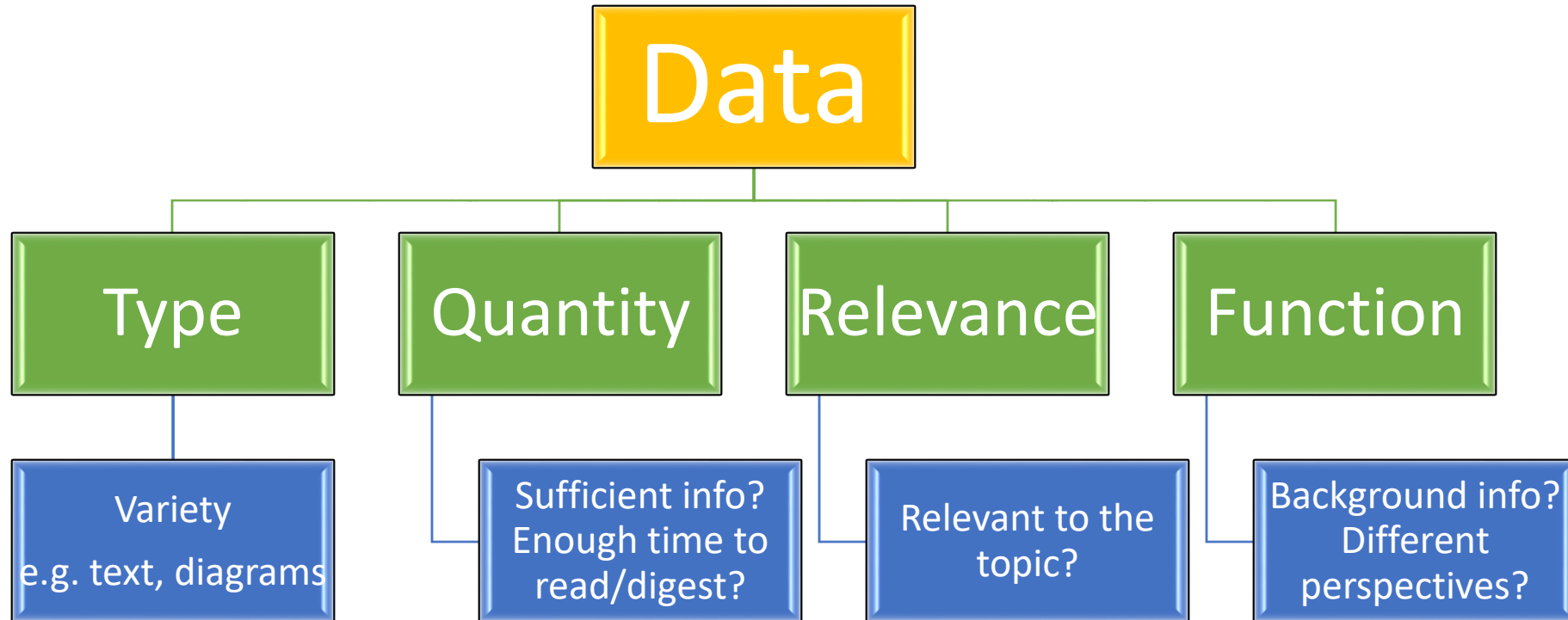


The Development of Data
Response Question in Economics:
Theory and Practice (New Course)
30 June 2021

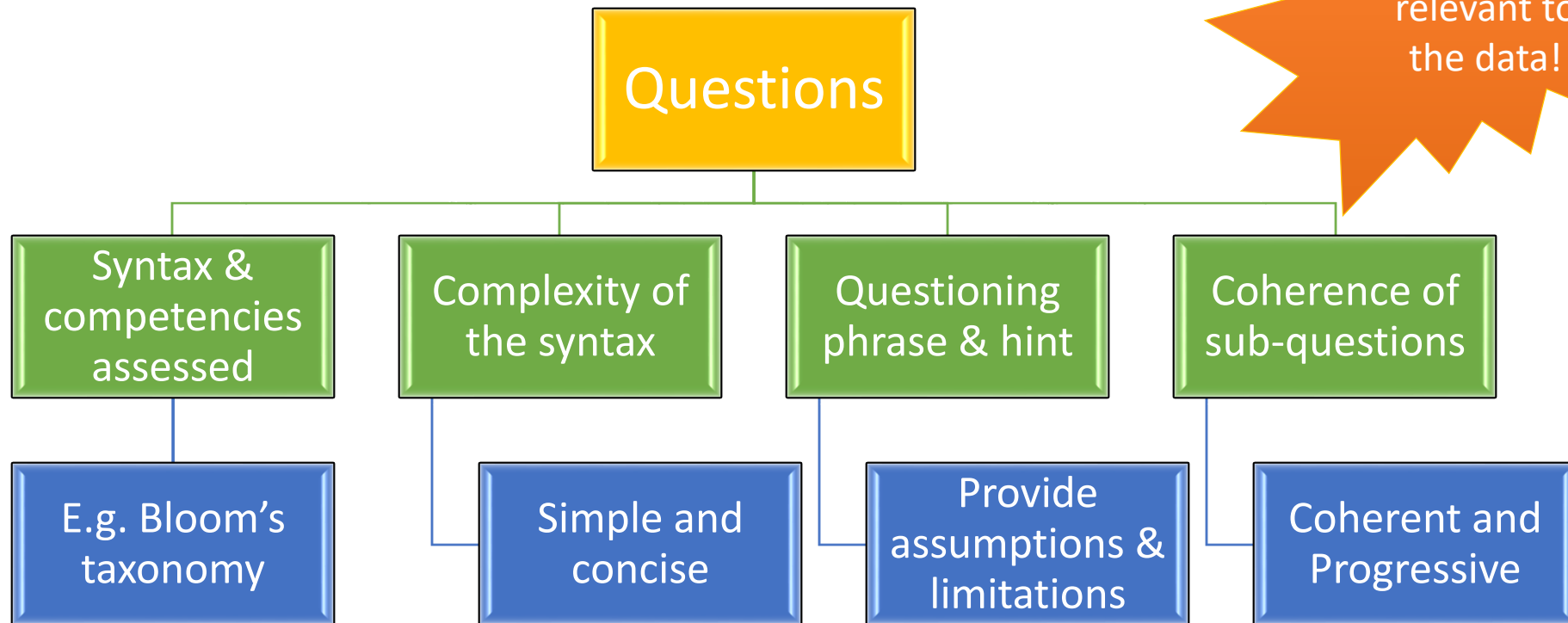
Time	Content
2:30 pm – 3:45 pm	<ul style="list-style-type: none">● Illustration of the relationship between data, theory and analysis● Workshop 1-Facts: Attention and Behavioral economics
3:45 pm – 4:00 pm	Break
4:00 pm – 5:30 pm	<ul style="list-style-type: none">● Workshop 2- Reasons: Correlation and Causation.● Workshop 3- Impacts: Consequences of the issues● Conclusion: Points to note in developing DRQ in Economics● Q&A

