

# TRADE BETWEEN THE US AND SAUDI ARABIA

# About REMI



## Regional Economic Models, Inc. (REMI) is a World Leader in Economic Policy Modeling

### Software

- **REMI PI+ is the industry standard for policy analysis.**
- **Other Customized Models**
  - TranSight
  - TaxPI

### Support

- REMI licenses include unlimited telephone and email technical support.
- REMI users have access to vast resources to enhance their understanding and skill in the model.

### Services

- Macroeconomic impact consulting
- Analysis of prominent state and federal legislation
- Led by REMI's team of highly experienced and qualified research economists

# About REMI



REMI's 35-year history of rigorous academic research and software development has led to the development of the industry standard in macroeconomic research methodology:

## Input-Output

Close analysis of inter-industry relationships

## Econometrics

Advanced statistical analyses underpinning the model

## General Equilibrium

Estimate of long-run stability of the economy allows for analysis of policy decisions

## Economic Geography

Effects of geographic concentration of labor and industry

**Integrated REMI  
economic modelling  
approach**



*what does REMI say? <sup>sm</sup>*

# Prior Policy Analyses



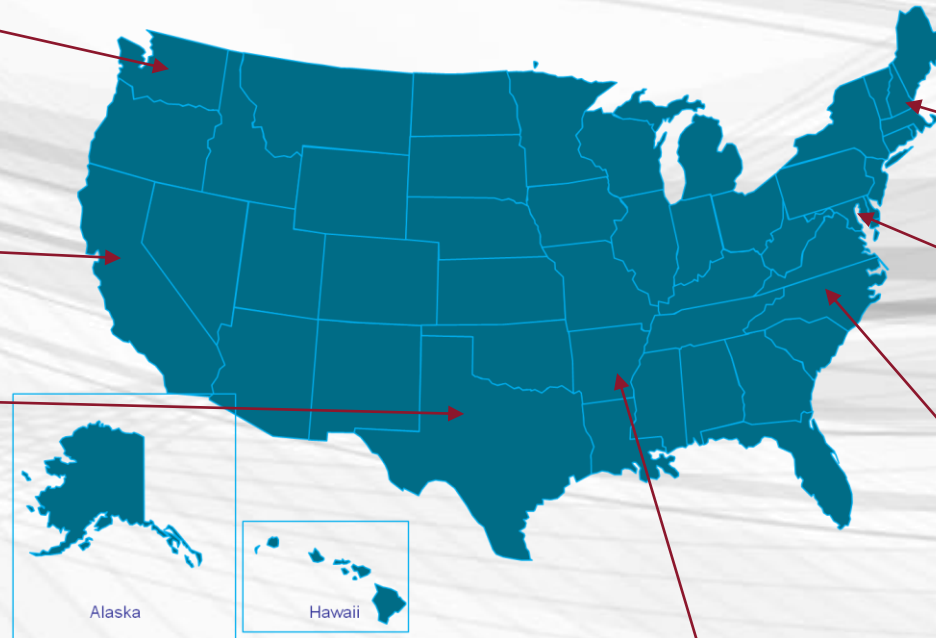
**REMI's PI+ is the industry standard for dynamic regional macroeconomic and demographic analysis of public policy and economic development projects.**

**Washington:**

Aerospace tax credit analysis

**California:** Impact of CalRecycle program

**Texas:** Statutory impact analysis requirement for appropriations legislation



**New England:**

Regional Greenhouse Gas Initiative

**Maryland:**

Corporate tax rate reduction analysis

**North Carolina:**

Medicaid expansion analysis

**Arkansas:** Big River Steel manufacturing facility analysis

*what does **REMI** say? <sup>sm</sup>*

# What is PI+?



*PI+ is the leading off-the-shelf solution for conducting dynamic macroeconomic impact analysis of public policy.*

PI+ allows users to understand the deep linkages and relationship between a policy and its economic foundation.

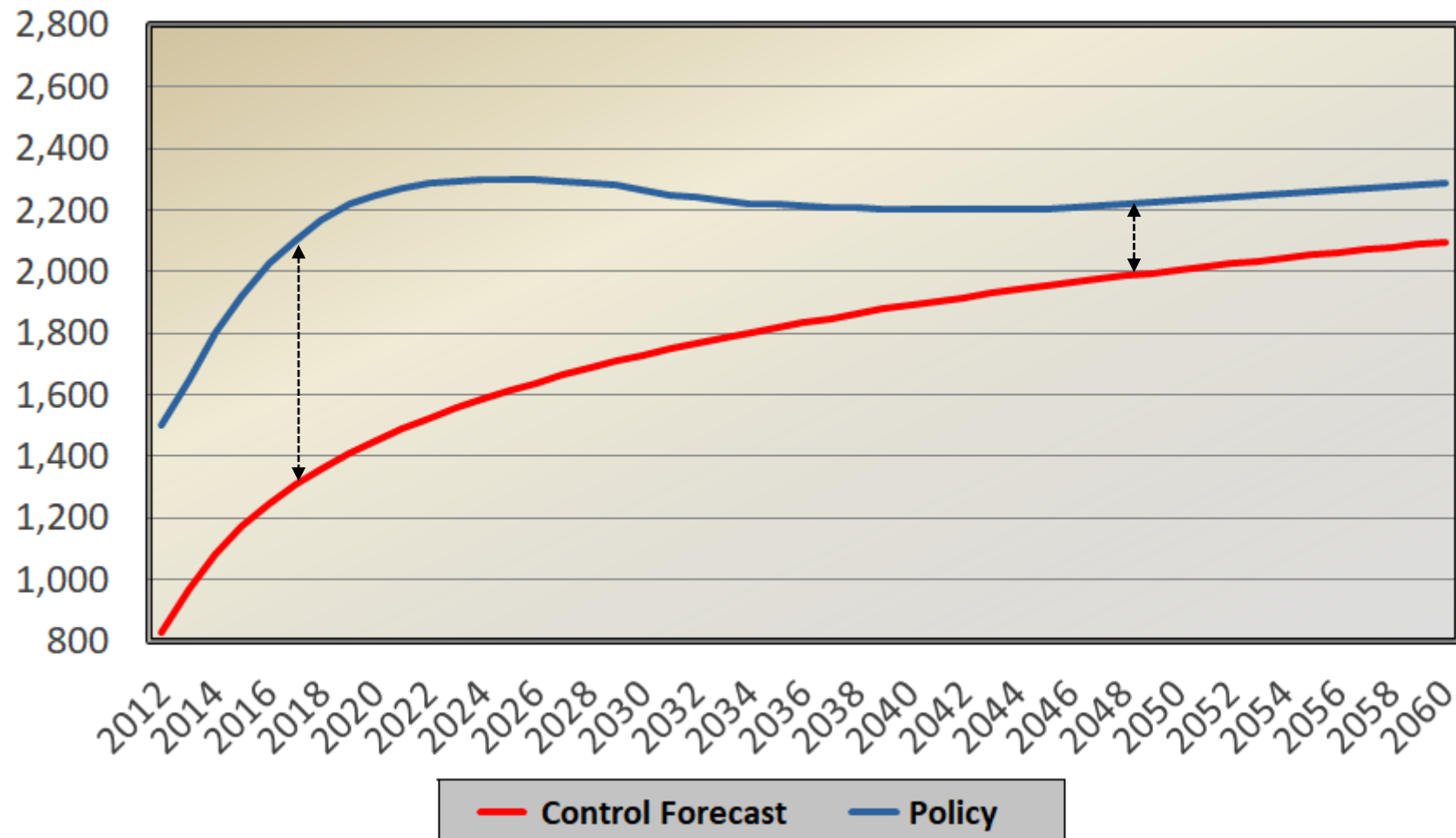
**PI+ is uniquely customizable to your region's economy:**

