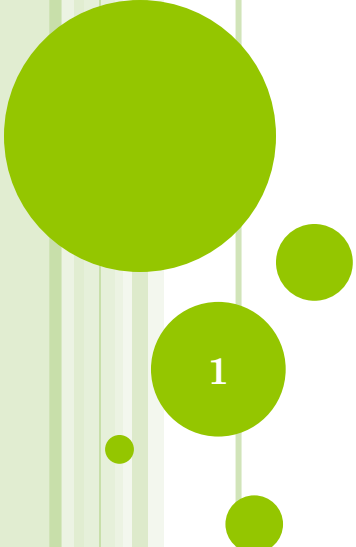




PAKISTANI-AMERICANS IN SILICON VALLEY

Enabling The Second Machine Revolution

By Riaz Haq

Presented at Pakistan Club University of Chicago

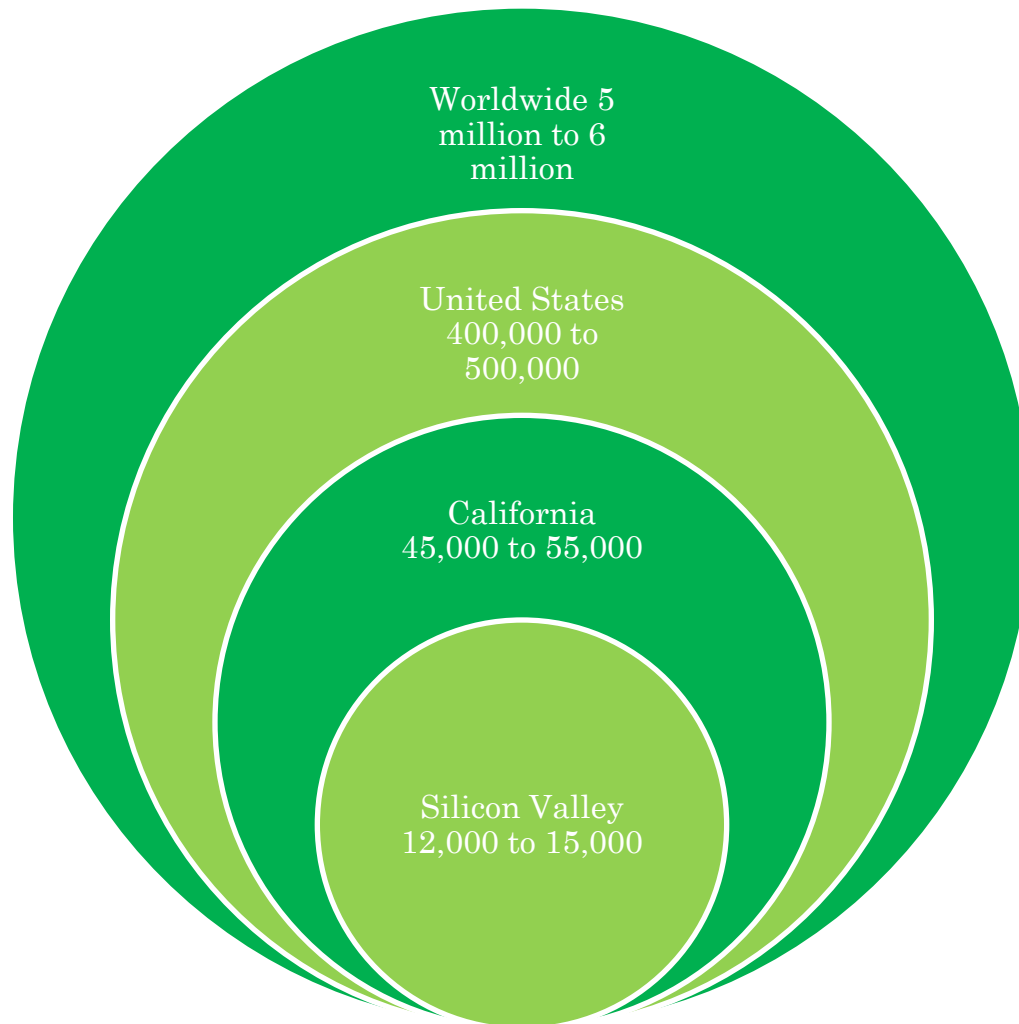
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PAKISTANI DIASPORA

