest, voters, taxpayers and future plan participants: The basic duty owed by all public officials – governors, controllers, legislators and all public employees in policy-related positions – is a duty to voters, taxpayers and broad public interest. People involved in governing retirement funds tend to see a duty to plan participants, and statute and regulation often supports such additional duties. As public choice theory illustrates, the real problem is that officials generally begin to regard their primary duty as residing with current plan retirees and participants and they forget to view all their decisions from the viewpoint of the voters, taxpayers and broad public interest. In particular, taxpayers – and in retirement matters, future plan participants – begin to be viewed as mainly deep pockets to allow the politicians and bureaucrats to better serve the interests of current plan retirees and participants. We therefore urge that all discussions of these issues begin with explicit recognition of the duties to voters, taxpayers and the broad public interest, and all proposals should be evaluated almost exclusively on that basis.



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ECONOMIC OUTLOOK

VI. ECONOMIC OUTLOOK

Introduction and Overview: In Nevada's 2015 Popular Annual Financial Report, we proffered an economic outlook focused on intermediate and long terms. We identified four long-term secular trends we believe have suppressed U.S. economic growth rate the last decade – thus explaining the “new normal” – and by their nature will continue to do so for the foreseeable future, without significant changes in public policy. These developments obviate short-term forecasts because they swamp out business-cycle effects, in part by slowing economic growth, and they may even change business-cycle length. They also make sectoral forecasts uncertain. And they do the same to regional forecasts; nonetheless, we examined certain long-term Nevada trends to see if there was any basis for modifying the national forecast for our state. There was not.

Long-term Growth of Government Over-reach: The first trend is the continuing growth of government relative to the economy – reflected in public spending, taxes, deficits, debt, regulation of all kinds, and other government interventions (retirement programs, health care and insurance, etc.). The empirical economic literature indicates that government size, scope and reach has for 60 years been excessive relative to levels that maximize growth and thus human wellbeing. Yet government has continued to grow, especially in the last decade, thus ever more retarding economic growth. Until the turn of the century, this growing deadweight loss was offset by three growth-inducing factors: 1) demographic and other increasing labor-force participation trends; 2) increasing debt levels of all kinds relative to GDP (government, financial debt, non-financial business debt, home mortgages and all other consumer debt); and 3) rapid growth in emerging economies, plus globalization of firms, increasing trade and foreign direct investment (rest-of-the-world effect).

Changes in Three Other Long-term Secular Trends: Not only has government overreach soared to new levels in the last decade, but labor-force trends that were a major offset to that excess have turned around, driven by both policy and demographics since the turn of the century. Since the Great Recession, rapid growth in debt has waned for policy reasons and simply because the previous growth rates were unsustainable. Third, rest-of-the-world economic growth is slowing and will continue to slow because other countries have done an even worse job than the United States on growth policy; further, our increasing integration with the rest of world has slowed since the recession, mainly due to poor policy. So, for both reasons, the rest-of-the-world sector also has changed from an engine to a drag on economic growth.

The upshot of these trend changes is that ten-year U.S. economic growth, which peaked in the 1960s and then was roughly constant through 2007, except for a downward excursion in the early 1980s, collapsed after 2007 to

half its historical rate, where it has stayed. So, we have forecasted 2% or lower long-term annual growth, with half of it coming from population growth and half from real per-person economic growth -- both of which may well decline going forward. We emphasize per-person growth because it determines the extent to which human wellbeing and human flourishing increase, and thus it is the real measure of public policy success. The difference between the 1% figure of the last decade and previous per-person growth in the 2%-2.5% range is hugely significant in economic, social and human terms.

New Normal Persists: Slow Long-term Growth: While total real growth slightly above 2% had been the rule since the recession, until 2016 few people had projected continuation of it. So, our projection (which Knecht has made since 2011 based on such analyses), was an unorthodox if not radical view. In the last three years, many people have begun to accept that such slow growth really is the new normal and will persist – and many have given reasons similar to ours to support such forecasts. In fact, the Congressional Budget Office – which has a long record of optimistic forecasts that were not realized – in 2018 adopted a 1.9% long-term growth estimate. Below, we revisit the four secular trends, plus our Nevada-specific factors, and their effects. We find that our previous analyses of these trends is essentially unchanged – although recent reforms in much federal policy, if sustained and enlarged, may reverse the overall trend – if negative policy trends in trade and federal spending are not so great as to offset them. Our conclusion remains that economic growth will be slow and that uncertainty has increased. Although our basic analyses are sound, recent literature has highlighted some competing theories, concerns and new data. Following the discussion below of our approach, we briefly examine these three issues: 1) innovation, technological change and productivity; 2) “cost disease”; and 3) market capitalism and income inequality.

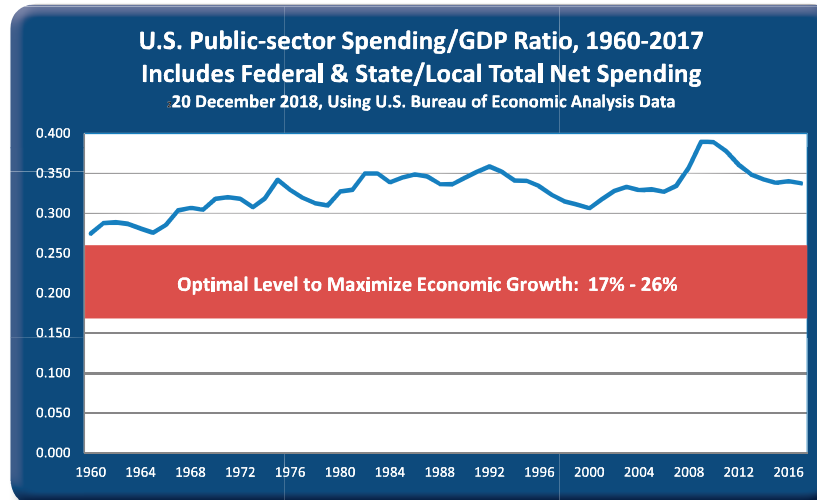
The Solution: Broad Public Policy Reform: As we detail below, our analysis of the four factors we previously identified as resulting mainly from unsound public policy explains the source and solution of our problems. To serve the broad public interest and the people of Nevada, our state and local governments need to do their part, and our federal representatives need to push the national government to do its part to counter all four trends.

1. Government Overreach: The size, scope and reach of American government – including spending, taxing, borrowing, statutory mandates, regulation, monetary and credit-allocation policy, and other intervention – long ago exceeded levels that promote the public interest in maximum economic growth and fairness. These excesses at federal, state and local levels have increasingly slowed growth and diminished fairness and will continue to do so unless they are reined in. Economists now understand that economic growth, and thus aggregate human wellbeing levels, are determined more by the economic, political and



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ECONOMIC OUTLOOK



social institutions, practices and policies of a society than by geographic, infrastructure, resources and other earlier development-theory factors. The following are important for growth and fairness: the rule of law; constitutionally limited government; separation of powers between national, regional and local units; separation of functional powers at each level of government; individual sovereignty and personal liberty; individual rights, not group rights; strong property rights; and high levels of economic freedom.

Empirical literature – that is, research using real economic data – supports and quantifies theory suggesting there's an optimal range of government spending that maximizes economic growth. There are classically defined public goods that are most efficiently provided by government and there are market failures that justify regulation and other intervention. However, excess spending, scope and reach of the public sector diverts efficient private investment and consumption and slows growth. While there are uncertainties and debate about the levels of public spending relative to the economy that maximize growth, the best evidence, reviewed by economists at the University of Nevada-Reno, shows the range is 17% to 26%. The U.S. passed those levels before 1960 and has increased government excess to the present time.

