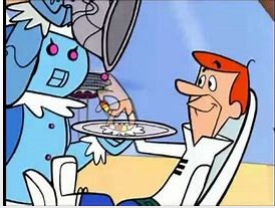


# Industries of the Future



South Carolina  
School Boards Association  
Legislative Advocacy Conference  
December 7, 2019  
Charleston, SC



Mike Shealy, SC Senate Finance Committee staff

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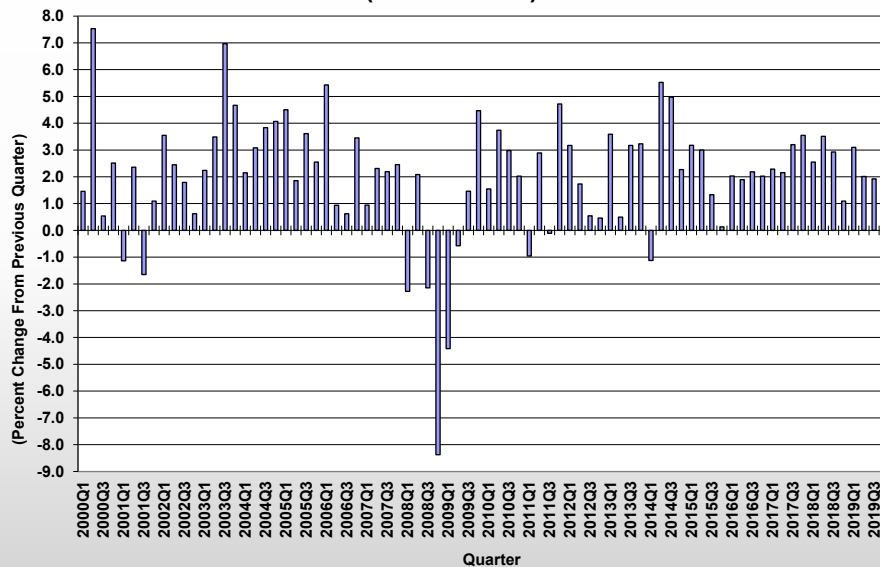
# Population Growth by State Since 2010

	State	% Growth Since 2010	2019 Population
1	Utah	16.08	3,221,610
2	Texas	15.23	29,087,070
3	Florida	14.86	21,646,155
4	Colorado	14.31	5,770,545
5	Nevada	14.23	3,087,025
6	Idaho	13.97	1,790,182
7	Washington	13.7	7,666,343
8	Arizona	13.54	7,275,070
9	North Dakota	12.77	760,900
10	South Carolina	11.03	5,147,111
11	Oregon	10.64	4,245,901
12	North Carolina	9.65	10,497,741
13	Georgia	9.43	10,627,767
14	South Dakota	9.37	892,631
15	Montana	8.46	1,074,532

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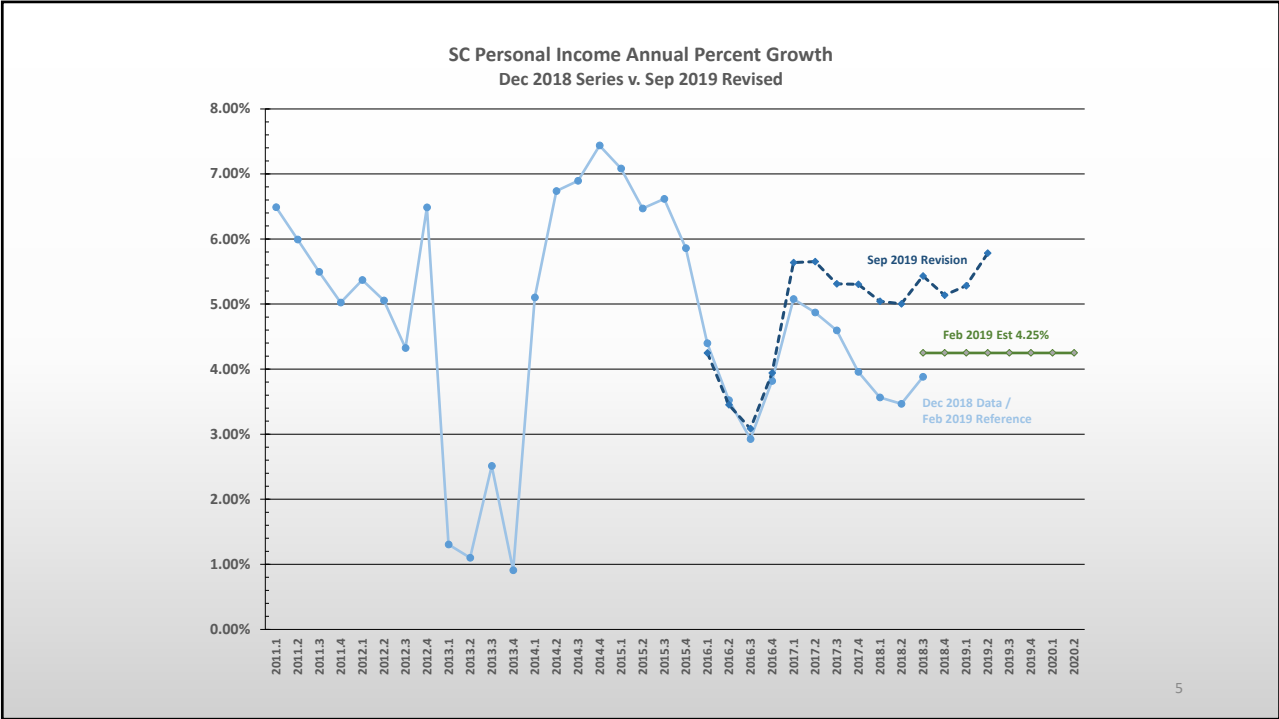
### Real Gross Domestic Product in the U.S. (2012 = 100.0)