WORLD'S 7TH LARGEST



PAKISTANIS IN AMERICA

- Pakistani-Americans second fastest growing among Asian-Americans—Population doubled from 205,000 in 2000 to 409,163 in 2010
- Median household income \$63,000 (vs \$53,000 national median).
- 55% hold at least a bachelor's degree (vs 28% national average).
- Most common occupations: Doctors, engineers, accountants, salespeople, administrators/managers, financial analysts

Source: US Census 2010

PAKISTANIS IN SILICON VALLEY

- Thousands of Pakistani engineers working at top high-tech companies like Apple, Google, Cisco, Intel, Oracle, etc.
- Growing ecosystem of Pakistani-American entrepreneurs, advisors, mentors, venture capitalists, investment bankers, accountants and lawyers in Silicon Valley.
- Dozens of Pakistani-American founded start-ups funded by top venture capital firms
- Many Pakistani-American start-ups have been acquired or gone public.
- Pakistanis considered a “model minority” in Silicon Valley
- Organization of Pakistani-American Entrepreneurs (OPEN) very active in promoting Pakistani entrepreneurs in Silicon Valley

MEDIA QUOTES

- Forbes: “Put flags in a world map and you will see Sequoia (Capital) connecting with entrepreneurs born in Ukraine, Ireland, Finland, Greece, India, Pakistan, Venezuela and a dozen other countries” [Forbes April 14, 2014](#)
- “They (tech writers) typecast Chinese, Indians, Pakistanis (in Silicon Valley) as model minorities” [Turnstyle News Mar 22, 2012](#)