**6,000+ policy variables**

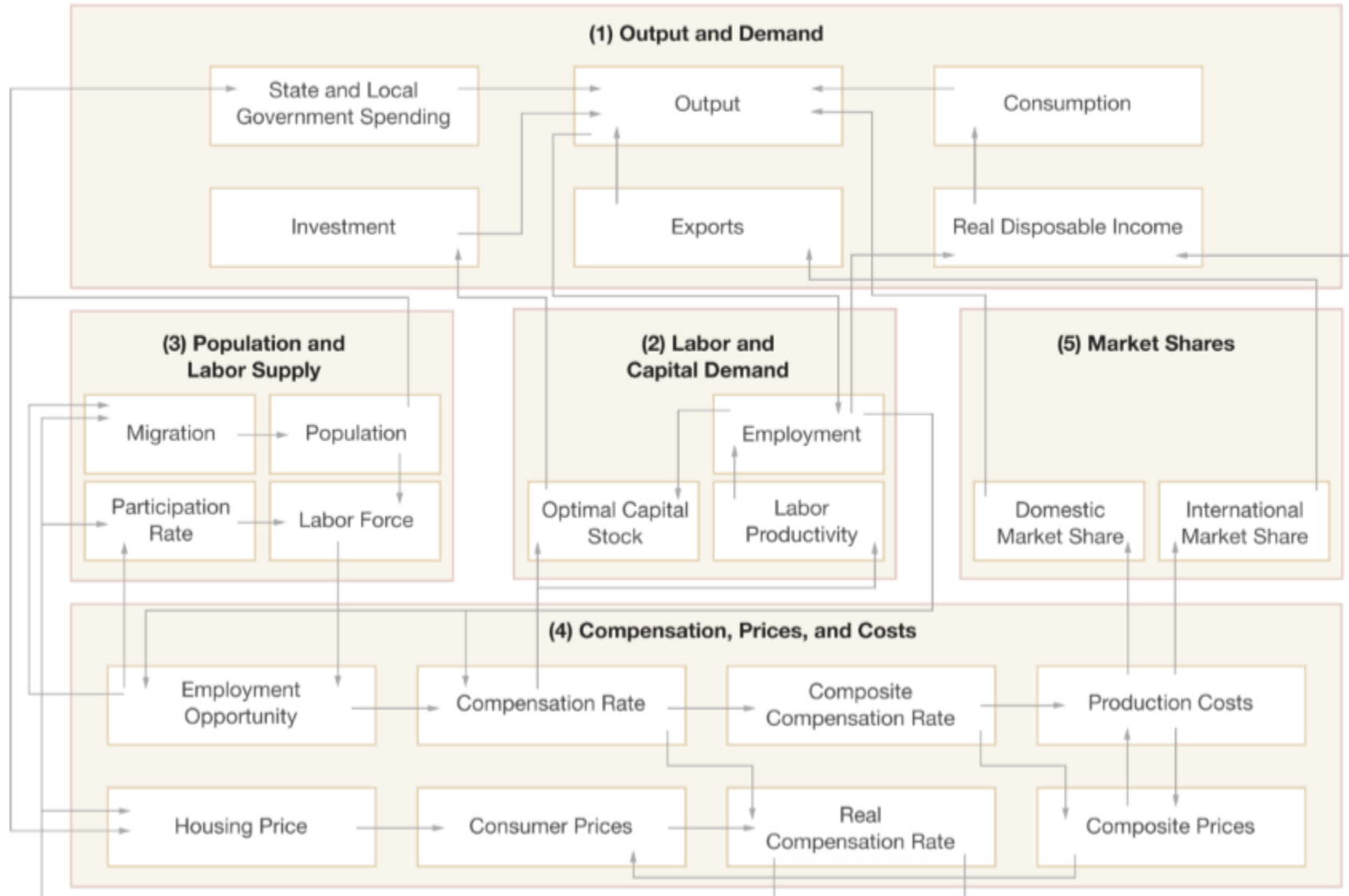
**Detailed industrial sector data**

**Accommodates region's economic and demographic projections**

# Dynamic



what does **REMI** say? <sup>sm</sup>



# History of Trade Relations Between Saudi Arabia and the US



- Saudi Arabia was founded in 1932 from what was the Arabian Peninsula of the Ottoman Era
- In 1936, Standard Oil and the Texas Oil Company (now Texaco) formed a partnership in Saudi Arabia, leading to the discovery of oil in Saudi Arabia in 1938.
- Saudi Arabia was originally an agricultural-based country. After oil was discovered, the economy was able to grow significantly.
- Saudi Arabia is now the largest producer and exporter of oil, at 10.7 million barrels of oil per day, 7.43 million of which are exported