The chart above of public spending over time as a percentage of the U.S. economy vividly illustrates this point. The excess growth has not been limited to the federal government; state and local spending have proportionately grown even faster. Nevada's local-government and total public-sector spending have grown particularly fast. Nationally, increasing government interventions into health care and education have driven up their costs. As the public sector continues to consume resources beyond economically efficient levels, private investment and growth are elsewhere deterred, and overall growth of our economy slows.

While public spending is the measure of government overreach easiest to quantify, analyze and understand as a growth determinant, other measures also drive and reflect the excess. Taxes and public debt are directly driven by public spending, and public debt has now reached its highest level relative to the gross domestic product (GDP) since the early 1950s, when the debt from World War II was being worked off. Government regulation in a wide range of economic, financial, environmental, public health and safety areas, plus intervention including monetary stimulus and credit allocation and federalization of health insurance and education have all increased

to unprecedented levels and metastasized in the last decade. The net effect has been to raise barriers that hinder business formation and success, thus retarding growth. With the spending, taxing and borrowing overreach at record levels and still increasing, the drag may even get worse.

Until Trump administration reforms, regulations accumulated at an increasing rate, with more than 1 million restrictions issued in 2014 alone. The impact of regulatory excess, although difficult to quantify, is as damaging to families and the public interest as are the excesses in spending, taxing and borrowing. For entrepreneurs and established businesses, the cumulative effect of these restrictions burdens business formation and expansion and job growth. In 1970 through 2014, nearly 34 million unique federal restrictions were issued, many with social costs in excess of \$100 million. Regulatory expert Clyde Wayne Crews estimates federal actions, promulgated more by bureaucrats than legislators, now cost Americans \$1.9 trillion annually, or nearly \$15,000 per household, more than they spend on any category except housing.

Besides the Trump administration's efforts to rein in regulatory excesses across the board and establish rational regulatory policies, another bright spot is its 2017 federal income tax reductions and reforms. If such efforts are sustained and extended for decades, they can reverse the trend of increasing deadweight losses. However, the administration's tariff increases and other trade war initiatives will slow economic growth and diminish fairness.

2. Demographics and Work-force Participation: Demographic changes driven by public policy and non-policy factors are reducing the fraction of the population doing productive work in market settings, while increasing numbers of people consuming but not producing. These changes include falling birth rates, increasing longevity,



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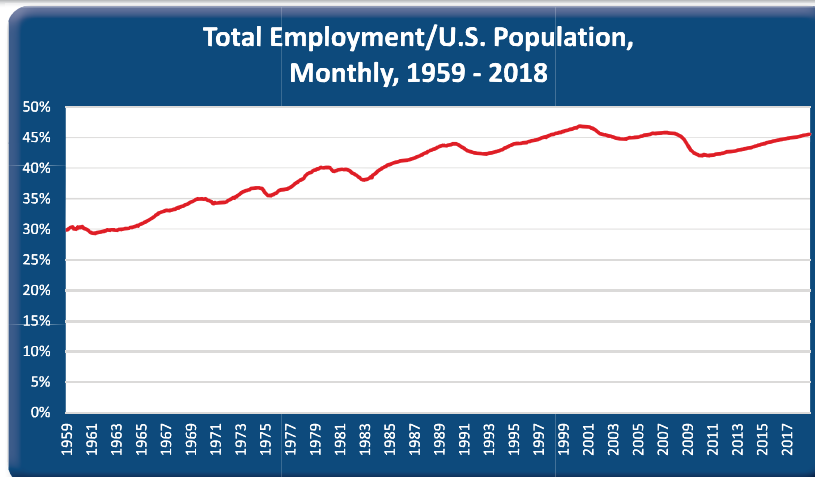
ECONOMIC OUTLOOK

increasing public subsidy for retirement and for other persons not working, and changing social and economic roles of men and women. These changes are slowing growth and may ultimately precipitate generational conflict.

The 1970s movement of Baby Boomers into working age, plus the movement then and later of women into paid work, plus increasing opportunities for minorities drove labor-force participation to a record level of 67.1% in 2001. As shown in the graph nearby comparing population and employment, demographic and workforce participation factors gave a huge boost to economic growth, countering public-sector overreach as the employment/population ratio rose more than 60% from 0.293 in 1961 to 0.469 in 2001.

The aging of Boomers into retirement years, plus declining birth rates in younger cohorts, the slippage of female workforce participation and the tepid recovery from the Great Recession all dropped labor-force participation to 62.3% in September 2015, the lowest level since 1977. It now sits at 62.9%. Falling labor-force participation in the 16-54 age range has more than offset recent participation increases for the 55+ group, netting a continued decline in total employment ratios. Further, replacement of the large contingent of Boomers with high skills gained from full-career employment by low-skilled persons just entering the work force has depressed growth in labor and total productivity in recent years. Low unemployment rates are due greatly to counting “discouraged workers” out of the labor force and to increases in “under-employed” part-timers – both driven by the tepid recovery and the palliative effects of increases in benefits to people not working.

Since 2002, trend reversals in demographics and employment/population ratios (now 0.455) have reinforced the increasing drag from government excess that depresses growth. The movement of the large Boomer cohort into retirement began in 2011, is accelerating and will continue for perhaps 20 more years. Because retirement age and support policies were set when longevity was lower and health of people over 60 was less robust, U.S. dependent/producer ratios will continue to rise relative to what they would be under market incentives. So, total-factor productivity and thus the economy will continue to grow slowly. The burden on productive cohorts will increase, especially with slow income growth, leading perhaps to generational conflict. Slow economic growth and resulting low interest rates and other rates of return on investment will challenge retirement and endowment funding and exacerbate many other problems.



3. Debt in All Sectors and Net Savings and Investment:

Total debt levels relative to the U.S. economy increased hugely until the financial crash and Great Recession of 2007-2009. As shown in the graph on the next page of total American debt as a percentage of the economy, they have retrenched only very slightly since then, leaving an excess-leverage overhang that may not be receding. All debt sectors are involved: government at all levels; business (financial and nonfinancial); and households (mortgage, auto, student, credit card debt and consumer loans, etc.). Credit-allocation policy such as the Community Reinvestment Act amendments of the 1990s drove much of the excess, especially in the decade ending 2008, providing artificial and unsustainable temporary stimulus to growth but also producing malinvestment, especially in housing. Monetary policy – the Federal Reserve keeping interest rates low in 2002-2005 – also contributed to these problems.

Total American debt/GDP ratios in 2017 were still twice their 1984 levels, despite retrenchment following the financial crash and Great Recession. Consumer debt growth was driven mainly by the federal mortgage lending policies that caused the housing bubble and subsequent collapse. Business debt grew in finance and large corporate stock buybacks, mergers and acquisitions; between this factor and falling and low interest rates, it appears that asset bubbles developed, which began to deflate in late 2018. Federal government total debt/GDP ratios have trebled since 1980 and continue to increase, driven by fiscal policy and the continued growth of entitlements spending (Social Security, Medicare and Medicaid). Monetary policy – copious increases to the Federal Reserve balance sheet due to massive purchases of Treasury securities and government agency debt – was also used after the Great Recession to ameliorate the negative growth effects of a wide range of regulatory, tax and other public policies.