Points to note when designing data response questions for Economics (Recap 1)



Points to note when designing data response questions for Economics (Recap 2)

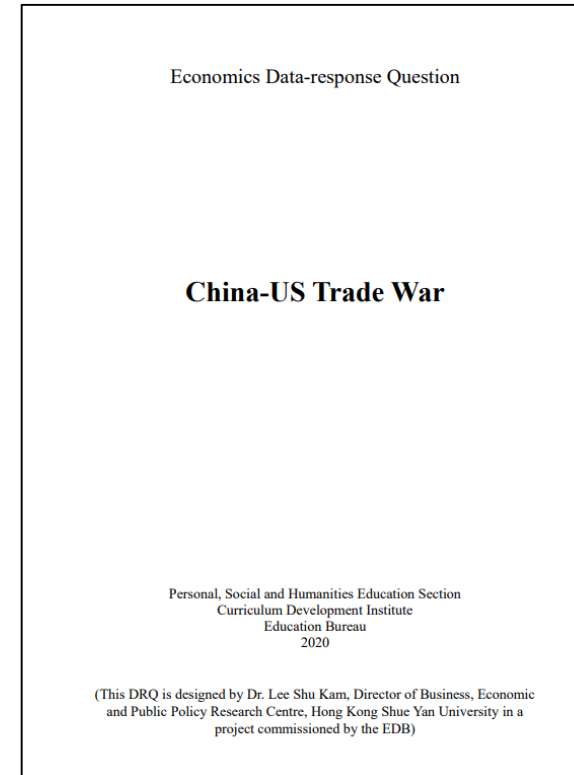
Questions should be relevant to the data!



Resources for DRQ



<https://qr.go.page.link/E9isr>



<https://qr.go.page.link/bhHsD>



Appropriate use of 'data' in teaching Economics

- Data and Information

Data and Information

- **Data** is a **collection of facts**, such as numbers, words, measurements, observations or just descriptions of things.
- Data can be **quantitative or qualitative**
 - **Quantitative data** deals with numbers and things you can **measure objectively**: dimensions such as prices, GDP and unemployment.
 - **Qualitative data** deals with characteristics and descriptors that **can't be easily measured**, but can be **observed subjectively**—such as **smells, tastes, attractiveness**.
 - **Data** is an individual unit that contains **raw materials** which do **not** carry any specific meaning. **Information** is a group of data that collectively **carries a logical meaning**. Data doesn't depend on information. **Information depends on data.**
- 17 Great Search Engines You Can Use Instead of Google
<https://www.searchenginejournal.com/alternative-search-engines/271409/#close>

Minitab (2017, April 28) Understanding Qualitative, Quantitative, Attribute, Discrete, and Continuous Data Types.

<https://blog.minitab.com/en/understanding-statistics/understanding-qualitative-quantitative-attribute-discrete-and-continuous-data-types>

BYJU'S (n.d.) Difference Between Data and Information.

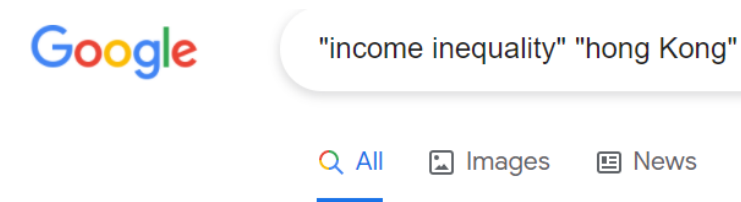
<https://byjus.com/biology/difference-between-data-and-information/>

Collecting Data and Information

- Make a list of **keywords** (From theory, textbook and curriculum), e.g.,
 - Qualitative: income inequality, poverty..
 - Quantitative: Gini coefficients, wages, **years of education attainment**, age..