# History of Trade Relations Between Saudi Arabia and the US



- In 1945, US President Franklin D. Roosevelt met with King Abdulaziz after realizing the 1938 oil discovery's strategic nature, solidifying the relationship between the US and Saudi Arabia
- In 1960, Saudi Arabia had a founding role in the Organization of the Petroleum Exporting Countries (OPEC), where it helps agree on production levels to stabilize global oil prices

# History of Trade Relations Between Saudi Arabia and the US



- Full diplomatic relations between Saudi Arabia and the US began in 1933. Trade between the two countries also started in the early 20<sup>th</sup> century.
- The US has demanded oil from Saudi Arabia dating back to World War II
- The US acts as a vital source of weapons for Saudi, and as a result Saudi Arabia views the Saudi-US relationship as vital to national security
- Although the US and Saudi Arabia do not agree on everything politically, both of their trade demands from each other help ensure a strong relationship

# History of Trade Relations Between Saudi Arabia and the US



- Saudi Arabia has made efforts to diversify its economy to expand. In 2005, Saudi Arabia joined the World Trade Organization (WTO).
- In 2003, the United States signed a Trade and Investment Framework Agreement (TIFA) with Saudi Arabia, an agreement that establishes dialogue between the US and other countries on expanding trade as well as expanding legal protections and intellectual property rights for investors

# History of Trade Relations Between Saudi Arabia and the US



- The private sector is growing in Saudi Arabia, now accounting for 48% of the GDP
- In 2016, US exports to Saudi Arabia were \$15.7 billion; imports were \$15.9 billion
- Saudi Arabia was our 19th largest trading partner in 2016, having \$35.2 billion total in trade for the year with the US

# History of Trade Relations Between Saudi Arabia and the US



- US exports to Saudi Arabia increased significantly from 2010 to 2016, going from \$11.9 billion to \$15.7 billion
- US imports from Saudi Arabia went from \$28.6 billion in 2010 to \$15.9 billion in 2016
- Trade of US goods and services with Saudi Arabia supported approximately 165,000 jobs in 2017
- US foreign direct investment in Saudi Arabia (stock) was \$11.1 billion in 2017

# History of Trade Relations Between Saudi Arabia and the US



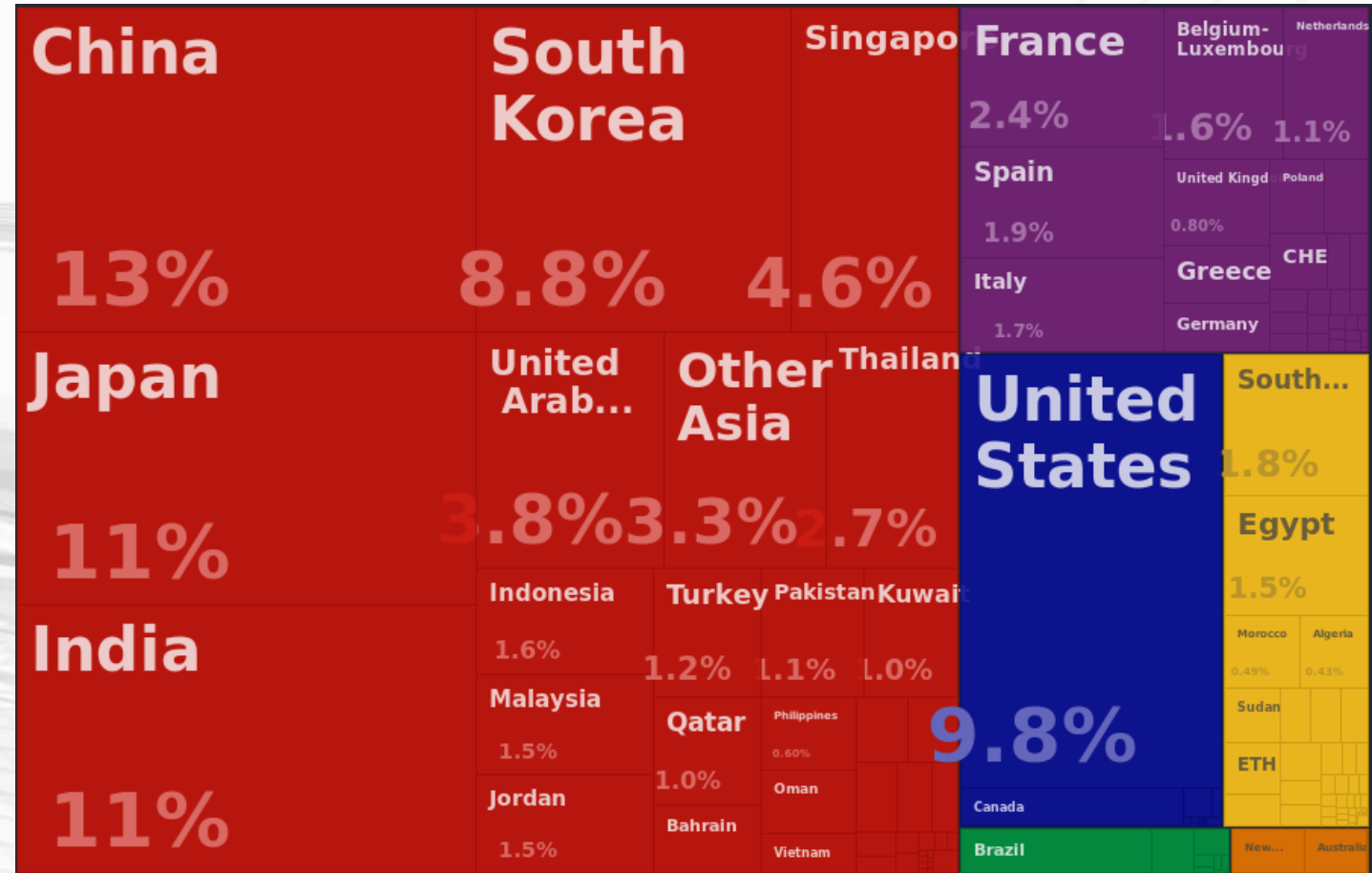
- Saudi Arabia launched its Vision 2030 program in 2016, aiming to diversify its economy and increase its trade with the United States
- The United States is Saudi Arabia's largest trading partner and Saudi Arabia is one of the United States' largest trading partner in the Middle East
- The United States and Saudi Arabia signed a Trade Investment Framework Agreement in order to boost trade and investment together