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ECONOMIC OUTLOOK

Further retrenchment from current debt levels is needed to restore economic vitality and the balance sheets of households and businesses, so demand for capital and thus interest rates and investment returns can all be expected to remain low, as will economic growth. Even the methodical retirement by the Federal Reserve of its debt portfolio and its raising of short-term interest rates have not raised intermediate and long-term interest rates. The low returns on investment have destroyed much economic wealth and damaged institutional, retirement and endowments investors and savers and will continue to do so.

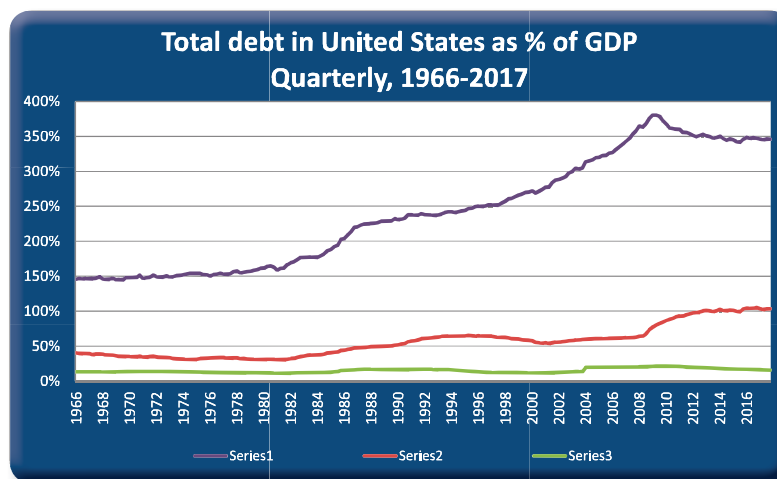
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Total debt worldwide has increased from 248% of GDP in 2003 to 318% in 2018, a likely unsustainable increase, especially with slowdowns in world economic growth and globalization. So, future debt retrenchment is likely. Europe has now followed Japan and the U.S. into monetary and credit-allocation overreach, and Italy and others (maybe Japan and China) soon may face Reinhart/Rogoff excess debt levels (government debt above 90% of GDP leading to financial collapse).

5. Upshot: Continued Slow Economic Growth: All four mutually reinforcing problems discussed above have already produced the poorest recession recovery on record, with real growth of just over 2% per year – or, adjusting for population increase, real per-person growth of about 1%. With none of these problems abating and all perhaps increasing, the most reasonable outlook is economic and productivity growth at recent anemic rates or even lower. And great uncertainty going forward. The chart on page 17 of rolling ten-year growth rates shows that U.S. economic growth has long been declining due to these factors and has collapsed to record sustained low levels since 2008.



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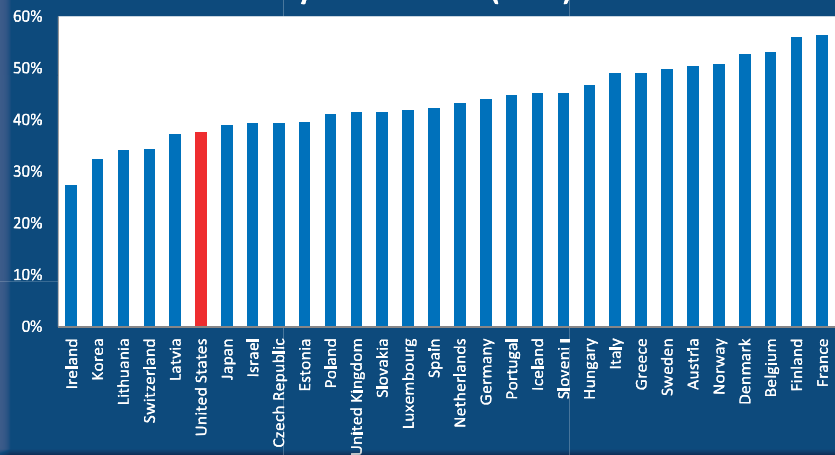
Since 2007, trade increases have lagged world economic growth. Growth in China, other developing nations and advanced economies has slowed, further depressing American growth. The three factors above that now retard U.S. economic growth are even worse in other major economies, advanced and developing. While that makes our economy the “cleanest dirty shirt in the laundry pile” for investors, it also means the global-trade-and-investment cavalry will not be rescuing us from anemic economic growth. The world economy no longer spurs U.S. growth to the degree it did before the Great Recession.



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ECONOMIC OUTLOOK

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Down-side risks may even make things worse. The recent slow growth has occurred despite falling energy and other commodity prices that, all other things remaining equal, should have spurred growth. Possible returns of these prices to historical levels could dampen growth even further. Two other factors may further compound these problems: 1) slow expected economic growth produces low investment returns, which in turn tend to keep growth lower in a negative feedback loop; and 2) our current recovery, anemic as it has been, is the longest cyclical upturn and we may be due for a contraction.

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Both books overlook our explanation above that modest growth until the Great Recession, and the distressingly low growth since 2007 are explained by the powerful effect of increasing government over-reach, first offset and then reinforced by the demographic/labor-force, debt and rest-of-the-world trends. But Levinson embraces a particular error in this regard as he writes:

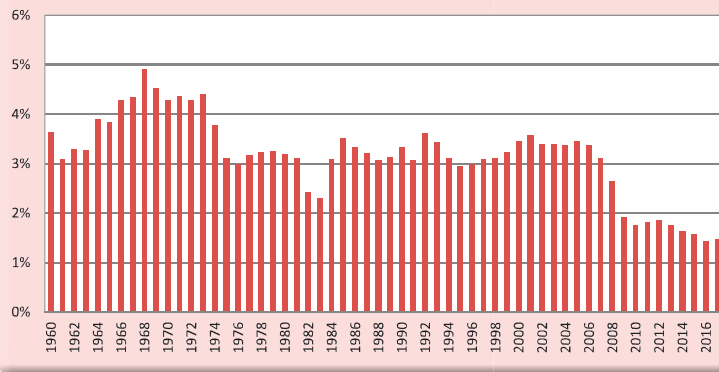
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ECONOMIC OUTLOOK

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“Our inability to restore the world economy to its peak condition has had long-lasting consequences. It radically changed social attitudes, engendering a skepticism about government that has dominated political life well into the twenty-first century. *With that change came a shift away from collective responsibility for social wellbeing; as state institutions were allowed to wither, individuals were asked to assume more of the costs and risks of their health care, their education and their old age.*”

The first sentence is certainly true, and arguably the second one too. However, the third sentence, for which we have supplied the emphasis, is categorically false and runs expressly counter to the objective facts, even though it has become a common talking point for some politicians, media outlets and other special interests. We show above that public-sector spending has remained above reasonable (optimal) levels for decades, has continued to increase in both nominal and real terms, and consumes an increasing proportion of household incomes, burdening economic growth. Moreover, we show that this public-sector metastasis has been driven especially by increasing spending on health care, education and old-age, the exact three areas for which Levinson erroneously claims public-sector retrenchment. Also, the burden and problems from excess public spending have been exacerbated by wanton regulatory and other governmental intervention in everything, especially those three areas.