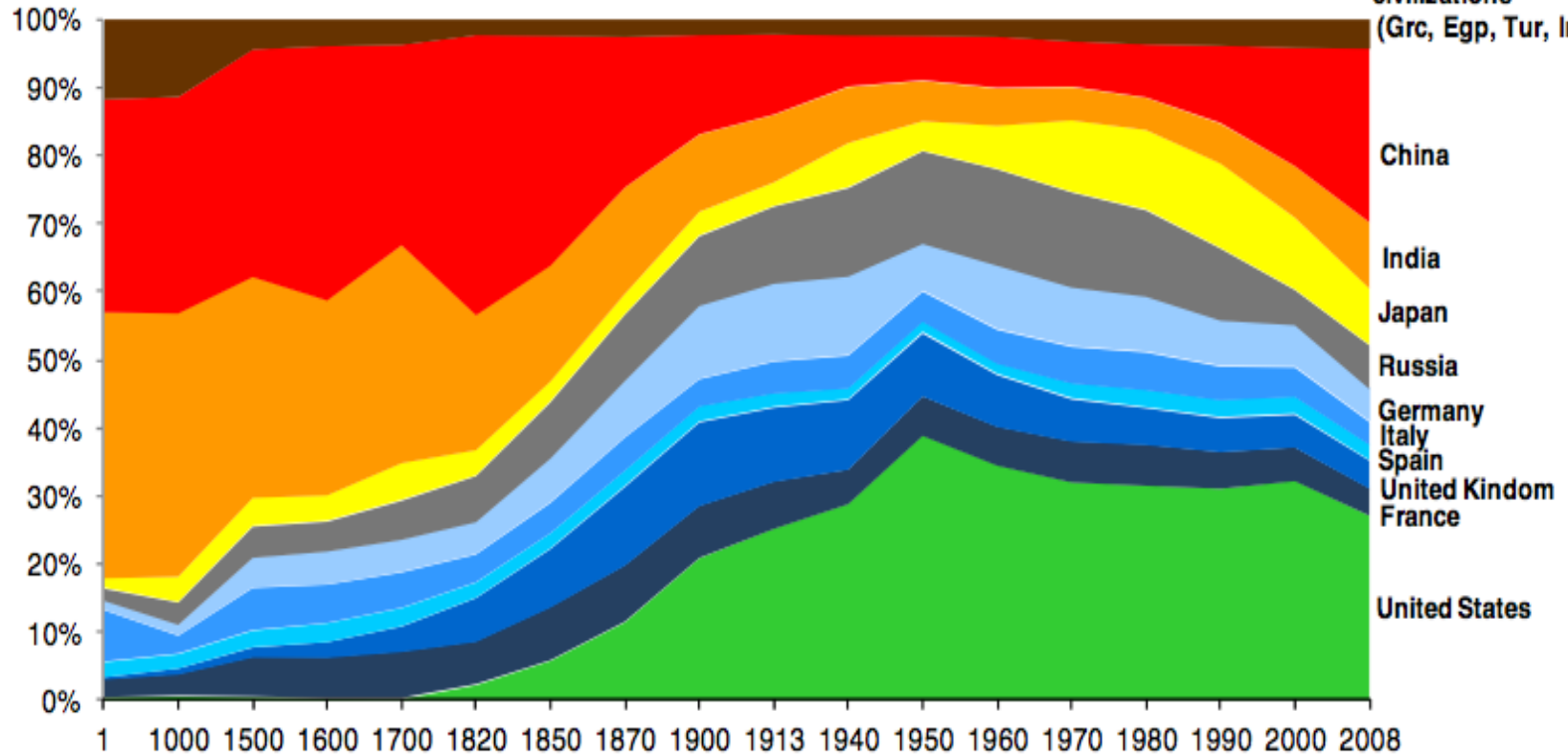
MACHINE REVOLUTIONS

- First Machine Revolution was the Industrial Revolution of the 18th Century.
 - Invention of Steam Engine, Steam Ships in Europe
 - Electricity in America
 - Major Power Shift from East to West
 - West's Industrialization
 - East's Colonization
- Second Industrial Revolution, aka 2nd Machine Revolution, is unfolding now.
 - Semiconductors, Computers, Smartphones, Communications, Software, Artificial Intelligence
 - Will have similarly huge impact as 1st machine revolution
 - Pakistanis in Silicon Valley are enabling it

FIRST MACHINE REVOLUTION

Economic history of China and other major powers

Share of world GDP



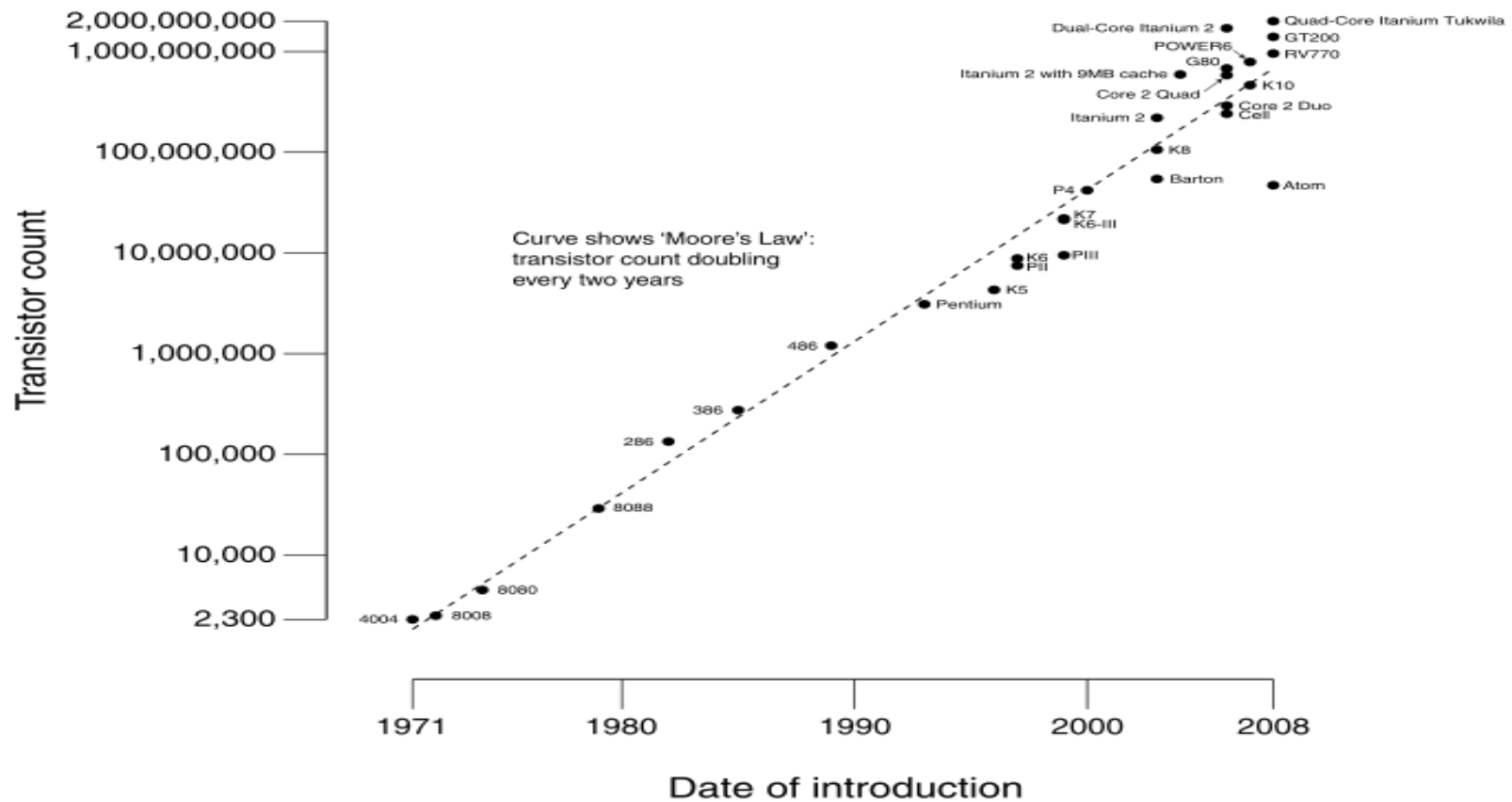
Source: "Statistics on World Population, GDP and Per Capita GDP, 1-2008 AD", Angus Maddison, University of Groningen.