# Countries that Saudi Arabia Exports to:



## Top Destinations for Saudi Arabia Exports

1. China
2. India
3. Japan
4. **United States**
5. South Korea
6. Singapore
7. United Arab Emirates

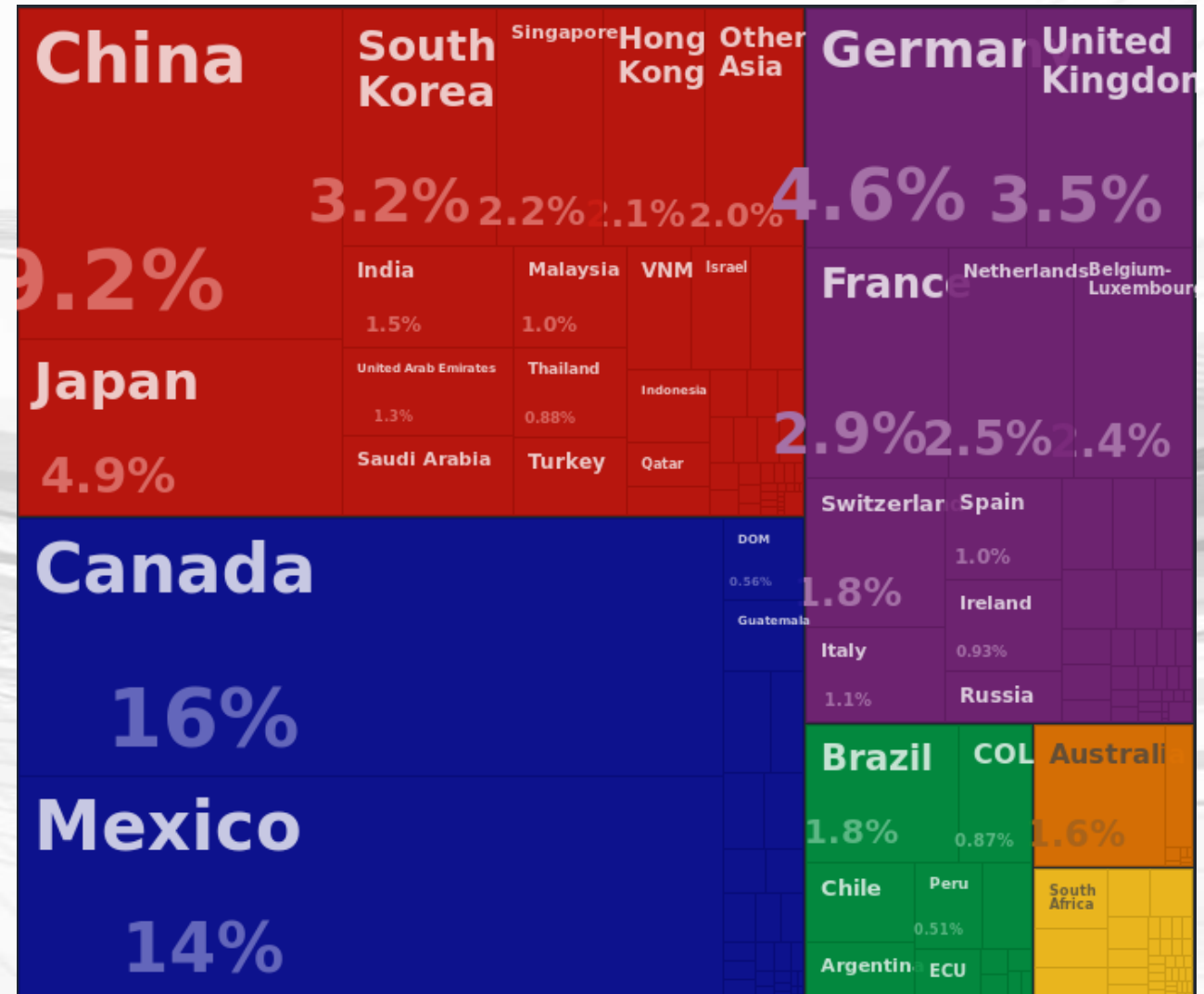


# Countries that the United States Exports to



## Top Destinations for United States Exports

1. Canada
2. Mexico
3. China
4. Japan
5. Germany
6. United Kingdom
7. South Korea
8. France
9. Netherlands
10. Belgium
- ...
19. **Saudi Arabia**



what does REMI say? <sup>sm</sup>

# Top 10 Exports from the US to Saudi Arabia



Ranking	Commodity	Value of Exports from the US to Saudi Arabia	Percent of Total Imports
1	Vehicles; with only spark-ignition in	\$2,146,922,492.30	14.0%
2	Aircraft and spacecraft; parts of aer	\$1,426,345,934.20	9.1%
3	Vehicles; with only spark-ignition in	\$626,940,976.84	4.0%
4	Ammunition; n.e.c. in chapter 93	\$490,619,541.00	3.1%
5	Turbines; parts of gas turbines (excl	\$365,909,076.93	2.3%
6	Tanks and other armoured fighting	\$306,955,410.00	2.0%
7	Cereals; maize (corn), other than se	\$257,896,551.98	1.6%
8	Medicaments; consisting of mixed c	\$230,218,420.21	1.5%
9	Aeroplanes and other aircraft; of an	\$188,212,740.00	1.2%
10	Boring or sinking machinery; parts c	\$162,701,946.57	1.0%