Invention, innovation and technological progress – plus the benefits of capital deepening and education – all together produce productivity gains, which are the source of real economic growth and improvements in human wellbeing. It is helpful to break out capital deepening and education as Gordon does, but more breakout and causal analysis related to his TFP residual is needed. To sum up the total

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On the other hand, our 10-year U.S. rolling economic growth computation – which includes about 1% per year for population growth (a figure that is now declining) – shows a boom ending about 1973, followed by a flat and modestly good sustained rate of 3% or slightly more in 1973-2007, then followed by a troublesome and declining 2% in 2009-2017. Our four-part causal analysis of continually growing government excess for 60 years, first offset and then in this century reinforced by the other three factors (demographics and labor force; debt; and rest-of-the-world sector) is fully consistent with the facts and numbers of U.S. economic growth history. Moreover, while we do not have a detailed explanation correlating progress in these four factors with the capital deepening, education and TFP estimates by Gordon, the two data series are reasonably compatible and consistent. And they provide a direction for future research to understand our growth history and prospects. Note also that economists have raised a number of productivity measurement issues, as well as questions about achievement trends and the incremental economic effectiveness of education. Also, many have emphasized the metastasis in regulation in recent decades.

In their 2017 book, *Capitalism without Capital*, Jonathan Haskel and Stian Westlake note that business investment in the U.S. economy has changed significantly in recent decades. From 1948 to 2007, intangible investment grew from 27% of total non-farm business investment to 56%. Tangible investment includes buildings, machines, computers, equipment, etc. Intangibles include mainly intellectual property such as research, patents and trademarks, brands, software, designs, etc.

They observe that intangible investment has characteristics they call the Four S’s: scalability, sunkness, spillovers and synergies. Scalability means, for example, that Uber was able to scale up its business from one city to worldwide promptly because the software, brand, contracts and other intangible assets on which its business model is based can be cheaply and quickly replicated and adopted to many more cities. A transportation model based on owning vehicles



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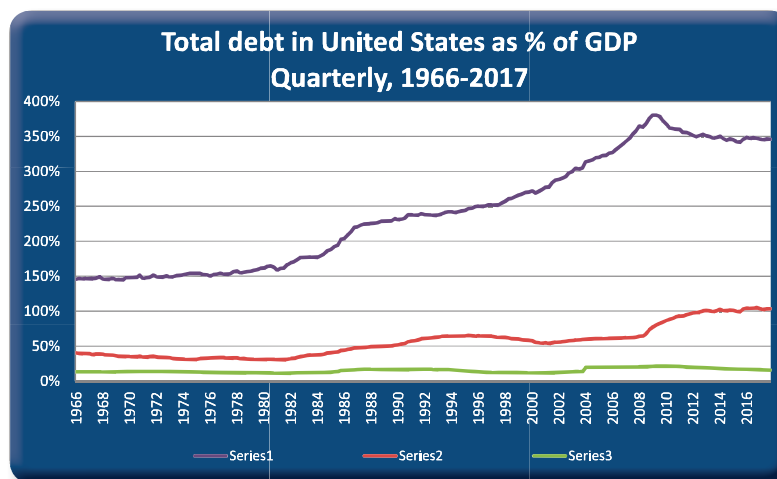
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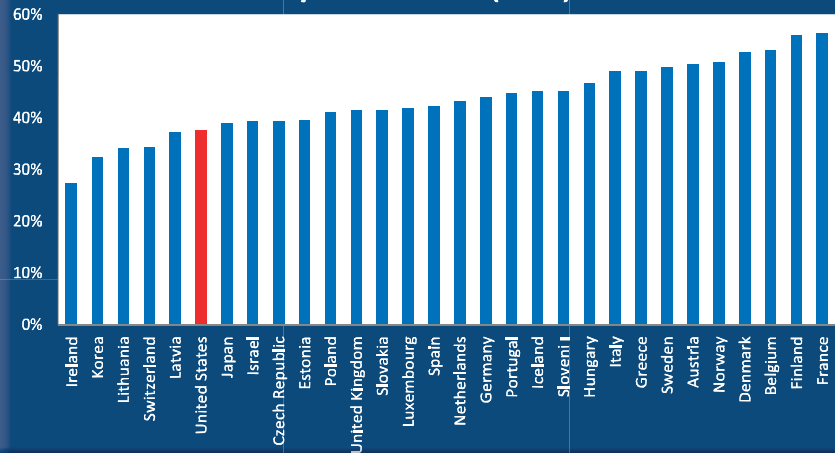
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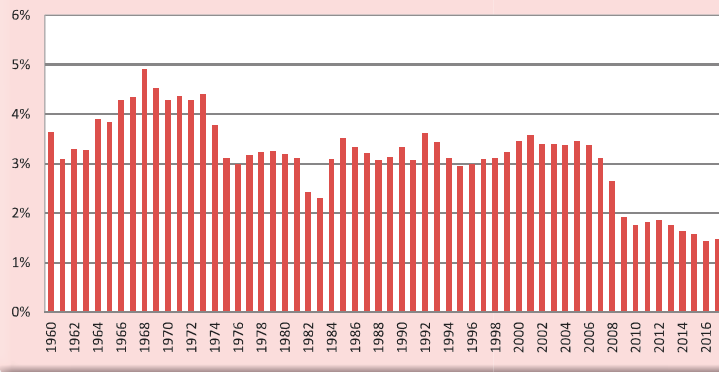
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productivity growth in the last 70 years: the golden age rate was 2.8% through about 1973; followed by 1.3% in 1973-1995; then a jump to 2.5% in 1995-2004; and concluding with 1% in 2004-2015. The long sustained low rate of the last dozen years included a jump to 2% in 2007-2010 that was mainly a temporary lurch caused by the onset of the Great Recession and businesses’ response to it. The sustained rate in 2010-2015 has been about 0.3%, with as much evidence that it is falling as rising.

On the other hand, our 10-year U.S. rolling economic growth computation – which includes about 1% per year for population growth (a figure that is now declining) – shows a boom ending about 1973, followed by a flat and modestly good sustained rate of 3% or slightly more in 1973-2007, then followed by a troublesome and declining 2% in 2009-2017. Our four-part causal analysis of continually growing government excess for 60 years, first offset and then in this century reinforced by the other three factors (demographics and labor force; debt; and rest-of-the-world sector) is fully consistent with the facts and numbers of U.S. economic growth history. Moreover, while we do not have a detailed explanation correlating progress in these four factors with the capital deepening, education and TFP estimates by Gordon, the two data series are reasonably compatible and consistent. And they provide a direction for future research to understand our growth history and prospects. Note also that economists have raised a number of productivity measurement issues, as well as questions about achievement trends and the incremental economic effectiveness of education. Also, many have emphasized the metastasis in regulation in recent decades.

In their 2017 book, *Capitalism without Capital*, Jonathan Haskel and Stian Westlake note that business investment in the U.S. economy has changed significantly in recent decades. From 1948 to 2007, intangible investment grew from 27% of total non-farm business investment to 56%. Tangible investment includes buildings, machines, computers, equipment, etc. Intangibles include mainly intellectual property such as research, patents and trademarks, brands, software, designs, etc.

They observe that intangible investment has characteristics they call the Four S’s: scalability, sunkness, spillovers and synergies. Scalability means, for example, that Uber was able to scale up its business from one city to worldwide promptly because the software, brand, contracts and other intangible assets on which its business model is based can be cheaply and quickly replicated and adopted to many more cities. A transportation model based on owning vehicles



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ECONOMIC OUTLOOK

would take a long time to reach many cities due to financing and logistics challenges.