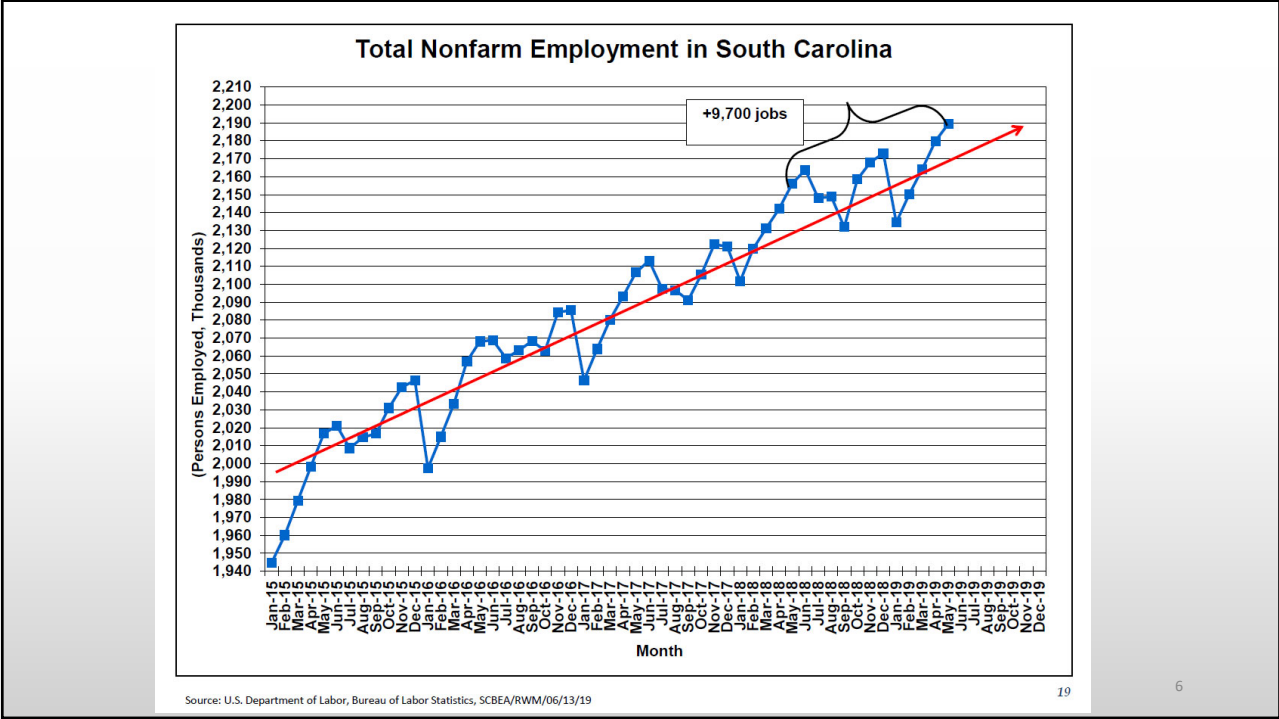
Source: U.S. Department of Commerce, Bureau of Economic Analysis

S.C. Board of Economic Advisors

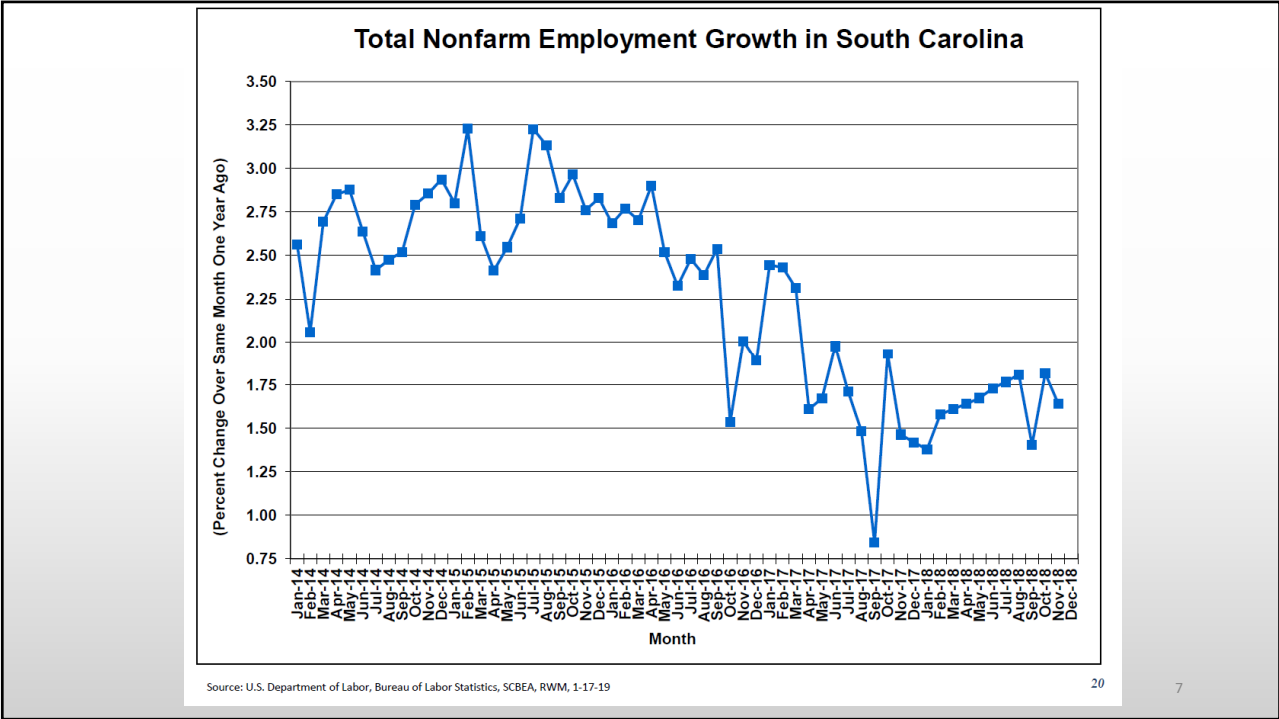
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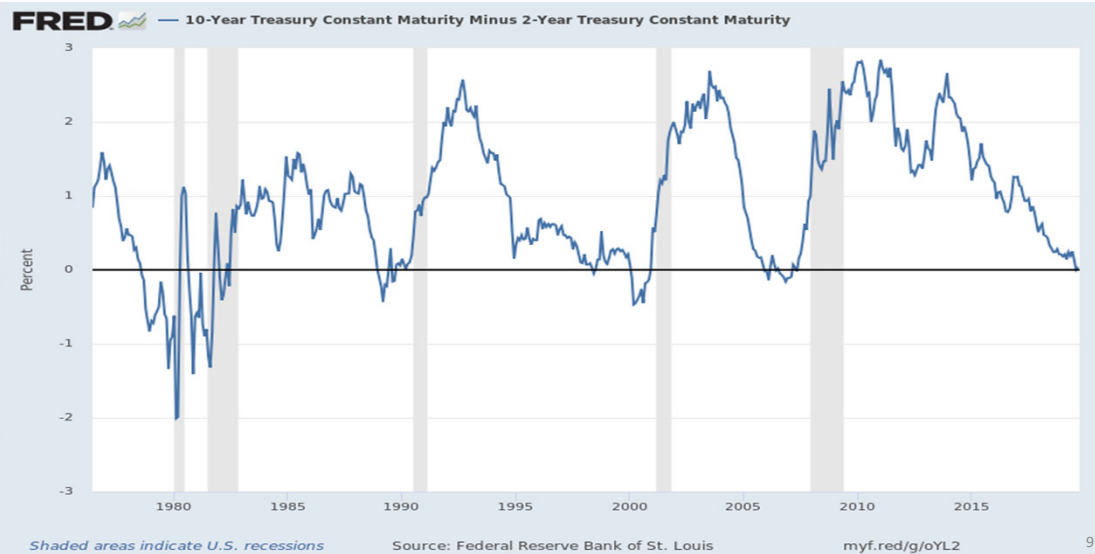
7