Total Exports from  
the US to Saudi  
Arabia: \$15.7  
Billion

# Top 10 Imports to the US from Saudi Arabia



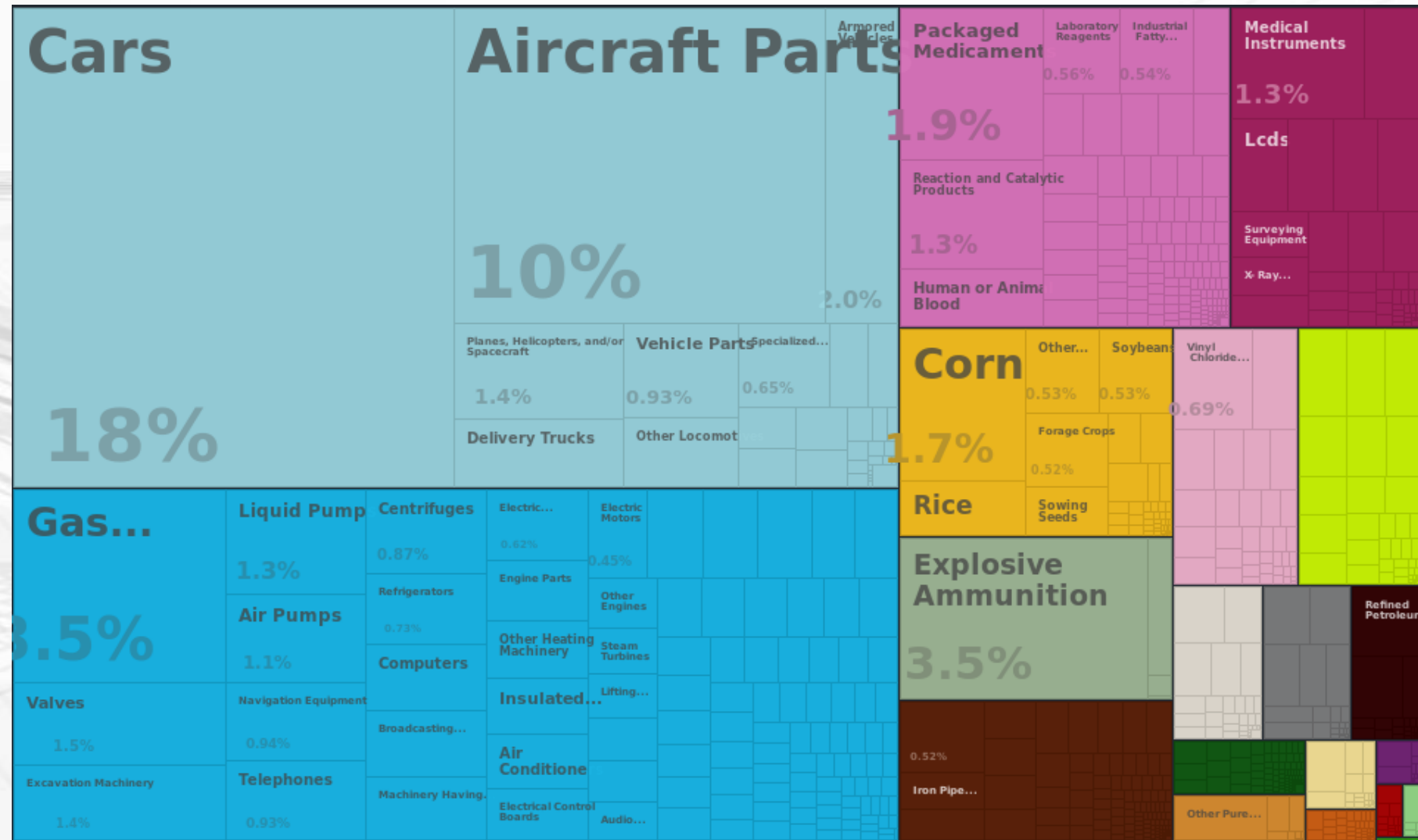
Ranking	Commodity	Value of Imports to the US from Saudi Arabia	Percent of Total Imports
1	Oils; petroleum oils and oils of	\$14,688,372,281	92.0%
2	Fertilizers, mineral or chemical	\$151,642,653	1.0%
3	Petroleum oils and oils from bi	\$105,904,229	0.7%
4	Acyclic alcohols and their halog	\$95,657,735	0.6%
5	Aluminium; unwrought, alloys	\$96,116,077	0.6%
6	Ether-alcohols and their haloge	\$53,940,601	0.3%
7	Propylene, other olefin polym	\$50,454,281	0.3%
8	Oils and products of the distilla	\$35,484,070	0.2%
9	Waste and scrap of precious m	\$34,651,501	0.2%
10	Diamonds; non-industrial, (oth	\$30,016,323	0.2%

Total Imports to the US from Saudi Arabia: \$15.9 Billion

# US Exports to Saudi Arabia



Total Exports:  
\$15.7 Billion



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# All US Imports from Saudi Arabia Stopping



- Scenario: the economic impact of Saudi Arabia no longer buying US goods and services, modeled in the 70-Sector Census Regions PI+ model
- The top 30 imports from Saudi Arabia to the US were input into the model as a decrease in output