➤ **Search**: search engines

- E.g. **Google**: All, Images,



- **Narrow down** your search: “income inequality ”+”Hong Kong” " income inequality in Hong Kong”
- **Is it an authoritative source?** from Gov, media, professional report, academic research paper?

<https://www.edb.gov.hk> > economics > income_eng ▾ PDF

Income Inequality

Income Inequality. Table 5 shows the cumulative percentage of income distribution in **Hong Kong** in 2011. The Lorenz curve is then constructed by plotting the ...

You've visited this page many times. Last visit: 6/4/21

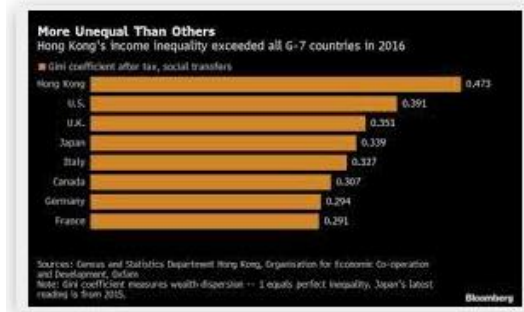
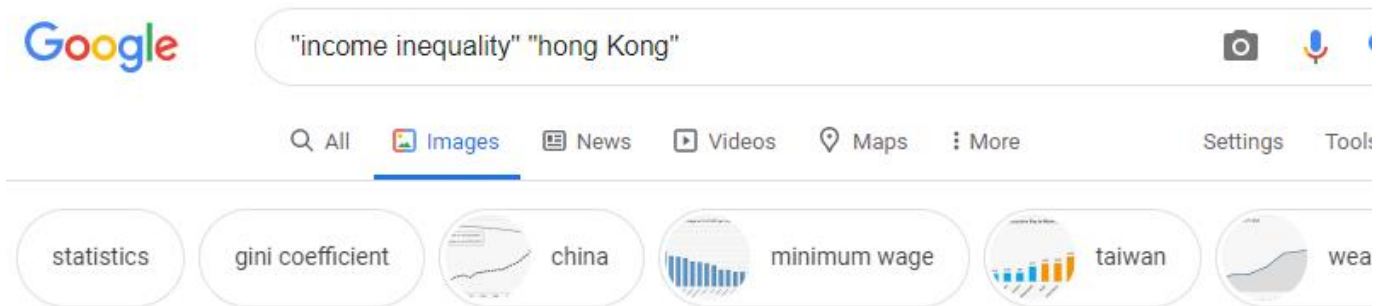
<https://www.bloomberg.com> > opinion > articles > hong... ▾

Hong Kong Needs to Tackle Its Worsening Inequality ...

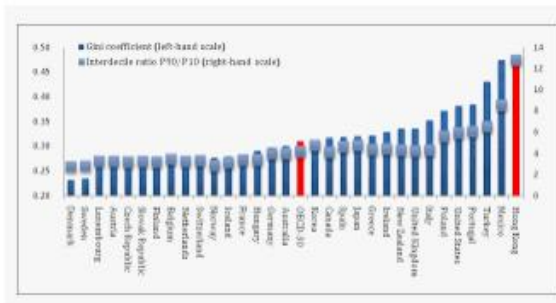
16 Nov 2020 — **Hong Kong** Must Tackle Its Worsening Wealth Gap ... Note: The Gini coefficient measures **income inequality** in a population. It varies from 0 to 1 ...

You've visited this page 4 times. Last visit: 5/1/21

➤ Google Search: Image (Diagrams /Tables)



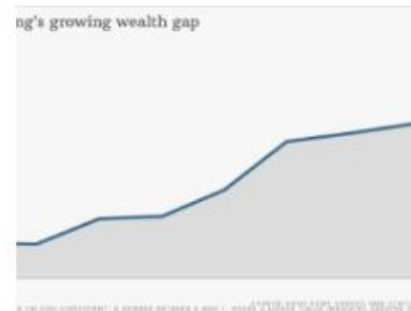
Hong Kong's Yawning Wealth Gap Grows ...
bloombergquint.com



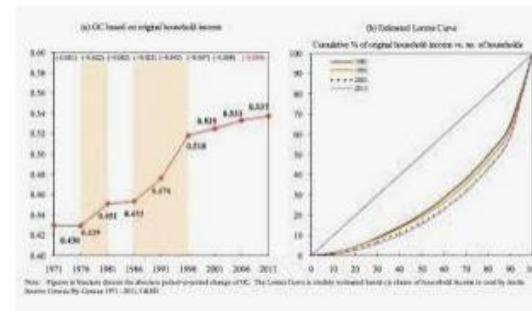
INCOME INEQUALITY
civic-exchange.org



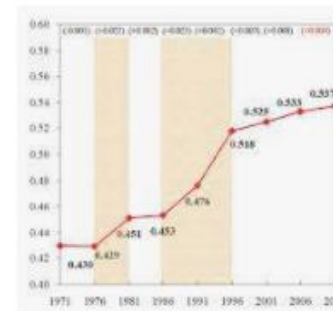
Hong Kong protester
qz.com



growing wealth gap fuels protests
money.cnn.com



Hong Kong protesters blame China for ...
qz.com



Untitled
edb.gov.hk

Collecting
Quantitative
and
Qualitative
data (e.g.,
news, report)