# Recession?

- Yield Curve Inversion.
- Interest Rate Adjustments.
- Trade Wars.

8

# The Inverted Yield Curve (an interest rate environment in which long-term debt instruments have a lower yield than short-term debt instruments of the same credit quality)

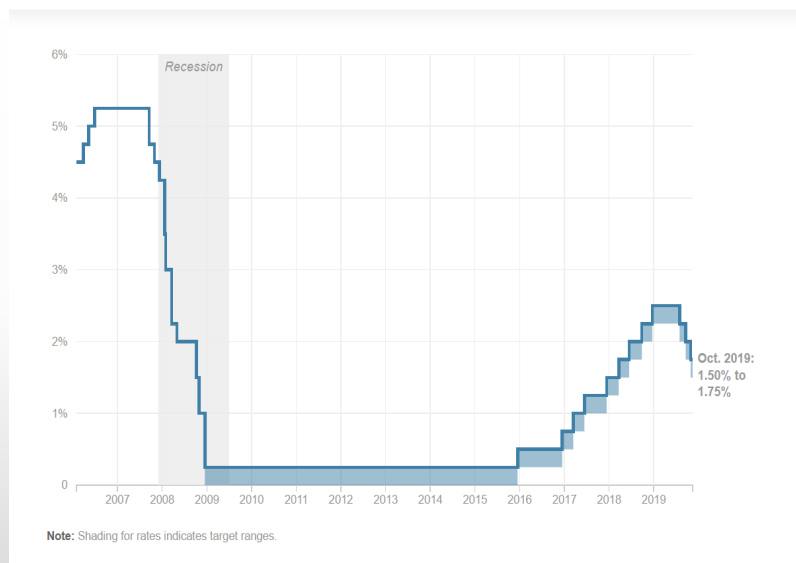


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## Federal Reserve Bank: Interest Rate Adjustments

The Federal Funds Rate has been reduced three times in 2019:

August 1 <sup>st</sup>	2.25% to 2.0%
September 19 <sup>th</sup>	2.0% to 1.75%
October 31 <sup>st</sup>	1.75% to 1.5%



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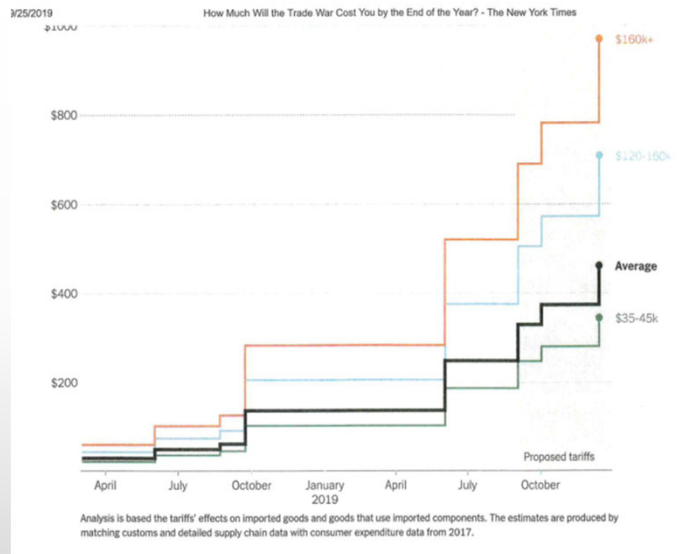
10

# New York Times

## How Much Will the Trade War Cost You by the End of the Year?

By Quoctrung Bui and Karl Russell

September 1, 2019



# FY 2020-21 Budget & Revenue Outlook

A short overview



## FY 2019-20 Appropriations

<b>• General Fund</b>	\$ 8,737,012,313*
<b>• Federal Funds</b>	\$ 8,856,439,244
<b>• Other Funds</b>	<u>\$11,943,487,871*</u>
<b>Total</b>	<b>\$29,536,939,428**</b>

\*Net of \$614 Million required transfer to the State's "Tax Relief Trust Fund"; amount included in "Other Funds" above.

\*\*SC Total Personal Income in 2018 is \$217.3 Billion. So, the State Budget represents about 13.6% of economic activity in SC.

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## FY 2019-20 Gross General Fund Revenue\*

<b>• Sales Tax</b>	\$3,294,402,000
<b>• Individual Income Tax</b>	\$4,661,029,000
<b>• Corporation Income Tax</b>	\$ 400,997,000
<b>• Other Sources</b>	<u>\$ 974,234,000</u>
<b>TOTAL</b>	<b>\$9,330,662,000*</b>

\*Includes \$614,053,000 required by law to be transferred to the State's "Tax Relief Trust Fund" and thus not available for state operations.