Regional Simulation 1

Save Forecast Import Export Tools

Select Inputs Inputs List Forecast Options Results

**Policy Variable Inputs**

Active	Edit	Group						
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		Decrease in output for top 30 exports from the US to Saudi Arabia					
Active	View	Category	Detail	Region	Units	2017	2018	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Output	Industry (Exogenous Production): Motor vehicles, bodies and	Regions (9)	2016 Fixed National \$ (B)	-2.1469224	-2.1469224	-
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Output	Industry (Exogenous Production): Other transportation equip	Regions (9)	2016 Fixed National \$ (B)	-1.4263459	-1.4263459	-
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Output	Industry (Exogenous Production): Motor vehicles, bodies and	Regions (9)	2016 Fixed National \$ (B)	-0.6269409	-0.6269409	-
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Output	Industry (Exogenous Production): Fabricated metal product m	Regions (9)	2016 Fixed National \$ (B)	-0.4906195	-0.4906195	-
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Output	Industry (Exogenous Production): Machinery manufacturing	Regions (9)	2016 Fixed National \$ (B)	-0.3659090	-0.3659090	-
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Output	Industry (Exogenous Production): Other transportation equip	Regions (9)	2016 Fixed National \$ (B)	-0.3069554	-0.3069554	-
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Output	Industry (Exogenous Production): Food manufacturing	Regions (9)	2016 Fixed National \$ (B)	-0.2578965	-0.2578965	-
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Output	Industry (Exogenous Production): Wholesale trade	Regions (9)	2016 Fixed National \$ (B)	-0.2302184	-0.2302184	-
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Output	Industry (Exogenous Production): Other transportation equip	Regions (9)	2016 Fixed National \$ (B)	-0.1882127	-0.1882127	-
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Output	Industry (Exogenous Production): Construction	Regions (9)	2016 Fixed National \$ (B)	-0.1627019	-0.1627019	-
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Output	Industry (Exogenous Production): Computer and electronic pr	Regions (9)	2016 Fixed National \$ (B)	-0.1442762	-0.1442762	-
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Output	Industry (Exogenous Production): Other transportation equip	Regions (9)	2016 Fixed National \$ (B)	-0.1394892	-0.1394892	-

30 policy variables active. Not Saved N:\SHARED\Jeff\~Projects\China, Saudi Arabia Trade Data U.S. Census Regions (UCR) - 9 Region National 70 Sector Model

what does REMI say? <sup>sm</sup>

# Results: US Imports from Saudi Arabia

## Stopping



Category	Units	2010	2015	2020	2025	2030	2035	2040	2045	2050
Total Employment	Thousands (Jobs)	-17.683	-2.965	-1.523	-1.811	-2.265	-2.595	-2.818	-3.018	-3.15
Residence Adjusted Emp	Thousands	-17.688	-2.964	-1.522	-1.81	-2.265	-2.595	-2.817	-3.018	-3.15
Population	Thousands	0	-0.001	-0.003	-0.006	-0.011	-0.017	-0.025	-0.037	-0.052
Labor Force	Thousands	-2.152	-2.161	-0.427	-0.191	-0.269	-0.211	-0.289	-0.255	-0.374
Gross Domestic Product	Billions of Fixed (2	-13.916	-11.228	-10.856	-10.844	-10.86	-10.851	-10.826	-10.805	-10.783
Output	Billions of Fixed (2	-15.81	-11.441	-10.837	-10.811	-10.838	-10.834	-10.809	-10.793	-10.776
Value-Added	Billions of Fixed (2	-13.916	-11.228	-10.856	-10.844	-10.86	-10.851	-10.826	-10.805	-10.783
Personal Income	Billions of Current	-1.28	-1.156	-1.123	-1.271	-1.539	-1.851	-2.204	-2.641	-3.14
Disposable Personal Incc	Billions of Current	-1.28	-1.156	-1.123	-1.271	-1.539	-1.851	-2.204	-2.641	-3.14
PCE-Price Index	2009=100 (Nation)	-0.02	-0.117	-0.102	-0.098	-0.101	-0.105	-0.108	-0.112	-0.116

# US Imports from Saudi Arabia



Total Exports:  
\$15.9 Billion

## Crude Petroleum

92%

Nitrogenous  
Fertilizers

0.95%

Raw...

0.62%

what does **REMI** say? <sup>sm</sup>

# Saudi Arabia Imports from the US Stopping



- ❑ Scenario: the economic impact of the US no longer buying Saudi goods and services, modeled in the Saudi Arabia PI+ model
- ❑ The top 20 imports from the US to Saudi Arabia were input into the model as a decrease in output