Useful website for Economic Data – use “search”

➤ **Hong Kong**

- Census and Statistics Department, Hong Kong,
<http://www.censtatd.gov.hk/>

- Financial Data: Hong Kong Monetary Authority
<https://www.hkma.gov.hk/eng/#>

- Trade data: Hong trade development council: HKTDC Research
<https://research.hktdc.com/en/>

- Hong Kong Consumer Council
https://www.consumer.org.hk/ws_en

➤ **National Bureau of Statistics of China**

<http://www.stats.gov.cn/english/>

➤ **The World Bank**

<http://data.worldbank.org/>

➤ **The International Monetary Fund (IMF)**

<https://www.imf.org/en/Data>

<https://www.imf.org/en/Research>

Data: What Happened?

Data – Outcome - holistic, ex post

Data tell:

- Overtime: time series: trend
- Across regions: cross section: how serious relatively
- Descriptive statistics: **mean**, median, mode, variances and standard déviation etc
- Note: **Wisdom of Crowds** (Francis Galton) <http://www.all-about-psychology.com/the-wisdom-of-crowds.html>
 - Collecting Information / opinions:
 - Each individual member of the crowd must have their **own independent** source of information.
 - They must make individual decisions and **not be swayed** by the decisions of those around them.
 - There must be a **mechanism** in place that can collate these diverse opinions.
- **Misinformation** is false, inaccurate, or misleading information that is communicated regardless of an intention to deceive.

Wikipedia contributors. (2021, June 9). Misinformation. In Wikipedia, The Free Encyclopedia. Retrieved 10:10, June 21, 2021, from <https://en.wikipedia.org/w/index.php?title=Misinformation&oldid=1027714479>

- **Economics of attention** → What to act on?

Economics of Attention

- Attention is focused **mental** engagement on a **particular item** of information. **Items come into our awareness**, we **attend to a particular item**, and then we **decide whether to act**. (Davenport & Beck 2001). Attention is a resource.
- The **mental capability (and time availability?) of humans is limited** and the receptiveness of information is hence limited as well.
- Attention allows information to be **filtered** such that the **most important information can be extracted** from the environment while irrelevant details are left out. (Kiyonaga and Egner, 2012). **Attention is a limited resource**.
- Attention economics is an approach to the **management of information** that treats human **attention as a scarce** commodity and applies economic theory to solve various information management problems (**information is unlimited**).

1. Davenport, Thomas; Beck, John (2001). The Attention Economy: Understanding the New Currency of Business. Cambridge: MA: Harvard Business School Press. ISBN 9781578518715.
2. Kiyonaga, Anastasia; Egner, Tobias (12 December 2012). "Working memory as internal attention: Toward an integrative account of internal and external selection processes". *Psychonomic Bulletin & Review*. 20 (2): 228–242. doi:10.3758/s13423-012-0359-y. PMC 3594067. PMID 23233157.
3. Wikipedia contributors. (2021, April 26). Attention economy. In Wikipedia, The Free Encyclopedia. Retrieved 10:45, June 21, 2021, from https://en.wikipedia.org/w/index.php?title=Attention_economy&oldid=1019973496

Economics of Attention

- Attention comes in many forms: love, recognition, obedience, and help.
- Although theoretically unquantifiable, many **derive attention's value** from how much **time** we focus on a particular thing.
- We face **attention's scarcity** every day; while “paying attention” to one thing we ignore others (opportunity cost?).
- Attention is the “bottleneck of human thought” that limits both what we can perceive in stimulating environments and what we can do.
- **A wealth of information creates a poverty of attention**
- **Technological advances** have made an overwhelming amount of information available, strategically aimed at capturing our attention (→ Big data Analysis?)
- **Attention is an important factor in driving economic choice or behavior → may be wrong decision**

Berkeley Economic Review. (2020, March 31) Paying Attention: The Attention Economy. *Berkeley Economic Review*
<https://econreview.berkeley.edu/paying-attention-the-attention-economy/>

Festré, A. and Garrouste, P. (2015) The 'Economics of Attention': A History of Economic Thought Perspective. *Æconomia*, 5-1 | 2015, pp. 3-36. <https://journals.openedition.org/oeconomia/1139>

Mormann, M. (2018, May 1) The Economics Of Attention: A Valuable Commodity That's Hard To Measure. *SMU Cox*
https://www.smu.edu/cox/Learning-Culture/Research-Papers/20180501_Mormann

Behavioral economics: Prospect Theory

McConnell C. R., Brue S. L., & Flynn S. M., 2021. Economics: Principles, Problems, & Policies, 22nd ed., McGraw-Hill.