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## FY 2018-19 Budget Surplus

(\$ Millions)	
<b>General Fund Revenue</b>	<b>Net</b>
Revenue Surplus (BEA)	\$407.4
Taxpayer Rebate (Proviso 118.15)	(\$61.4)
Net Impact of Budgetary Adjustments (Vetoes, Lapses, Open-ended Appropriations, Transfers)	\$3.9
<b>Funds Available for Contingency Reserve Fund</b>	<b>\$350.0</b>
<b>Other Surpluses</b>	
EIA Revenue over Act	\$3.1
Lottery Revenue over Act*	\$0
<i>*FY 2018-19 Excess appropriated</i>	
Homestead Exemption Revenue over Act**	(\$1.9)
<i>**Shortfall Funded with Prior Year Fund Balance</i>	

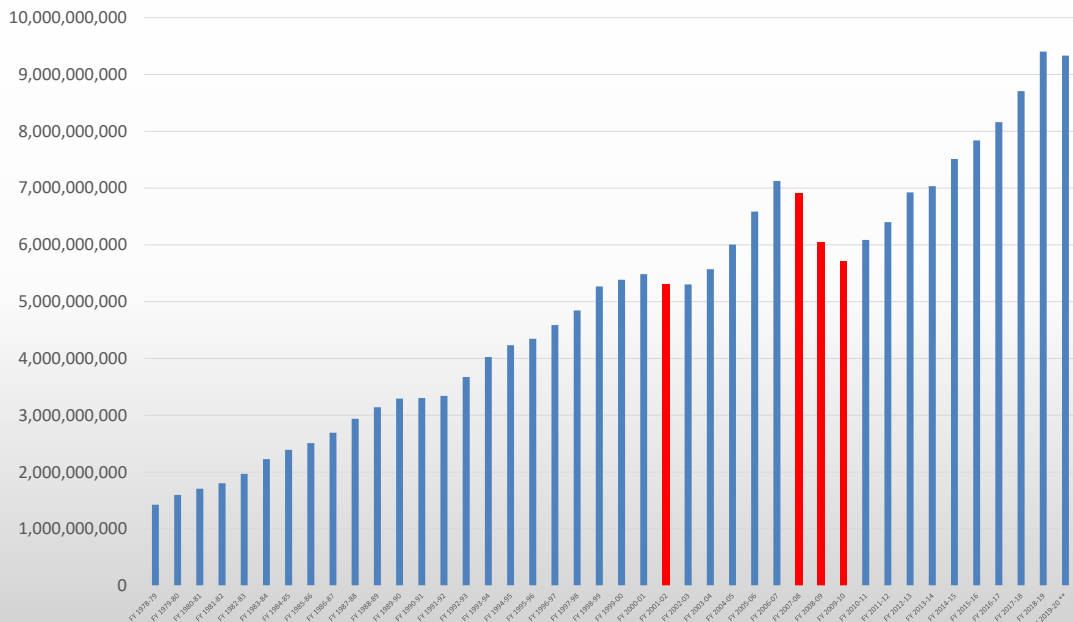
August 26, 2019

South Carolina Revenue and Fiscal Affairs Office

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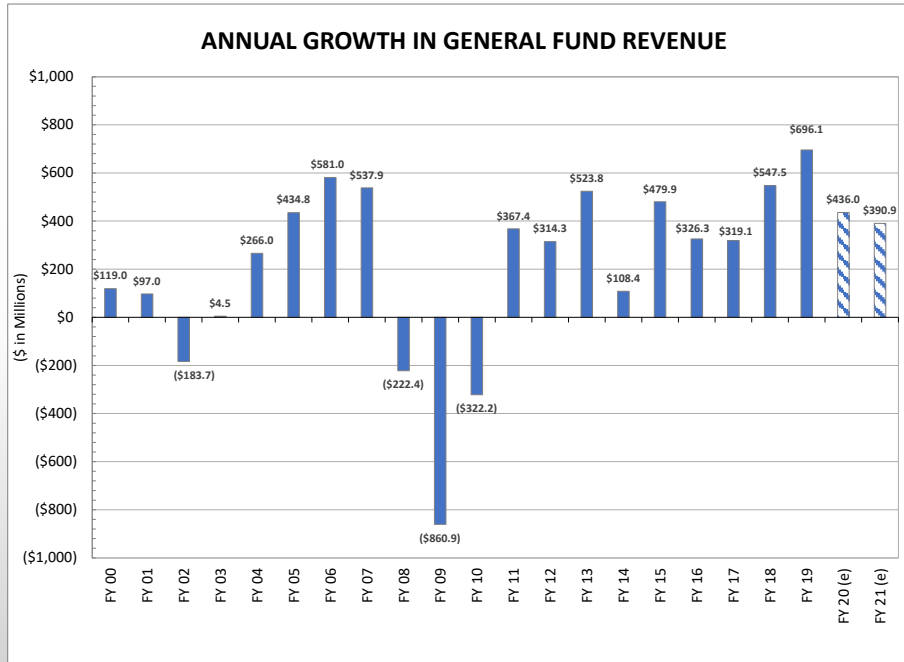
## Total General Fund Revenue