Decrease in output from decrease in exports from Saudi Arabia to the US

Save Forecast Import Export Tools

Select Inputs Inputs List Forecast Options Results

**Policy Variable Inputs**

Active	Edit	Group	Act	View	Category	Detail	Region	Units	2010	2011	2012	2013	2014
<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		Decrease in output for top 20 exports from Saudi Arabia to the US								
<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		Output	Industry (Exogenous Production): Petroleum and minerals	Regions (13)	2016 National SAR (B)	-14.628	-14.628	-14.628	-14.628	-14.628
<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		Output	Industry (Exogenous Production): Petroleum and minerals	Regions (13)	2016 National SAR (B)	-0.1511	-0.1511	-0.1511	-0.1511	-0.1511
<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		Output	Industry (Exogenous Production): Petroleum and minerals	Regions (13)	2016 National SAR (B)	-0.1049	-0.1049	-0.1049	-0.1049	-0.1049
<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		Output	Industry (Exogenous Production): Petroleum and minerals	Regions (13)	2016 National SAR (B)	-0.0954	-0.0954	-0.0954	-0.0954	-0.0954
<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		Output	Industry (Exogenous Production): Manufacturing	Regions (13)	2016 National SAR (B)	-0.0954	-0.0954	-0.0954	-0.0954	-0.0954
<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		Output	Industry (Exogenous Production): Manufacturing	Regions (13)	2016 National SAR (B)	-0.0541	-0.0541	-0.0541	-0.0541	-0.0541
<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		Output	Industry (Exogenous Production): Petroleum and minerals	Regions (13)	2016 National SAR (B)	-0.0509	-0.0509	-0.0509	-0.0509	-0.0509
<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		Output	Industry (Exogenous Production): Petroleum and minerals	Regions (13)	2016 National SAR (B)	-0.035	-0.035	-0.035	-0.035	-0.035
<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		Output	Industry (Exogenous Production): Manufacturing	Regions (13)	2016 National SAR (B)	-0.035	-0.035	-0.035	-0.035	-0.035
<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		Output	Industry (Exogenous Production): Manufacturing	Regions (13)	2016 National SAR (B)	-0.0302	-0.0302	-0.0302	-0.0302	-0.0302
<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		Output	Industry (Exogenous Production): Manufacturing	Regions (13)	2016 National SAR (B)	-0.027	-0.027	-0.027	-0.027	-0.027
<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		Output	Industry (Exogenous Production): Petroleum and minerals	Regions (13)	2016 National SAR (B)	-0.0254	-0.0254	-0.0254	-0.0254	-0.0254
<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		Output	Industry (Exogenous Production): Manufacturing	Regions (13)	2016 National SAR (B)	-0.0254	-0.0254	-0.0254	-0.0254	-0.0254
<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		Output	Industry (Exogenous Production): Manufacturing	Regions (13)	2016 National SAR (B)	-0.0239	-0.0239	-0.0239	-0.0239	-0.0239
<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		Output	Industry (Exogenous Production): Electricity, gas and water s	Regions (13)	2016 National SAR (B)	-0.0223	-0.0223	-0.0223	-0.0223	-0.0223
<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		Output	Industry (Exogenous Production): Manufacturing	Regions (13)	2016 National SAR (B)	-0.0191	-0.0191	-0.0191	-0.0191	-0.0191
<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		Output	Industry (Exogenous Production): Petroleum and minerals	Regions (13)	2016 National SAR (B)	-0.0175	-0.0175	-0.0175	-0.0175	-0.0175
<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		Output	Industry (Exogenous Production): Manufacturing	Regions (13)	2016 National SAR (B)	-0.0175	-0.0175	-0.0175	-0.0175	-0.0175
<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		Output	Industry (Exogenous Production): Petroleum and minerals	Regions (13)	2016 National SAR (B)	-0.0159	-0.0159	-0.0159	-0.0159	-0.0159
<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		Output	Industry (Exogenous Production): Manufacturing	Regions (13)	2016 National SAR (B)	-0.0159	-0.0159	-0.0159	-0.0159	-0.0159

20 policy variables active. | Unsaved Changes | N:\SHARED\Jeff\~Projects\China, Saudi Arabia Trade Data\SAwin09. | Saudi Arabia Provinces (SA) - 13 Region National 15 Sector Model

what does REMI say? <sup>sm</sup>

# Results: Saudi Arabia Imports from US Stopping



Category	Units	2017	2020	2025	2030	2035	2040	2045	2050	2055	2060
Total Employment	Thousands (Jobs)	-115.323	-86.715	-58.558	-51.733	-48.27	-45.112	-42.483	-40.172	-37.648	-35.325
Private Non-Farm Empl	Thousands (Jobs)	-111.866	-81.605	-54.807	-48.585	-45.415	-42.523	-40.122	-38.014	-35.699	-33.545
Residence Adjusted Em	Thousands	-114.327	-85.691	-57.966	-51.241	-47.803	-44.674	-42.069	-39.777	-37.276	-34.971
Population	Thousands	-0.002	-0.029	-0.099	-0.13	-0.108	-0.109	-0.136	-0.158	-0.163	-0.157
Labor Force	Thousands	-16.679	-28.834	-25.367	-19.669	-17.938	-16.821	-15.484	-14.412	-13.087	-12.207
Gross Domestic Product	Billions of Fixed (2009)	-11.597	-9.269	-7.066	-6.776	-6.706	-6.61	-6.558	-6.524	-6.538	-6.55
Output	Billions of Fixed (2009)	-23.158	-19.22	-15.358	-14.757	-14.694	-14.7	-14.789	-14.921	-15.152	-15.396
Value-Added	Billions of Fixed (2009)	-11.597	-9.269	-7.066	-6.776	-6.706	-6.61	-6.558	-6.524	-6.538	-6.55
Personal Income	Billions of Current Dolla	-7.054	-6.857	-6.238	-6.79	-7.486	-8.183	-9.024	-10.002	-11.263	-12.668
Disposable Personal Inc	Billions of Current Dolla	-5.96	-5.789	-5.227	-5.556	-6.108	-6.657	-7.326	-8.109	-9.135	-10.285
PCE-Price Index	2009=100 (Nation)	-0.005	-0.02	-0.019	-0.019	-0.019	-0.019	-0.019	-0.019	-0.02	-0.02

# US Exports to Saudi Arabia



Commodity	Value (USD)
All Commodities	\$1,105,805,089
93 Arms And Ammunition; P	\$219,192,299
84 Nuclear Reactors, Boil...	\$147,951,778
87 Vehicles, Except Railw...	\$134,263,954
88 Aircraft, Spacecraft, ...	\$115,955,033
85 Electric Machinery Etc...	\$86,467,470
90 Optic, Photo Etc, Medi...	\$65,545,252
12 Oil Seeds Etc.; Misc G...	\$36,457,007
98 Special Classification...	\$32,368,550
38 Miscellaneous Chemical..	\$29,213,214