Sunkenness means that much investment in intangibles becomes a sunk, non-recoverable cost if the venture does not succeed – just as scalability and synergies make it very valuable if it does succeed. Spillovers refers to the fact that investments in intangibles produce assets economists call “non-rival” in nature: one party’s use of them does not limit another party’s use and benefit from them. Finally, synergies describe the multiplication of benefits when two or more assets, whether tangible or intangible, are combined; for example, a jet engine combined with a wing allows flight. The Four S’s illuminate effect of the increase of intangibles on business investment on productivity and growth, as they detail.

Haskel and Westlake note that traditional accounting tends to obscure the increase of intangibles in the investment mix, because some of their costs, such as software, design, branding, etc. are expensed, not capitalized as investments. With the Great Recession, business investment fell substantially and recovered only somewhat thereafter. However, even after they correct investment levels to recognize intangibles, they still find a significant decline and persistent low level since the recession.

So, declining investment is a cause of declining productivity growth and economic growth. But what has caused the declining investment? Our four-factor analysis shows what has done so, and their explanation is consistent with ours.

7. Cost Disease: Over the long run, the mix of goods and services produced by the U.S. and world economies has shifted toward more services and fewer goods. Half a century ago, William Baumol (who later won a Nobel prize in economics) diagnosed a problem in providing many services that came to be known as Baumol’s cost disease. He noted that the means of providing many services are constant over time and not subject to innovation and technological change that yield productivity gains. Hence, some have suggested that as the economy shifts toward services, effective economy-wide innovation, technological change and thus economic growth rates will slow from historic levels. As discussed below, we believe this view is unproven and likely offset when services productivity is viewed in a larger context.

Baumol observed that, economically, delivering the services of a Mozart quartet today has not changed since Mozart composed it. It still takes four musicians, their instruments and a venue that cannot be much larger (for more listeners) now than it was then. Put in these terms, it is easy to understand the argument and to extend it to a range of other services such as education, where a class of students still requires a teacher, classroom, desks, books, etc., just as it did a century ago. Thus, economy-wide, we may expect diminishing returns to innovation, etc., as services increase relative to goods. Baumol pointed out that when a sector

such as classical music experiences productivity gains slower than those for the economy as a whole, the rising productivity of the economy nonetheless means that greater rewards accrue to firms and individuals in that sector over time – albeit not as fast as they grow in sectors with rapid technological change and productivity gains.

Given the constant labor input per unit of output (i.e., a concert), he was concerned that business models for performing arts firms and performers may have trouble delivering income that would keep them economically viable. He did admit they might survive by developing new sources of revenue such as charitable contributions, not just ticket sales. A *Wall Street Journal* article two years ago noted that in fact symphony budgets and the pay of their musicians has actually increased relative to the economy, instead of diminishing – although it also questioned whether the increasing real costs can be matched by increasing revenues to sustain the enterprise and artists. Public subsidies, plus contributions, play a role too. However, contra Baumol’s belief that alternate revenue sources such as recording sales would apparently not provide a solution, we believe they do. Further, when the service of providing music is viewed in a larger context, there is no reason to believe that services are inherently subject to slower technological change and productivity gains than goods.

The point is that new inventions, innovations and technological change can in fact hugely increase the productivity of musicians. With modern electronics, one musician can play multiple parts. More importantly, via recordings, broadcast and narrowcast, the performance that could be heard in Mozart’s time only by the limited number of people present when and where it was rendered can now be enjoyed by literally millions of people as often as they like and at times and places of their convenience. So, with modern communications and data technology, the productivity of musicians and their instruments is multiplied by many orders of magnitude. And consumers realize much additional value from the performance because they can hear it, for example, on a long auto drive. So, considering services productivity from the perspective of consumer utility and total output of various kinds by suppliers (i.e., alternates and substitutes, as economists say), there are synergies that offset any cost disease limits and increase productivity hugely.

Moreover, this observation extends to education and increasingly to nearly all services. Alternative means of delivery of education are proliferating throughout education: Students and many people benefit today from recorded and broadcast lectures by the best teachers in any subject at any location, not just at brick-and-mortar institutions. Primary and secondary students also have access to a range of options for their instruction, from traditional classrooms to online home-schooling. And instead of having to find an encyclopedia at the library during its hours, in the middle of the night we Google a subject and follow the search results



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ECONOMIC OUTLOOK

wherever and for as long as we want. With the synergies proliferating everywhere, we see no reason to believe that cost disease is found much outside the public sector, education, health care and aging care – where it prevails only for non-technological public policy reasons.

8. Market Capitalism and Income Equality: An economic outlook analysis is by nature focused on growth. But we believe that economic growth should also be the primary goal of public policy. When aggregate output increases, there are more resources on average for each person. In addition, increasing total output gives society greater resources to take care of people who through no fault on their part are unable to reasonably provide for themselves. Increases in resources also promote human flourishing via education, improved health care, better diets and living conditions, and greater opportunities for use of leisure time. In short, economic growth is the key to human wellbeing.

Moreover, as the analyses in this CAR show, the public policies that promote growth are also those that promote fairness or equity – which is generally accepted as another fundamental goal of public policy. In a mainly market-based economy, people get income and accumulate wealth roughly in proportion to the value they deliver to others. This delivered value is the “consumer surplus” reaped by people who do business with them, and it does not depend on how hard the producers work or how charitable or otherwise virtuous they are; even if they are simply avaricious, in market systems their rewards depend on the contributions they make to society, not on their good or base intentions. Further, the value they deliver to others is as much a contribution to society when it results from investing their capital as when it flows from their labor; value is value, and there is no more virtue inherent in labor than in managing capital.

The economic freedom and protection of private property that foster aggregate economic growth also are fair to those who produce by letting them retain the fruits of their labor and investment risk-taking. And those same economic freedoms and property rights promote among everyone the virtuous behaviors society needs of delivering value to others. On the other hand, in any political allocation of resources, income and wealth depend on political behavior, aggressiveness and many other factors that do not serve the public interest in growth and equity, but only the self-interest of the people engaging in them. So, market systems work to promote maximum aggregate human wellbeing, but the political allocation of resources does not.

Nonetheless, people have always been concerned about how their wellbeing compares to that of others and more generally about the distribution of income within society. With the slow growth and flagging human wellbeing of the last decade, concerns about income distribution and inequality have risen. These concerns often merge with some classic critiques of market capitalism, as reflected in the 2014 book *Capital in*

the Twenty-first Century by Thomas Piketty. So, we review here the arguments and claims about distribution, inequality and alleged structural problems of market capitalism. Then we present data that show that the extensive public-sector interventions urged by these critics not only suppress growth but have also contributed to unequal income distributions and lagging wellbeing of middle- and lower-income people.

Piketty covers much ground in his 700-page tome, but two of his points stand out here as summarized from *Problems with Piketty: The Flaws and Fallacies in Capital in the Twenty-first Century* by Mark Hendrickson. First, incomes and wealth are distributed very unequally, both within and among countries. Second, based on the fact that the rate of return on capital investment is generally greater than the growth rate of the economy, Piketty hypothesizes that capital will come to comprise an ever larger fraction of each economy. This leads him to conclude that inevitably the rich get richer and the poor and middle classes get left behind – until this unsustainable trend erupts in economic breakdown and political chaos. So, Piketty calls for confiscatory tax rates on wealth and income (e.g., 80%) to avert this supposed tendency.

However, like most analysts who obsess over income distribution, Piketty ignores the huge effects that income taxes and transfer payments already play. His calculations are based on pre-tax income, which is not the amount anyone has to spend discretionarily. Piketty further overlooks employer-provided benefits like health insurance and non-taxable capital gains and he fails to adjust for household size, so his assertions have little basis in reality. There are also transcription errors and incorrect formulas in his spreadsheets, and for some data he does not cite original sources. These problems led him to retract his data for the U.S.