16

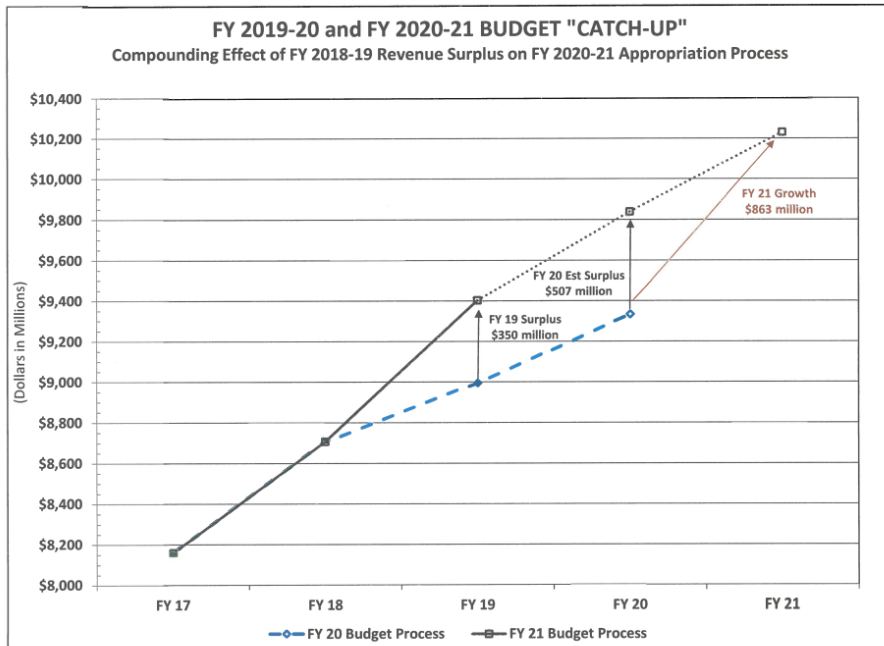
16





Source: Revenue and Fiscal Affairs - 169A/LHJ/11/12/19

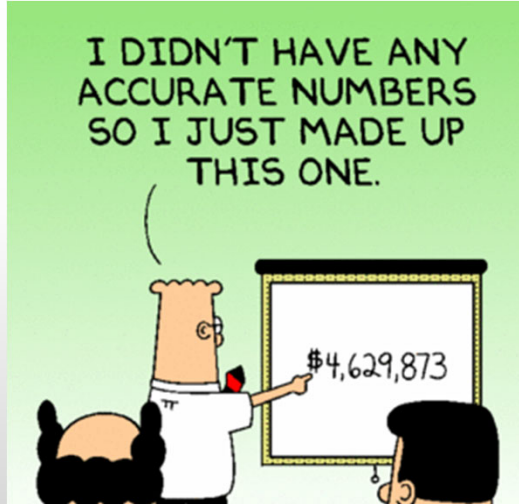
17



Source: Revenue and Fiscal Affairs Office/FAR/11-6-19

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What do we expect Next Year?????



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## FY 2020-21 General Fund Outlook

(PRELIMINARY- Dollars in Millions)

<b>BEA Revenue Estimate (11/8/2019)</b>	<b>\$10,229</b>
- Tax Relief Trust Fund	(\$629)
- FY 19-20 Appropriation Act	<u>(\$8,737)</u>
<b>Estimated "New" General Fund Revenue</b>	<b>\$863</b>
<b>Reserve Fund Contributions</b>	
- Incremental General Reserve Fund (5%)	(\$34)
- Incremental Capital Reserve Fund (2%)	(\$14)
<b>Estimated "New" General Fund Revenue Available for Appropriation (less Reserve Fund Contributions)</b>	<b>\$815</b>

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## FY 2020-21 Budget Outlook

(PRELIMINARY- Dollars in Millions)

	<u>Recurring</u>	<u>Non-Recurring</u>
FY 2019-20 Capital Reserve Fund		\$162
FY 2018-19 Contingency Reserve Fund		\$350
Projected FY 2019-20 Surplus (11/8/2019)		<u>\$507</u>
<b>Total</b>		<b>\$1,019</b>
FY 2019-20 HEX Fund Surplus/(Shortfall)		\$8
FY 2020-21 HEX Fund Surplus/(Shortfall)	\$17	
FY 2019-20 EIA Surplus/(Shortfall)		\$31
FY 2020-21 "New" EIA Revenue	\$69	
FY 2019-20 Lottery Surplus		\$7
FY 2020-21 "New" Lottery Revenue	\$7	

<sup>1</sup> FY 2019-20 surplus lottery revenues are first appropriated to cover any shortfalls in LIFE, HOPE, and Palmetto Fellows Scholarships, so this surplus may not be available for appropriation.  
<sup>2</sup> Lottery revenue is appropriated by proviso on a non-recurring basis. It is listed as recurring to show the net year to year increase in the estimate, excluding surpluses.

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## Budget Decisions in FY2020-21

- Look to the current year's budget as a template for budget decisions for the upcoming session.

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## Recurring Items FY2019-20

<b>Revenue: Appropriations Base</b>	<b>\$497 million</b>
<i>Item</i>	<i>Funding (in millions)</i>
Teacher Salaries	\$159
EFA Increase	\$15
State Health Insurance Plan Increase	\$50
Medicaid Maintenance of Effort	\$50
Higher Education Tuition Freeze	\$44
2% State Employee Pay Raise	\$41
Pension Reform Contribution Increase	\$32
Capital Reserve Fund Contribution	\$11
Local Government Fund Increase	\$11
<b>Residual Balance</b>	<b>\$84 million</b>

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## Non-recurring Items FY2019-20

<b>Revenue: Contingency, Capital Reserve Surplus Funds</b>	<b>\$495 million</b>
<i>Item</i>	<i>Funding (in millions)</i>
Higher Education Capital Needs	112
State-Owned Building Maintenance	28
New Statewide Voting System	40
VA Nursing Home State Match	37
Taxpayer Rebate	6
DSS Child Support Enforcement System	29
General Reserve Fund	27
Judicial Case Management System	11
Corrections Prison Safety Upgrades	10
<b>Residual Balance</b>	<b>\$195 million</b>

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## Non-recurring Items, continued

Proviso 112.1 (revenue from difference in appropriated debt service and amount needed)

Item	Funding (in millions)
Commerce	65
State Department of Education	50
Bonus for State Employees	20

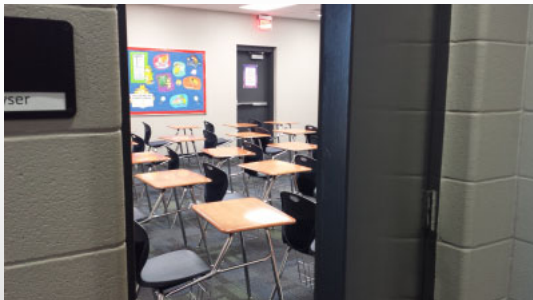
Proviso 118.15

Item	Funding (in millions)
Rebate (revenue from Powerball winner's income tax)	61.4

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## Fiscal Year 2019-20 Appropriations Act Public Education Funding Decisions



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## Fiscal Year 2019-20 Appropriations Act (Page 11)

- X. Aid To School Districts
- A. Aid to School Districts
- Special Items
- **State Aid to Classrooms** 2,801,498,092
- **Special Items Total** 2,801,498,092

Note: There is no reference to the Education Finance Act in Part 1A of the budget.