# US Imports from Saudi Arabia

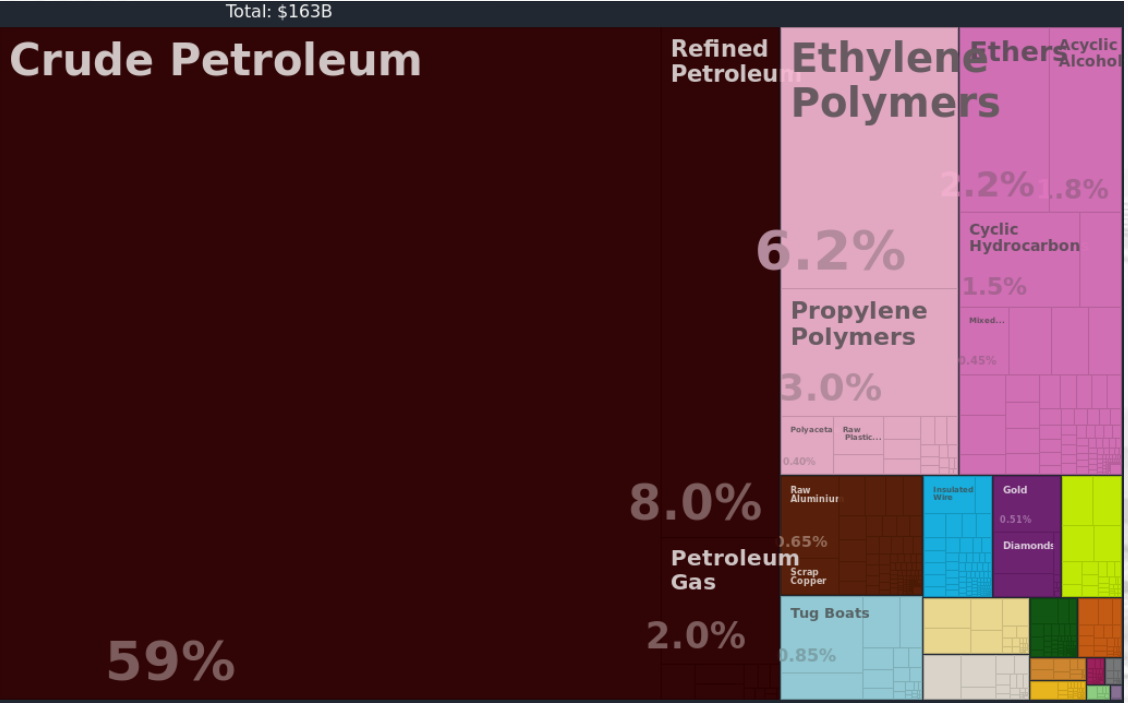


Commodity	USD
All Commodities	\$2,580,039,727
27 Mineral Fuel, Oil Etc....	\$2,446,327,810
29 Organic Chemicals	\$39,621,030
98 Special Classification...	\$22,410,600
76 Aluminum And Articles ...	\$20,545,480
31 Fertilizers	\$18,027,632
39 Plastics And Articles ...	\$7,684,751
72 Iron And Steel	\$5,716,917
73 Articles Of Iron Or St...	\$5,521,407
54 Manmade Filaments, Inc..	\$3,090,665

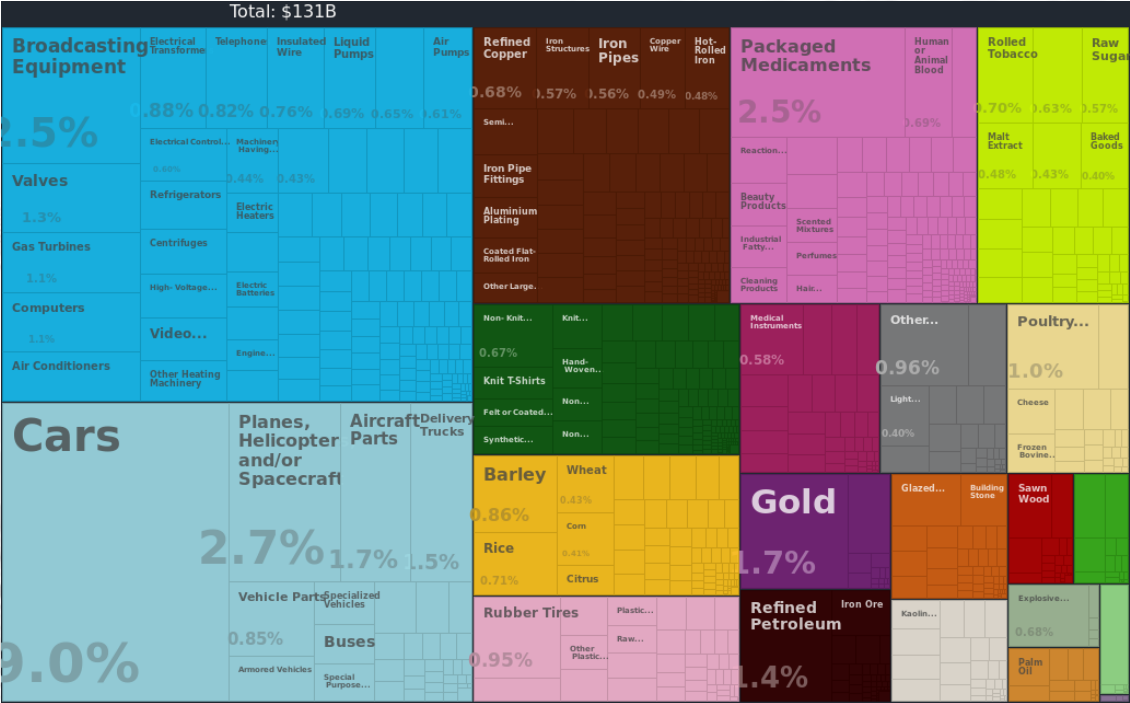


**what does REMI say?** <sup>sm</sup>

# What does Saudi Arabia export and import?



Exports



Imports

what does REMI say? <sup>sm</sup>