5/3/2014

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2ND MACHINE REVOLUTION

CPU Transistor Counts 1971-2008 & Moore's Law



EXAMPLES OF PAKISTANI CONTRIBUTION

- PC Revolution-Moore's Law
 - [Intel 8086, 8088, 80386 \(Riaz Haq\)](#)
 - PC Chipsets (Sikandar Naqvi, Idris Kothari, Saeed Kazmi)
 - SoC (Naveed Sherwani, Muhammad Irfan)
 - PCs (Safi Qureishy)
- Internet Era
 - Ethernet standard (Sikandar Naqvi)
 - Cisco Routers, Switches (Khali Raza, Owais Nemat, Raghieb Husain)
 - 4G-LTE Core (Rehan Jalil)
- Artificial Intelligence
 - [Canesta 3D Vision \(Nazim Kareemi\)](#)
- Cloud Computing Revolution
 - [Fireeye \(Ashar Aziz\)](#)
 - vIPTELA (Amir Khan, Khalid Raza)
 - [Elastica \(Rehan Jalil\)](#)
- Big Data
 - Oracle (Sohaib Abbasi, Hasan Rizvi)
 - Obama Campaign (Rayid Ghani)

Note: Riaz Haq, Raghieb Husain, Owais Nemat, Naveed Sherwani, Idris Kothari, Saeed Kazmi, Rehan Jalil and Khalid Raza are all NED Engineering University alumni.

INTEL 80386 DESIGN TEAM



3D VISION KAREEMI'S CANESTA CHIP IN XBOX



net



IMPACT OF 2ND MACHINE REVOLUTION

- Much higher productivity...Service jobs use robots.
- Jobs...Lots of robots, few human operators
- Economy...Post-industrial with lots of consumers AND lots of producers.
- Society....Greater inequality
- Power....West's dominance for at least another century

FUTURE POSSIBILITIES

- Peer-to-peer economy
 - Airbnb.com, Getaround, Etsy, Lyft, TaskRabbit
- Shorter work-week
 - 35-hour work-week in France
- Basic income guaranteed for all
 - First proposed by Richard Nixon in 1969 as “Family Assistance Plan”.
 - “Work saves a man from three great evils: boredom, vice and the need” Voltaire.
 - Basic income only takes care of “the need”, not “boredom, vice”.

BRAND PAKISTAN

- Promote positive associations with “Pakistan”
 - Karachi slum girl at Harvard Business School
 - 12-year-old Pakistani girl taking advanced MOOCs
 - Urban middle class growth in Pakistan
 - Pakistan is third most popular country for online outsourcing
 - Rising disposable income and consumption in Pakistan
 - Pakistan on Goldman Sachs BRIC+N11 Growth Map
- Fight negative stereotypes
 - Review and respond to books like “Pakistan: The Warrior State” by TV Paul
 - Do not reinforce negative stereotypes

PAKISTANI-AMERICANS ROLE IN PAKISTAN'S DEVELOPMENT

- Brand Development
 - Highlight good things happening in Pakistan
- Remittances
 - Money transfers
- Trade
 - Pakistani-American consumer demand
 - Promote Pakistani products
- Investment
 - FDI in development centers
- Human Capital Development
 - Lecture series by visiting scholars
 - Hiring and training Pakistanis