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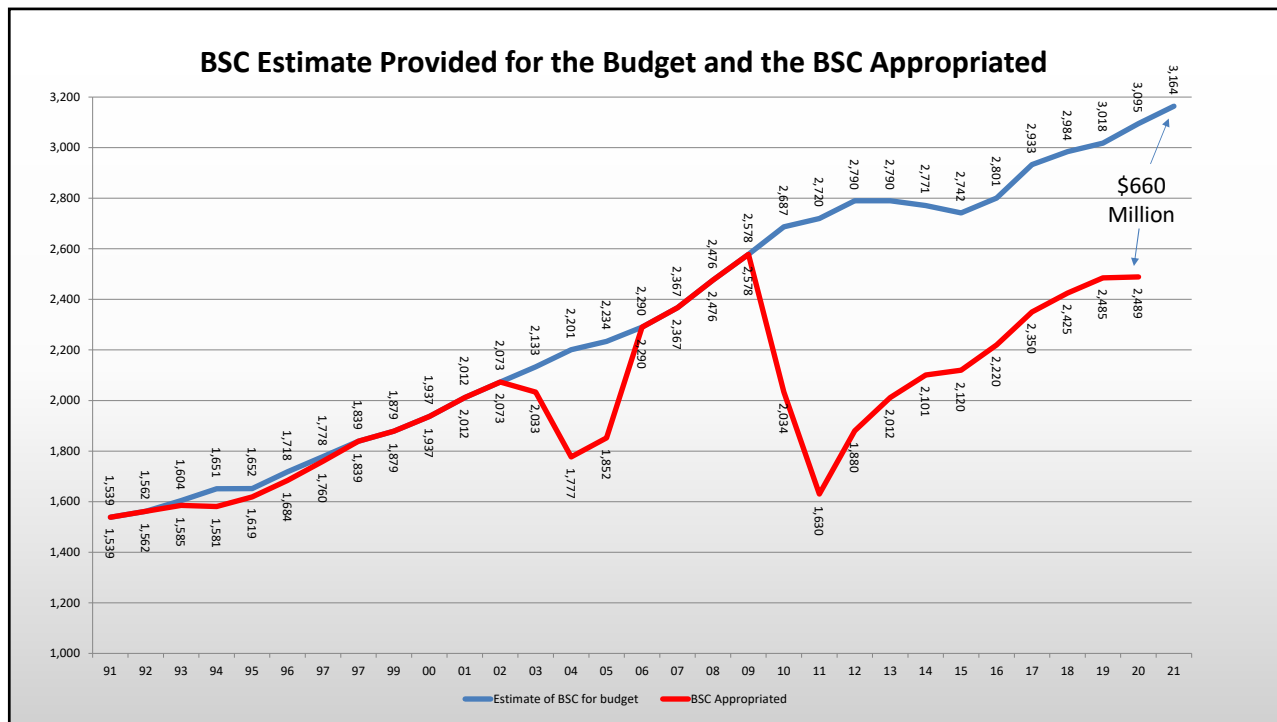
## State Aid to Classrooms

EFA	1,837,608,440	65.59%
EFA - Fringe	804,641,652	28.72%
Teacher Salary Increase	159,248,000	5.68%
<b>TOTAL</b>	<b>2,801,498,092</b>	

This money is distributed back to school districts based on Proviso 1.3

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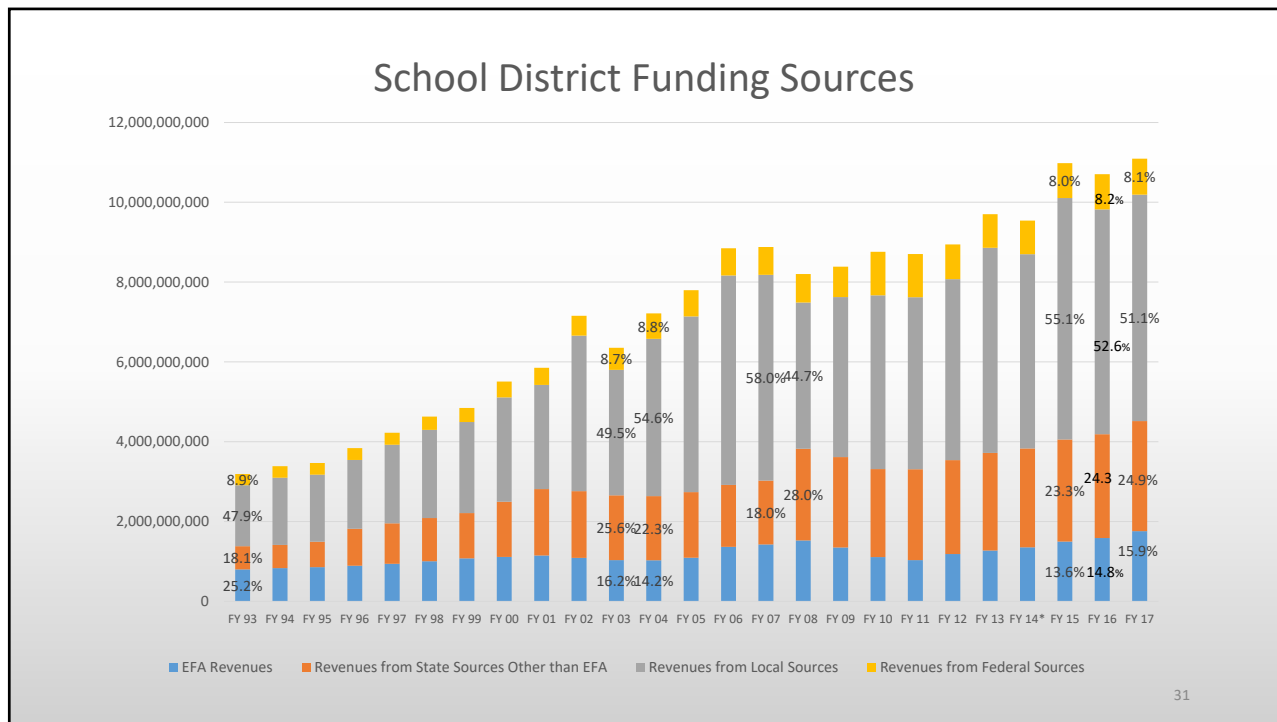
### Total School District Revenues FY 2016-17