- **Neoclassical** economic theory asserts that people are always rational and are **not** impacted by **emotion**.
- **Behavioral** economics focuses on consumers' decisions in light of **emotion** and negative possible outcomes.
- **Examples and applications**
 - Example: Decreased the **size** of their chocolate bar in order to avoid an increase in price (Consumers focus on price).
 - People's value of an item is **influenced by irrelevant information (Anchoring, Attention?)**. **Credit card** companies use anchoring by requiring very **low monthly payments** thereby inducing consumers to make smaller payments and increasing the total amount paid on the debt.
 - Consumers looked at some purchases as **isolated** transactions.
Purchases a big item, like a \$10,000 TV + the warranty

DRQ: Use Diagram to Tell a Story

- Diagrams can **help** understand complicated data, find patterns, identify trends, and tell a **story**.
- Think about the message you want to share with your students (draw their attention).
- **What do you find from the charts below?** The differences? Your attention?

USD/SGD Exchange Rate ($\frac{\text{SGD}}{\text{USD}}$), 1997 – 1998



Source: Federal Reserve Bank of St. Louis
<https://fred.stlouisfed.org/series/DEXSIUS>

Workshop

Data/Information

What Happened
Level of Income Inequality
in Hong Kong

What happened?

➤ Quantitative and Qualitative

➤ **Definition/measurement** (Gini) – income / disposable income /wealth inequality (before / after intervention)

➤ **Time series: overtime** -- trend

➤ **Cross section: across regions** – how relatively serious

➤ DRQ:

- Find data /information (variable) **based on theory**
- Explain the meaning of the new variables

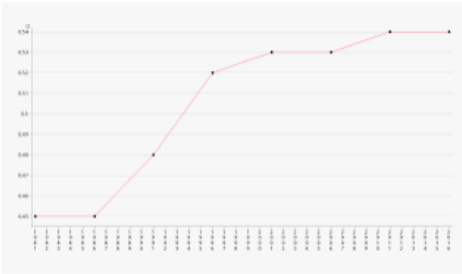
Practice

Quantitative: Search “HK Gini coefficients”

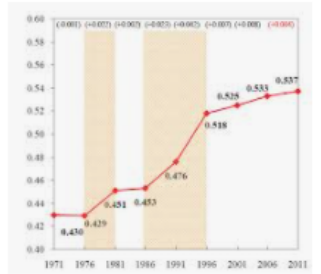
https://www.google.com.hk/search?q=hk+gini+coefficients&authuser=1&source=lnms&tbm=isch&sa=X&ved=2ahUKewi6-u6lwvwwAhWTHXAKHdVmBIQQ_AUoAXoECAEQAw&biw=1751&bih=906

Google search interface for "hk gini coefficients". Search bar contains "hk gini coefficients". Navigation icons for "全部", "圖片", "新聞", "影片", "地圖", "設定", "工具" are visible. "珍藏內容" and "安全搜尋" are also present.

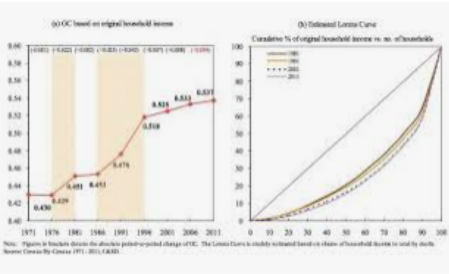
Horizontal carousel of search suggestions: china, oxfam, singapore, retail, taiwan, gdp, household income distribution, wage, umbrella movement, wealth, protest.



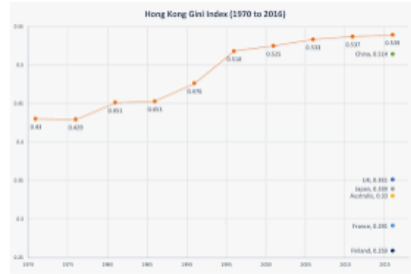
Gini Coefficient | Social Indicators of Hong Kong socialindicators.org.hk



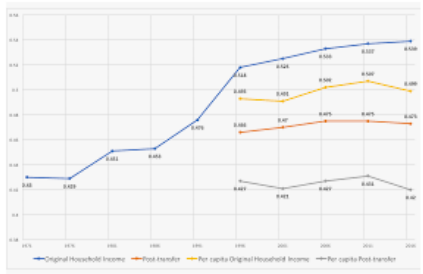
Untitled edb.gov.hk



Hong Kong protesters blame China for rising inequal... qz.com



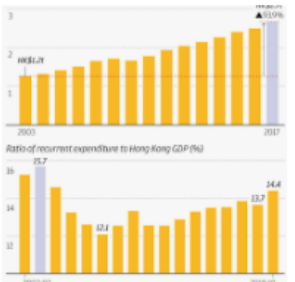
Food and the City – HKFoodWorks hkfoodworks.com



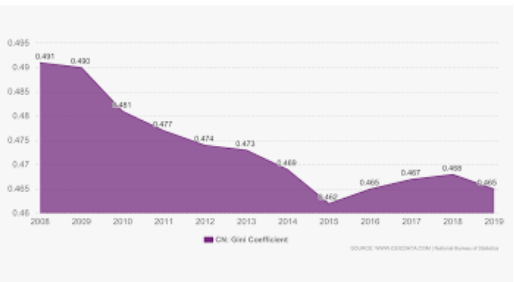
Income Inequality in Hong Kong and Singapore piketty.pse.ens.fr



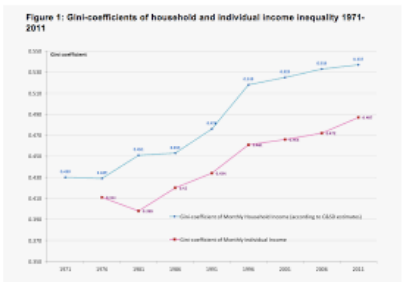
GINI COEFFICIENT BASED ON ORI... researchgate.net