Further, the obsessive focus on income distribution is misplaced in principle. As we noted, in market systems (but not in explicitly political allocations of resources), income and wealth generally flow to people in proportion to the value they deliver to others – i.e., the economic value they create for society. Since individuals’ contributions vary greatly, sometimes by a few orders of magnitude, the resulting distribution of income not only reasonably rewards people who create value, but it also provides the appropriate value-creation incentives for everyone. Further, people’s wealth is split among their heirs and according to their charitable contributions, and this effect in the real world tends to spread wealth, instead of allowing ever narrower accumulations of it. Thus, lists of individuals’ fortunes increasingly include self-made entrepreneurial successes and ever fewer legacy fortunes. Also, not all capital reaps the average rate of return, and thus some fortunes grow more slowly than the economy or even disappear altogether in financial losses. And the fact that a loss of X% requires subsequent gains greater than X% to restore the original corpus also works toward wealth spreading.



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ECONOMIC OUTLOOK

Another major flaw is that, for Piketty, the value, virtue and efficacy of government spending is never questioned; more of it is always better by assumption, despite demonstrations by Nobel laureate Friedrich Hayek that rational economic planning is impossible outside competitive markets. Ultimately, Piketty's obsession (and that of other progressives) with income and wealth distribution not only completely distorts the real record on these trends but also overlooks the real public interest: namely, economic growth and thus human wellbeing. Capital formation is essential to this goal. He does, however, concede that "the return of high capital/income ratios over the past few decades can be explained in large part by the return to a regime of relatively slow growth."

Indeed, Table 5 below demonstrates broadly this point for the U.S. It shows that the difference between GDP growth rates in the U.S. and the increases in income inequality (measured by the most common Gini coefficient and related methods) have produced much slower total gains (GDP growth less income inequality increases) for the middle and lower classes in the Bush 41, Bush 43 and Obama administrations than was the case in the Nixon/Ford, Reagan and Clinton administrations. In short, rapid total economic growth has benefitted the poor and middle classes more than slow growth and income redistribution.

9. Nevada Prospects Are Similar to U.S. Prospects: Nevada's overall tax levels (state plus local) lie toward the middle among the states. The state has long practiced onerous regulation of professions and occupations and has intervened in housing finance in ways adverse to growth. In assisting destructive federal policies in health care, education and energy, state policy further retards growth. Nevada's demographic and workforce outlook is no better than the national picture, especially due to modest workforce education levels. Further, there is no reason to believe Nevada will do better than other states on non-government debt levels, or on trade and foreign direct investment. Historically and now again, Nevada and the Southwest populations have grown much faster than the U.S., but their net in-migration has slowed greatly in recent years. So, despite faster growth currently than most states, the most prudent forecast for Nevada is per-person economic growth at the anemic national rates. Moreover, the dominance of the national outlook by long-term secular trends obviates fine-tuned state cyclical growth estimates. A notable bright spot is that Nevada has managed conservatively its debt load; so, maintaining its creditworthiness will be assured by continued prudence on that front.

Between 2011 and 2015, Nevada's state gross domestic product grew meagerly from \$119.3 billion to \$126.2 billion (in constant 2009 dollars). Per capita, that's a growth

rate of -0.15%, ranking 44th among the states in that period. This continued negative growth came on the heels of an economic recession in which Nevada experienced the largest per-capita decline in GDP of any state. Between 2007 and 2010, per-capita GDP shrank by an average of 5.76% annually versus a national shrinkage of 1.26%. Fortunately, Nevada growth has returned to healthy levels.

However, entrepreneurial activity in Nevada remains near historically low levels. As shown in the graph on the next page, startup density, measured by the number of business starts per 100,000 persons, fell roughly 30% between the mid-1990s and recent years, according to Bureau of Labor Statistics data. Non-governmental data sources, providing a longer time series, indicate that startup density has fallen 61% since 1977. This long-run decline in entrepreneurial activity portends a less dynamic state economy. Studies indicate that nearly all net new U.S. job growth is attributable to startups, so future Nevada economic growth prospects may be significantly diminished if entrepreneurial activity does not rebound to historic levels.

10. Economic Outlook Summary: Government at all levels has long been so big, yet still growing relative to our economy, that it increasingly consumes our time, energy and productivity; crowds out private entrepreneurship and business spending and investment; and thereby stifles economic growth. Until 2002, Baby Boomers and women entering the workforce, plus increases in workforce average experience, greatly mitigated this problem. Sustained low birth rates leading to small new working-age population cohorts, plus somewhat falling rates of workforce participation by women and by men ages 16-54, and increasing Boomer retirements have lately decreased the fraction of the population working and the producer/dependent ratios that fed earlier growth.

Increasing debt levels relative to the economy, which were mainly driven by policy far into unsustainable territory, promoted growth until the financial crash. Mild retrenchment during the tepid recovery has not worked off the overhang; so, slow growth of non-government debt demand will add to the drag on economic growth. Rapid growth of developing economies, plus faster growth of trade and foreign domestic

Table 5: Comparison of Income Growth and Increase in Income Inequality by United States Presidential Administration, 1969-2016

Administration	Annual Growth, Real GDP Per Person	Annual Increase in Income Inequality (Gini/MnLn/Thiel)	GDP Growth Less Income Inequality Increase
Nixon/Ford	1.90%	0.33%	1.57%
Carter	1.67%	0.67%	1.00%
Reagan	2.70%	1.04%	1.66%
Bush 41	0.75%	0.32%	0.43%
Clinton	2.48%	0.84%	1.64%
Bush 43	0.70%	0.25%	0.45%
Obama	1.39%	0.85%	0.54%



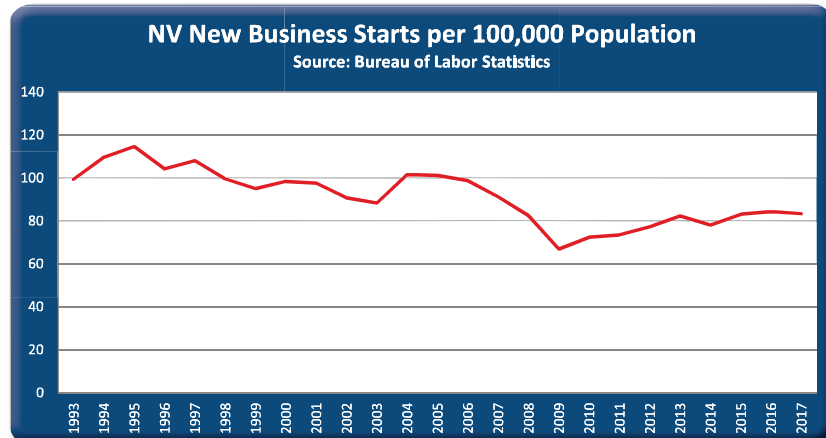
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ECONOMIC OUTLOOK

investment also helped greatly until 2009. Growth in most countries has slowed since then because the government overreach, and demographic and workforce participation and debt problems are worse in other major economies. And trade is now growing slower than the world economy. The most reasonable expectation is that these world trends will continue, not improve, despite (or even due to) low commodity and energy prices.