Total Revenues	\$11,090,085,635	
Revenues from Local Sources	\$5,669,449,939	51%
Property Taxes	\$3,710,781,061	
License, Fees, Charges, Bonds, etc	\$1,958,668,878	
Bonds and Leases	\$1,433,096,618	
Revenues from State Sources	\$4,519,244,442	41%
Education Finance Act	\$1,758,206,785	
Property Tax Relief	\$1,085,155,194	
State Grants / State Shared Tax	\$1,090,694,616	
Education Improvement Act	\$ 557,788,661	
Education Lottery	\$ 27,399,186	
Revenues from Federal Sources	\$ 901,391,254	8%

Source: Local Government Finance Report

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## School Districts exist to develop human capital along four major goals

- Intellectual – learning how to learn is a basic tool for survival.
- Civic – democracies depend on an informed citizenry that participates in governance.
- Economic – creation of wealth and the standard of living.
- Social – learning how to interact, cooperate and lead.

**Advances in technology are dramatically and quickly changing the ways we attain each of these goals**

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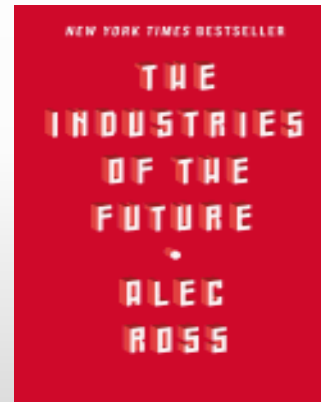


# The Industries of the Future

## by Alec Ross

Alec Ross served as a Senior Advisor for Innovation to the Secretary of State for four years. While working for the State Department, he traveled to forty-one countries, exploring the latest advances coming out of every continent.

He is currently a Distinguished Visiting Fellow at Johns Hopkins University and serves as an advisor to investors, corporations and government leaders.



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# The Industries of the Future

by Alec Ross

- As the technology continues to advance, robots will kill many jobs. They will also create and preserve others, and they will also create immense value – although we have seen time and time again, this value won't be shared evenly. Overall, robots can be a boon, freeing up humans to do more productive things – but only so long as humans create the systems to adapt their workforces, economies, and societies to the inevitable disruption. The dangers of societies that don't handle these transitions are clear.

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## Here Come the Robots

# RIBA

(Robot for Interactive Body Assistance)

RIBA is the first robot that can lift up or set down a real human from or to a bed or wheelchair. RIBA does this using its very strong human-like arms and by novel tactile guidance methods using high-accuracy tactile sensors. RIBA was developed by integrating RIKEN's control, sensor, and information processing and TRI's material and structural design technologies.



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## “Surprising Ways How Driverless Cars Will Change Our Future” by Rilind Elezaj,

Machine Design, October 2, 2018

- Reduced Emissions
- The Evolution of Urban Centers.
- More Independence for the Physically Challenged.
- Mobile Businesses.
- Living Arrangements Farther from Work.



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# The Robot is driving the Truck

South Carolina is home to 8,230 trucking companies, most of them small, locally owned businesses. In 2013, trucking industry in South Carolina provided 88,370 jobs, or one out of 17 in the state. Total trucking industry wages paid in South Carolina in 2013 exceeded \$3.8 billion, with an average annual salary of \$44,034.

Source: SC Trucking Association



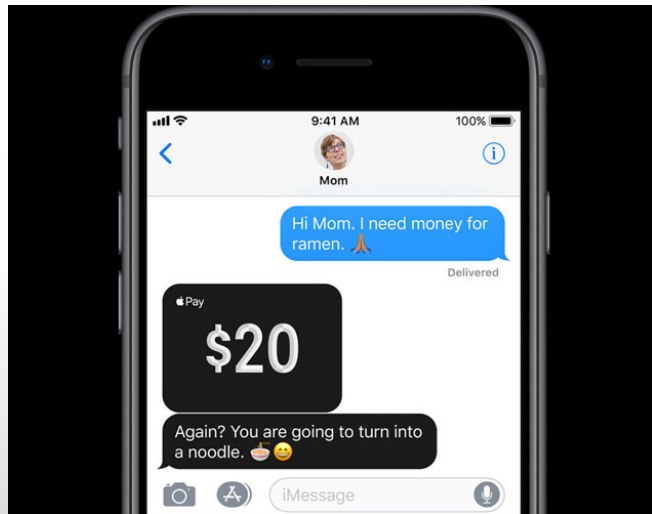
Autonomous Truck hauling refrigerators on I-10 from El Paso to Palm Springs in 2017.

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Apple Pay is a mobile payment and digital wallet service by Apple Inc. that allows you to make payments in person, through an application or over the web.



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# “Creative Destruction”

Creative destruction refers to the incessant product and process innovation mechanism by which new production units replace outdated ones. The term was coined by economist Joseph Schumpeter who considered it “the essential fact about capitalism.”

**Luddites** were British weavers and textile workers who objected to the increased use of mechanized looms and knitting frames. They called themselves “**Luddites**” after Ned Ludd, a young apprentice who was rumored to have wrecked a textile apparatus in 1779.



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# What About Jobs?



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“Automation could kill 73 million U.S. jobs by 2030” by Paul Davidson, USA Today 11/28/17

In the U.S., 39 million to 73 million jobs could be destroyed, but about 20 million of those displaced workers can be shifted fairly easily into similar occupations, though they may take on slightly different tasks, the report says. That means 16 million to 54 million workers — or as much as a third of the U.S. workforce — will need to be retrained for entirely new occupations.