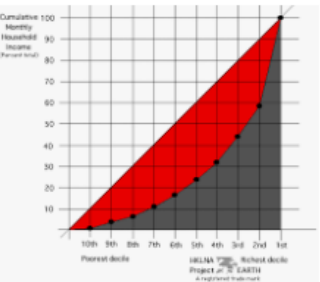
Wealthy Hong Kong can well aff... scmp.com



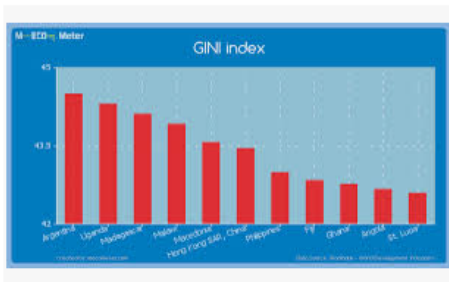
China Gini Coefficient | Economic Indicators | CEIC ceicdata.com



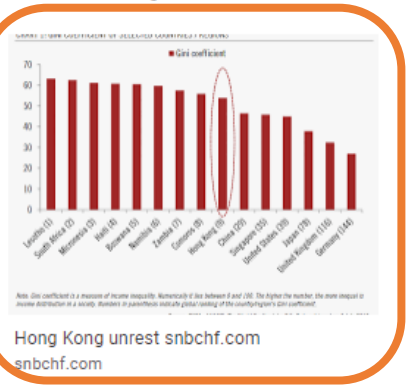
Growing Up in Hong Kong Before and After 19... wanyujian.hku.hk



HKLNA Project - Visualizing Hong Ko... hashimori.com



GINI index - Hong Kong SAR, China mecometer.com



Hong Kong unrest snbchf.com snbchf.com

Statistics

Year	1981	1986	1991	1996	2001	2006	2011	2016
Gini Coefficient	0.45	0.45	0.48	0.52	0.53	0.53	0.54	0.54

Footnote

All figures are collected from Census and Statistics Department since 1981.

Quantitative: Across region (2019)

CHART 1: GINI COEFFICIENT OF SELECTED COUNTRIES / REGIONS



Note: Gini coefficient is a measure of income inequality. Numerically it lies between 0 and 100. The higher the number, the more unequal is income distribution in a society. Numbers in parenthesis indicate global ranking of the country/region's Gini coefficient.

Source: PWM - AA&MR, The World Factbook by CIA. Data retrieved on 9 July 2019.

United States? Singapore?

Chen, D. (2019, July 11) Hong Kong Unrest . *SNB&CHF Central Bank Watch*. <https://snbchf.com/2019/07/chen-hong-kong-unrest/>

Qualitative Data

"HK income inequality news"



divide between the haves and have-nots. Why is **Hong Kong** so ...

<https://www.scmp.com> › [economy](#) › [article](#) ▼ [翻译此页](#)

What hope for the poorest? Hong Kong wealth gap hits record ...

2017年6月9日 — The 2016 figures showed a further worsening of **Hong Kong's wealth gap**, as the richest 10 per cent of households – with a median monthly ...



<https://theconversation.com> › [hong-kong-is-o...](#) ▼ [翻译此页](#)

Hong Kong is one of the most unequal **cities in the world. So ...**

2019年9月26日 — Importantly, this has been coupled with an inability of those at the top end of town to recognise the vast **inequalities** this has contributed towards.

缺少字词: news" | 必须包含: news"

Household income inequality at record high in Hong Kong

SOCIAL

By Liu Chen

🕒 2017-06-11 12:24 GMT+8

Share



👍 Like



Household income inequality in Hong Kong has hit a record high last year despite widening at a slower pace, according to a recently published government census – a situation that highlights the challenges awaiting the Special Administrative Region's incoming Chief Executive Carrie Lam Cheng Yuet-ngor.

Qualitative Data

SCMP(2017, June 11). Household income inequality at record high in Hong Kong *South China Morning Post*.
https://news.cgtn.com/news/3d6b7a4d3049444e/share_p.html.

Quantitative Data: Gini Coefficient of Cities

City	Gini Coefficient
San Francisco	0.521
Chicago	0.531
Los Angeles	0.531
Washington City, D.C.	0.535
Hong Kong	0.539 (2016)
New York City	0.551

Country	Gini Coefficient (2015)
Switzerland	0.386
Korea	0.396
Sweden	0.432
Canada	0.435
Austria	0.494
Belgium	0.5
Germany	0.504
United State	0.506
Finland	0.507
France	0.516
United Kingdom	0.52
Italy	0.524
Spain	0.524
Ireland	0.545

Gini coefficient (Original household income) in selected places in .