Hence, all four fundamental factors are now driving U.S. economic growth down from the current 2% annual real levels (1% per person), and so human wellbeing will grow much slower in the future than in the last 250 years. The increasing time since the Great Recession also suggests cyclical factors may stunt growth in coming years. Nevada is not exempt from this unfortunate outlook: As detailed above in the section on spending, the state's public-sector metastasis has been greater and it continues. Other demographic,

debt and international trade and investment factors do not portend improvement from the national economic outlook. Nevada's creditworthiness is a single bright spot. However, low economic growth will yield low expected investment returns, greatly challenging management of state retirement and endowment funds.



VII. SUMMARY, PERSPECTIVE AND POLICY PRESCRIPTIONS

Section I shows Nevada state spending has grown faster than incomes of Nevada families and businesses and thus faster than our economy. Not only does this impose an ever greater burden on Nevadans, whose real incomes are lower than those of a decade ago, but it is an unsustainable trend. Section VI shows that government spending at all levels for 60 years has exceeded the public-interest levels that maximize human wellbeing and fairness, and yet it is still increasing. Such government overreach has growing adverse effects because it increasingly slows economic growth. State and local spending is at least as big a part of this problem as federal spending. Sections I–V show the excess growth of state spending has been driven by health and social services, education, transportation and local government total compensation (pay and benefits).

Slow productivity growth in government and the two sectors most affected by it, health care and education, causes slow growth of total incomes and increasing unfairness. This is illustrated by comparing examples from three private sectors to those of government, health care and education. First, the price of a three-minute coast-to-coast telephone call has decreased over the last century from about 90 hours' average wage to nearly zero. Second, the price of a mattress and box springs, a product that has not benefitted from great technological advances like those in communications, has dropped over 85% since 1929. Third, since 1925, the

fraction of family income spent on food has fallen from 25% to less than 10%. While the prices are lower, the products today are much better. Market competition creates such benefits to incomes and fairness via increased consumer choice, reduced costs, and increased value and quality.

By contrast, government spending has grown from about 26% of our economy to 35% in 60 years. Spending on health care has doubled from about 9% to 18% in 25 years. And spending on education has risen from \$9,883 per student in 1990 to \$13,119 in constant 2016-17 dollars (real terms). The growth of these sectors relative to the economy has been due partly to poor productivity growth – that is, slow business innovation and implementation of technological gains. It's due also to continuing mission creep (the expanding scopes of their activities – e.g., adding elements of preventive medicine coverage by government insurance that have not yet been proven cost-effective) fostered by political processes, not market demand. As these two factors increase the fraction of spending on government, health care and education relative to the economy, they slow overall economic growth and thus the increase in average human wellbeing. This happens because every dollar taken in taxes or other compelled spending ineluctably depresses economic growth and diminishes human wellbeing, while the benefits from the public spending that taxes and fees facilitate are uncertain and sometimes even negative.



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POLICY PRESCRIPTIONS

Section VI also notes that government regulation and other intervention are at least as big a problem as excess government spending, taxing and debt. And it shows three other major reasons economic growth has slowed in the last 10 to 20 years: labor force participation and productivity, increasing debt levels, and America's relations to the rest of the world economy. However, while these three trends are greatly due to public policy, they are mostly the result of federal policy. Since state and local spending, regulation and other intervention are just as much parts of the problem as federal excess in these areas, Nevada definitely needs reform in them too.

Recent upticks in economic growth may offer some hope to the extent they are driven by federal fiscal and regulatory reform that will be sustained for a long time. Tariff increases and other trade skirmishes, however, will tend to slow growth. Also, bubbles may have formed in capital markets due to the persistence of low long-term (market) and short-term (policy driven) interest rates and investors chasing yields in ever riskier asset allocations. It is too early to forecast anything better than a continuation of the economic ennui of the last decade.

What can Nevada do to rein in its excess state spending, the local government excess spending due mainly to excess employee compensation and benefit levels, and the state and local excesses in regulation and other intervention?

The spending problem is driven by our budget model, which starts with current spending, adds increases for inflation and for new programs and projects – but fails to systematically require savings from innovation, technological progress and the pruning of no-longer necessary governmental activities. So, instead of this bottom-up cost-plus model, at the state and local levels we need to adopt a top-down cost-constrained approach that sets a cap on total spending and then allocates the total among various departments, agencies, programs and projects, providing them a mandate to live within the taxpayers' means. This is similar to the budget constraints under which private businesses operate and cause our economy to grow.

For six decades, government spending on average has grown faster than the economy. So a reasonable way to fix the problem is to set for the foreseeable future caps that allow total state spending and local spending in each jurisdiction to grow only at rates somewhat slower than the growth of their economies.

For regulation and other intervention (e.g., Obamacare), our problem is we have failed to assure that the social benefits from each adopted measure exceed its social costs. Hence, we have many economic, health, safety, environmental and other regulations and interventions that on net damage the public interest. We need to start by pruning measures that

do not meet strict social benefit-cost standards. And future measures should be rejected unless they meet that test.

As discussed in the economic outlook section, growth in public spending, taxing, debt, regulation and other intervention is a prime reason economic growth in our nation and state has slowed and will continue to be anemic. Further, claims that budgets have been cut are misleading when actual spending and taxpayer/feepayer burden have increased as they have. Public-sector excess is a drag on the economy and it diminishes human wellbeing and fairness in our society. It, not some alleged failure to adequately fund particular budgets such as HSS and education, is the principal threat to our prosperity and children's welfare.

For a long time to come, Nevada government must grow slower than our economy. The unvarnished good news is that Nevada's credit situation is very sound.

Education and HHS: Some people argue that Nevada spends insufficiently on K-12 and higher education and on HSS, although they have not said how much would be "enough" in either case. K-12 spending has increased much faster than incomes and all other state spending except that for HSS, especially with the large K-12 increases adopted in 2015. The empirical literature is clear that spending increases from current Nevada levels can be expected to have little or no effect on student achievement. Higher education needs to rein in its excess administrative bloat and salaries. The increases in HSS spending have been driven by state decisions and federal mandates and financed substantially by federal grants and contributions. Federal support for HSS programs may be diminished significantly in coming years. So, Nevada faces another major spending problem as it seeks either to rein in spending to reasonable levels determined by its revenues instead of increasing taxes again as it has often done.

Public Employee Retirement System: Nevada's PERS system is managing its investments with the right approach, but it has not yet adopted reasonable discount rates (expected rates of return on its investments) for future liabilities for planning and determining contribution rates. It should adopt a rate of 5%, reflecting the realistic total net return assumptions for its investments. PERS also needs to reset expected membership growth rates to 2.5%, the level it has achieved. And it should adjust working- and retirement-years assumptions to levels that reflect current and prospective demographics to correct a long history of burdening future taxpayers and future plan participants with subsidies to retired government employees. PERS also needs to come into the 21st Century concerning open records, transparency and accountability. It should stop fighting to the death legitimate public records act requests and recognize that its duty to taxpayers and PERS members requires it to make all records related to its financial position fully accessible to the public, not hidden in its actuary's office.



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POLICY PRESCRIPTIONS

Nevada must also work to revitalize the dynamism of its economy and promote genuine entrepreneurship as the path to sustained growth and economic development.

Occupational and professional licensing laws that are here more onerous than in other states place artificial barriers before enterprising individuals, limit their earning potential and diminishing the contributions they can make to Nevada. Nevada retains dubious licensing schemes that exist in only a handful of states. For instance, 47 states impose no special licensing requirements for interior designers, but Nevada requires practitioners to complete six years of education and apprenticeship requirements, pay fees, and pass a state-administered test before contracting for services.