APPENDIX A

- Here are a few examples of how doubling of computer chip densities every 2 years is changing the world:
- 1. Smartphones are now as powerful as huge mainframe computers of a decades ago. Pakistani-American chip technologists at Intel (Microprocessors) and other companies (SoC chips) have contributed to it.
- Intel (Riaz Haq), NexGen, AMD and Raza Foundries (Atiq Raza), OpenSilicon (Naveed Sherwani), Muhammad Irfan (Whizz Systems).
- 2. Ability to communicate 24X7X365 is now taken for granted around the globe. Pakistani-Americans at Intel (Ethernet), Cisco (routers, switches) and other companies have driven it.
- Intel (Sikanadar Naqvi), Actel and Silicon Architects (Faysal Sohail), Cavium (Raghib Husain), Wichorus (Rehan Jalil), VPNet (Idris Kothari, Saeed Kazmi), Cisco and PLUMgrid (Owais Nemat)
- 3. 3D vision is enabling computer games (XBox Kinect) and self-driving cars.
- Pakistani-American Nazim Kareemi's Canesta's 3D chips have made these possible. Google Self-driving cars use Simultaneous Local Area Mapping (SLAM) to continuously draw changing 3D map of the surroundings to guide it through traffic by controlling acceleration, steering and braking actions. XBOX relies on 3D map to detect players' gestures for the game to respond.
- 4. Cloud Computing is supplanting WinTel era PC computing, enabling much more mobile work using small portable devices like smartphones and tablets. Many Pakistani-Americans are making it happen.
- Fireeye (Ashar Aziz), vIPTela (Amir Khan), Elastica (Rehan Jalil)

APPENDIX A1

- Moore's Law on Exponential Growth
- Personal Computer Revolution Intel (Riaz Haq), VIA Technologies (Idris Kothari, Saeed Kazmi), SandForce (Sikandar Naqvi), AST Computers (Safi Qureshi in Irvine), ACER Technologies (CTO Arif Maskatyia)
- Communications Revolution Intel (Sikanadar Naqvi), Cavium (Raghib Husain), Wichorus (Rehan Jalil), VPNet (Idris Kothari, Saeed Kazmi), Cisco and PLUMgrid (Owais Nemat)
- Cloud Computing Fireeye (Ashar Aziz), vIPTela (Amir Khan, Khalid Raza), Elastica (Rehan Jalil)
- Big Data Oracle (Sohaib Abbasi, Hasan Rizvi), Obama Campaign (Rayid Ghani)
- Artificial Intelligence Canesta (Nazim Kareemi)
- Education: Khan Academy (Bilal Musharraf, Ali Hasan Cemendtaur), Chegg (Osman Rashid)
- Consumer Apps Streetline (Zia Yusuf), Kiwi (Omar Siddiqui)
- Healthcare Invisalign (Zia Chishtie)
- Business Apps Convo (Faizan Buzdar), Infonox (Safwan Shah), Vertical Systems Inc (Saeed Kazmi, Idris Kothari)
- TV Entertainment HBO Comedy Silicon Valley (Kumail Nanjiani), Jadoo TV (Sajid Sohail)
- Venture Capital Sequoia Capita (Aaref Hilaly), CMEA Capital (Faysal Sohail, Saad Khan), Alloy Ventures (Ammar Hanafi), ePlanet Ventures (Asad Jamal),

APPENDIX B

Asian American Ethnic Groups

United States 2010, *Ranked in Order of Population*

Ethnic Group	Number
Chinese (except Taiwanese)	3,794,673
Filipino	3,416,840
Indian	3,183,063
Vietnamese	1,737,433
Korean	1,706,822
Japanese	1,304,286
Pakistani	409,163
Cambodian	276,667
Hmong	260,073
Thai	237,583

Ethnic Group	Number
Laotian	232,130
Taiwanese	230,382
Bangladeshi	147,300
Burmese	100,200
Indonesian	95,270
Nepalese	59,490
Sri Lankan	45,381
Malaysian	26,179
Bhutanese	19,439

Source: U.S. Census Bureau, 2010 Census.

APPENDIX B1

- South Asians in California

Indian.....528,176

Pakistani.....46,780

Sri Lankan.....10,240

Bangladeshi.....9,268

Nepalese.....5,618

Bhutanese.....694

Source: US Census 2010