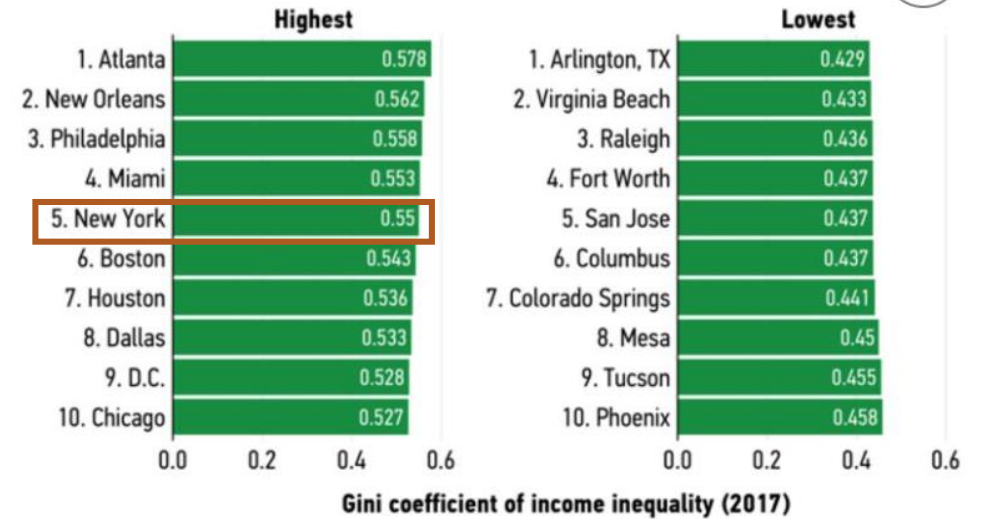
Source: Census and Statistics Department, HKSAR and the Organisation for Economic Co-operation and Development **OECD**

Gini Coefficients of **Cities** in the **United States**

Here are the 10 large cities with the greatest income inequality gaps, according to data from the 2019 American Community Survey:

CENSUS RANK	CITY	TOTAL POPULATION IN 2018	GINI INDEX
1	San Juan, Puerto Rico	309,990	0.5936
2	Atlanta, Georgia	498,073	0.5728
3	Miami, Florida	470,911	0.5674
4	New Orleans, Louisiana	391,006	0.5617
5	New York, New York	8,398,748	0.5469
6	Cleveland, Ohio	383,781	0.5467
7	Cincinnati, Ohio	302,615	0.5432
8	Dallas, Texas	1,345,076	0.5341
9	Tampa, Florida	392,905	0.5339
10	Chicago, Illinois	2,705,988	0.5335

U.S. cities with the most & least income inequality



Source: U.S. Census (David H. Montgomery / CityLab)

Bach T. (2020, September 21) The 10 U.S. Cities With the Largest Income Inequality Gaps.

Retrieved from <https://www.usnews.com/news/cities/articles/2020-09-21/us-cities-with-the-biggest-income-inequality-gaps>

Three Gini Coefficients in HK

Gini Coefficients	2006	2011	2016
GC (Original household income)	0.533	0.537 [+0.004]	0.539 [+0.002]
GC (Post-tax household income)	0.521	0.521	0.524 [+0.003]
GC (Post-tax post-social transfer household income)	0.475	0.475	0.473 [-0.002]