Such barriers to entry into middle-class occupations severely dampen opportunities available to Nevada's citizens and to the kinds of domestic immigrants we need. The traditional rationale for occupational licensing is that certain occupations present substantial risk of physical harm to the public when practiced by unknowledgeable or unskilled persons. For instance, patients benefit from the assurance that their surgeon has the required skill and knowledge to perform surgical procedures. However, the proliferation of licensing requirements in Nevada to occupations like interior design has little to no basis in this rationale.

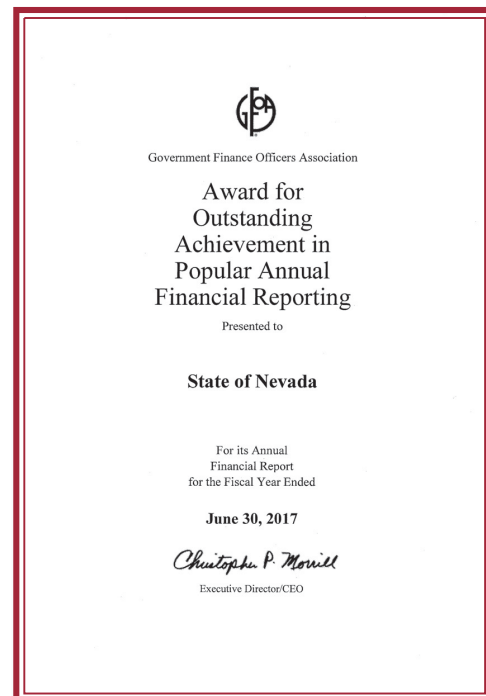
While laws like these needlessly limit the upward mobility and opportunities available to Nevada's residents, the state's approach to economic development has focused on providing incentives to select private firms with political influence. Substantial packages of targeted tax incentives have been awarded recently to Tesla Motors and the Raiders football team. In addition, the Legislature has crafted legislation in recent years to authorize outright cash grants of state funds to private firms, preferential "economic development" utility rates and transferable tax credits that can be sold for cash on secondary markets and used to satisfy most state tax liabilities of the buyer.

Litigation has been filed to challenge the constitutionality of Nevada's Catalyst Fund, which uses legislative appropriations to award cash grants to private firms. The litigants claimed the Fund, created in 2011, violates Article 8, Section 9 of the *Nevada Constitution*, which reads: "The State shall not donate or loan money, or its credit, subscribe to or be, interested in the Stock of any company, association, or corporation, except corporations formed for educational or charitable purposes." The litigants claim the State's award of cash grants damages the competitors of grant recipients, whose tax dollars are used to subsidize their recipient competitors.

Beyond these legal issues, cash grants, tax abatements and other awards to particular firms signal ofcial state support

for them but distort investment. Financiers and investors become reluctant to support ventures that compete with state-supported entities and more likely to support recipients of state support even if their prospects are less promising on a pure market basis. The result is a suppression of genuine entrepreneurship and slower economic growth as Nevada, along with the nation, has moved increasingly toward corporatism and cronyism. This discouragement of organic entrepreneurship is apparent in statistics cited in Section VI regarding a decades-long decline in Nevada's rate of business formation.

Nevada must restore hope for its future generations by abandoning these interventionist and corporatist policies and sweeping away unnecessary barriers to organic entrepreneurship and business formation. The promise for Nevada's future is found in the dreams, talents and creativity of its people and not in the political deals made with cronies regarding tax dollars and abatements and regulatory favors.



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NEVADA CONTROLLER

RON KNECHT, MS, JD & PE

Ron Knecht, an economist, financial and policy analyst, Professional Mechanical Engineer (registered in California) and law-school graduate, became Controller on January 5, 2015. As Controller, he also serves on Nevada's Board of Finance, Executive Audit Committee and Department of Transportation Board of Directors.

Ron, his Deputy and team cut Controller's office spending 13% from the levels passed by the Legislature and Governor based on his predecessor's request. While returning over \$1-million to the state treasury, they made innovations and he wrote most of Nevada's first three Controller's Annual Reports (CARs), which won awards.

He inherited a troubled debt collection IT development project based on a flawed contract. Ron and the team worked tirelessly with the developer and others to twice renegotiate the contract and successfully turn around the project. In the first year using the new system, they increased debt collection revenues 3.5 times. Ron is also co-leading the business process re-engineering for all state agencies and development of a huge all-functions enterprise resource management IT system (SMART21) to fully integrate the agencies' IT systems by 2022.

Ron wrote the detailed analysis showing why all of the new CAR (a/k/a Popular Annual Financial Report, or PAFR) should be included in Nevada's Comprehensive Annual Financial Report (CAFR), as it now is. He backed his Chief CAFR Accountant in requiring Nevada state and local agencies to reform their reporting of pension-related information to fully conform to Government Accounting Standards Board requirements.

He led a team that developed an alternative state budget in 2015 that would have obviated a tax increase. Since the Legislature passed and the Governor signed Nevada's largest tax increase ever, he has led efforts to repeal the worst part of the increase, the Commerce Tax. He has also led efforts to reform the forecasting of returns on state pension investments and expected employee counts to avoid a crisis due to underfunding.

Before becoming Controller, Ron divided 44 working years between public service and entrepreneurial small business, all in managerial/executive and senior professional positions. He's been a founder, executive or director for 12 firms, charities, community-service and public-interest groups.

In previous jobs, he testified extensively as an expert witness on a number of subjects. In 2012-14, 1986-2001 and 1976-78, he was a consultant, expert witness and business executive. In 2001-12, he was a senior economist at Nevada's Public Utilities Commission. He held principal economics, finance, policy and technology positions in 1978-86 at California's Energy and Public Utilities Commissions, and he also served in management roles.

In 2009-13 he co-taught about ten two-day seminars for SNL Financial on utility finance, cost of capital, and economic and policy issues for regulators, professionals, managers and securities analysts. In 1973-77, he was a Research Associate and Research Engineer at the University of Illinois. In 1972-73 he was Assistant City Engineer in Urbana, Illinois. Nowadays he regularly speaks at institutional investor conferences.

Ron was elected to the Board of Regents of the Nevada System of Higher Education in 2006 and re-elected in 2012. For two years each, he chaired the Budget & Finance and Audit Committees; for seven years he was very active on the Investment & Major Projects Committee, which oversees \$1-billion of endowment and operating funds. He served on four other committees and on institutional presidential selection and performance-review committees, chairing two of them. Ron was elected to the Nevada Assembly for 2002-04 from Carson City, serving on the Commerce & Labor, Government Affairs and Transportation committees.

With some scholarship support, he worked his way through undergraduate and early graduate studies at the University of Illinois (BA, Liberal Arts & Sciences; mathematics major; physics & chemistry minor; 1971). Spending most of his working career in San Francisco and Silicon Valley, he paid his way at Stanford University (MS, Engineering Economic Systems; 1989) and the University of San Francisco (JD; 1995) while working full time. He's been a columnist for print and on-line papers and has taught part-time at two colleges.

The most important things in Ron's life are his wife Kathy, their teenage daughter Karyn, and their parents and families. Raised in a small town in the Midwest, he was always active in a wide range of athletics and outdoor activities - a competitive distance runner in high school and college. He enjoys ballet, modern dance, symphony, opera, rock & roll, country & western, theater and film, and he collects baseball cards and pursues other hobbies.



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