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## Fastest Growing Occupations 2018-2028 US Bureau of Labor Statistics

<u>OCCUPATION</u>	<u>% GROWTH</u>	<u>18 MEDIAN PAY</u> <u>(in Thousands)</u>
Solar Panel Installer	63%	\$ 43
Wind Turbine Technician	57%	\$ 54
Home Health Aide	37%	\$ 24
Personal Care Aide	36%	\$ 24
Occupational Therapy Assistant	33%	\$ 60
Information Security Analyst	32%	\$ 98
Physician's Assistant	31%	\$ 109
Statistician	31%	\$ 88
Nurse Practitioner	28%	\$ 107
Speech Pathologist	27%	\$ 78
Physical Therapy Assistant	27%	\$ 58
Genetic Counselor	27%	\$ 80
Mathematician	26%	\$ 102
Operations Research Analyst	26%	\$ 83
Software Developer	26%	\$ 104
Forest Fire Inspector	24%	\$ 40

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# “WHEN GROWTH IS NOT ENOUGH”

Dr. Ben Bernanke

Remarks delivered on June 26, 2017, at the European Central Bank Forum on Central Banking at Sintra

Generally speaking, economic growth is a good thing, positively associated with many indicators of citizens’ well-being. More-rapid growth also improves fiscal balances, giving governments greater capacity and flexibility. But, as recent political developments have brought home, **growth is not always enough**. Economic growth almost always involves significant change and the possibly rapid depreciation of some human and social capital. The resulting dislocations can be very difficult to address, likely requiring a mix of top-down, bottom-up, public, and private interventions.

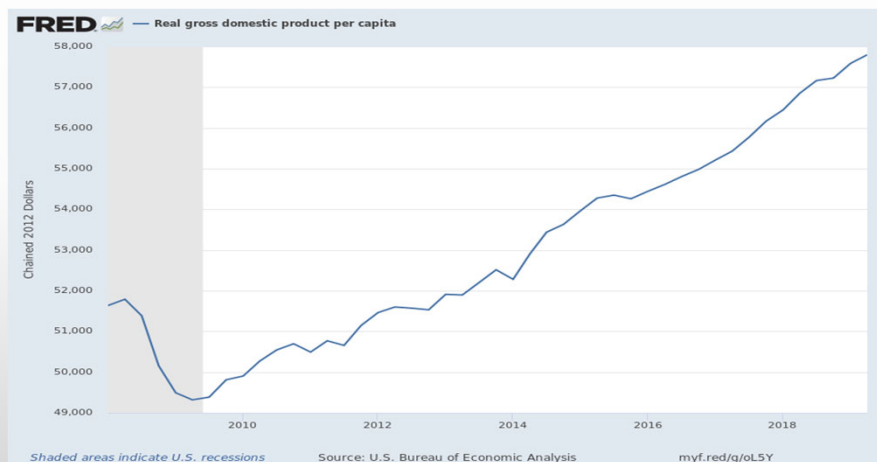
But if the resources released by economic change are to be effectively redeployed; if the benefits of growth are to be widely shared; and if economic policy is to be widely perceived as both successful in its own terms and politically legitimate, then making those interventions effective should be a top priority for policymakers.

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## Real GDP Per Capita since the Great Recession

After dropping below \$50K per year after the Great Recession, Real GDP Per Capita has grown over \$7,000 during the current economic expansion.



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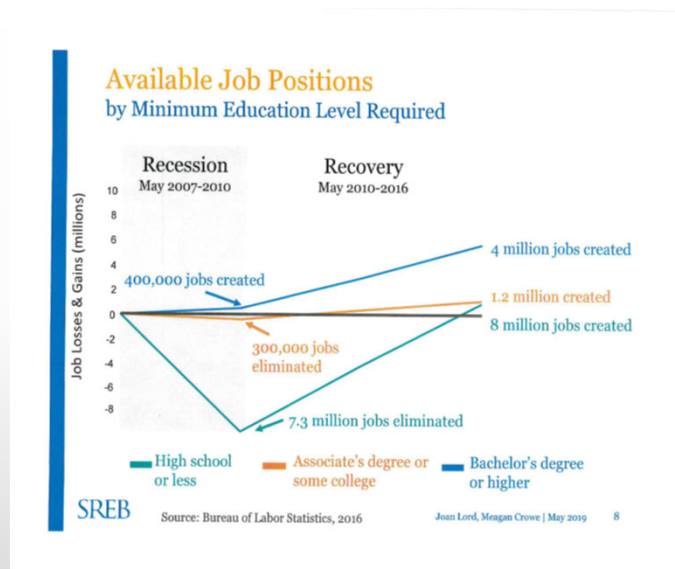
Available Job Positions  
Since the Great  
Recession Based on  
Minimal Education Level  
Required

**Wrong Question:**

Will there be enough  
jobs?

**Correct Question:**

Will there be enough  
people with skills to  
fill the new jobs?



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## “The Once and Future Worker” by Oren Cass

(Senior Fellow at the Manhattan Institute)

- “As an alternative to economic piety and its GDP-based definition of prosperity, I suggest what I call *productive pluralism*: the economic and social conditions in which people of diverse abilities, priorities and geographies, pursuing varied life paths, can form self-sufficient families and become contributors to their communities.”

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## “The Once and Future Worker” by Oren Cass

Roughly speaking, one-fifth of all students were already off-track and did not join their classmates crossing the stage. Another fifth will move from their senior year to something besides further schooling. The third fifth will enroll in college but fail to complete it. Yet another fifth will complete some form of college but land in jobs that don't require the degrees they just earned. Despite decades of reform in teacher training, student testing, and standards, as well as school choice and hundreds of billions in dollars in new annual education spending, only the final fifth will successfully navigate the path – high school to college to career – that is our education system's ideal.



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## “The Once and Future Worker” by Oren Cass

Cass's prescription: South Carolina has a head start.

- SC Wins Program
- Transfer Programs
- Career Programs
- Transition Programs

Cass essentially endorses tracking as a way to match students with interest and aptitude.

These types of programs are prevalent within South Carolina's Technical College System.

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## The Take Away

- The industries of the future will bring about rapid change.
- Our lives will be enhanced by the new emerging technologies.
- The education community will play a very important role as these industries will require higher levels of education attainment to participate in the emerging economy.
- The policy goal is to keep in mind the concept of productive pluralism so that every citizen has the opportunity to become a contributor to their community.

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“Education and work are the levers to uplift a people.”

**W.E.B. DuBois**

American sociologist, historian, author, editor, activist and co-founder of the National Association for the Advancement of Colored People (NAACP).

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# Thank You

[mikeshealy@scsenate.gov](mailto:mikeshealy@scsenate.gov)

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