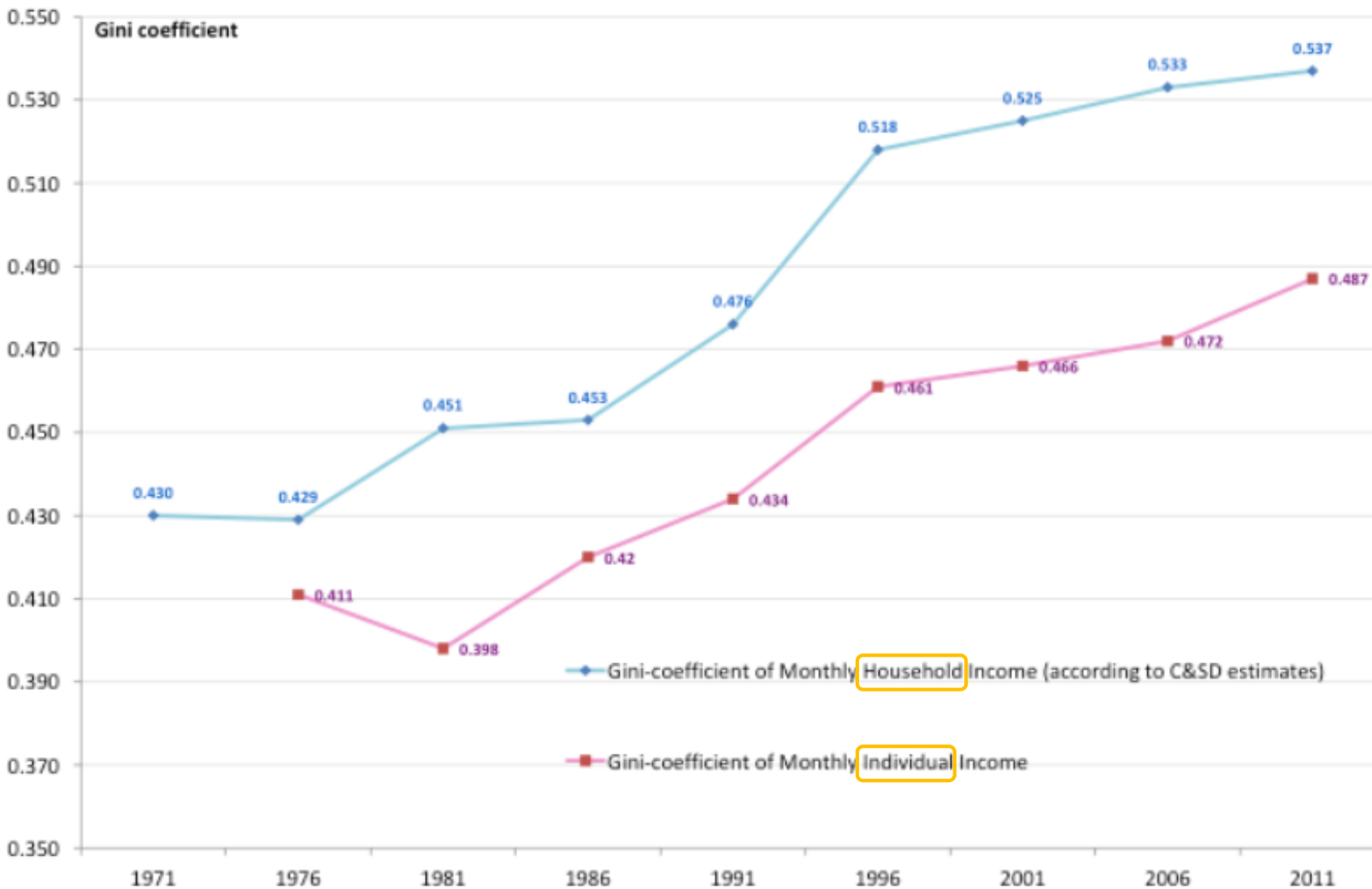
Gini Coefficients in Hong Kong

Source: Census and Statistics Department, HKSAR Government

Three Concepts of Household Income:

Income concept	Calculation formula
Original household income (MHI)	= Income from main employment + Income from secondary employment + Other cash incomes (including dividends, rental incomes and other transfer incomes)
Post-tax household income	= MHI – Salaries tax – Property tax – Rates – Government rent
Post-tax post-social transfer household income	= Post-tax household income + Education benefits + Housing benefits + Medical benefits

Richard Wong (2015), Growing Up in Hong Kong Before and After 1980 – A Statistical Portrait of Education Opportunities. Retrieved from <http://wangyujian.hku.hk/?p=5972&lang=en>



The higher income inequality ratio for households is almost entirely the result of their changing composition. Hong Kong has **more low-income households** today because there are **more households composed of single parents, young working adults, and non-working elderly persons** than in the past. This means measured **household income inequality will naturally rise** because of **population ageing, divorce patterns, and preferences for not living with parents.**

Richard Wong (2015)

- **Post-tax household income?**
- **Post-tax post-social transfer ?**

Find the Facts

Google hong kong aging population

elderly population worries c... scmp.com

ing Kong population projection for next 50 year: population will be a little smaller ... ag.news.yahoo.com

How Hong Kong's ageing population is ... wellbeing.hku.hk

ing Kong population projection for next 50 year: South China Morning Post scmp.com

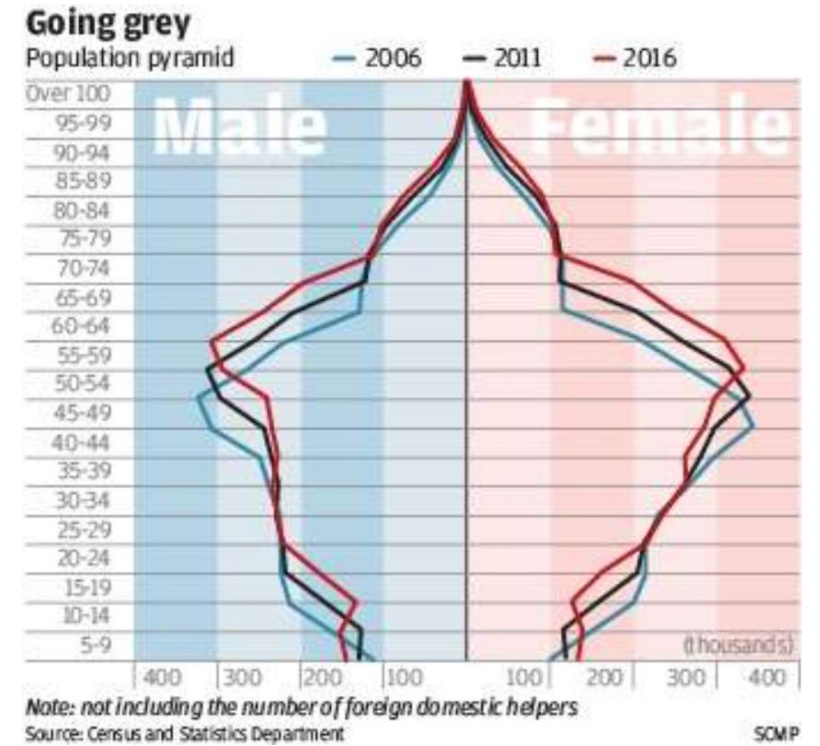
2012 to 2011 Population by age group: The 2013-14 Budget - Budget Speech budget.gov.hk

Untitled: ioa.cuhk.edu.hk

What Hong Kong Has Done Right. Despite ... medium.com

Rapidly aging population presents ... chinadailyhk.com

ageing Hong Kong stop the property ... scmp.com

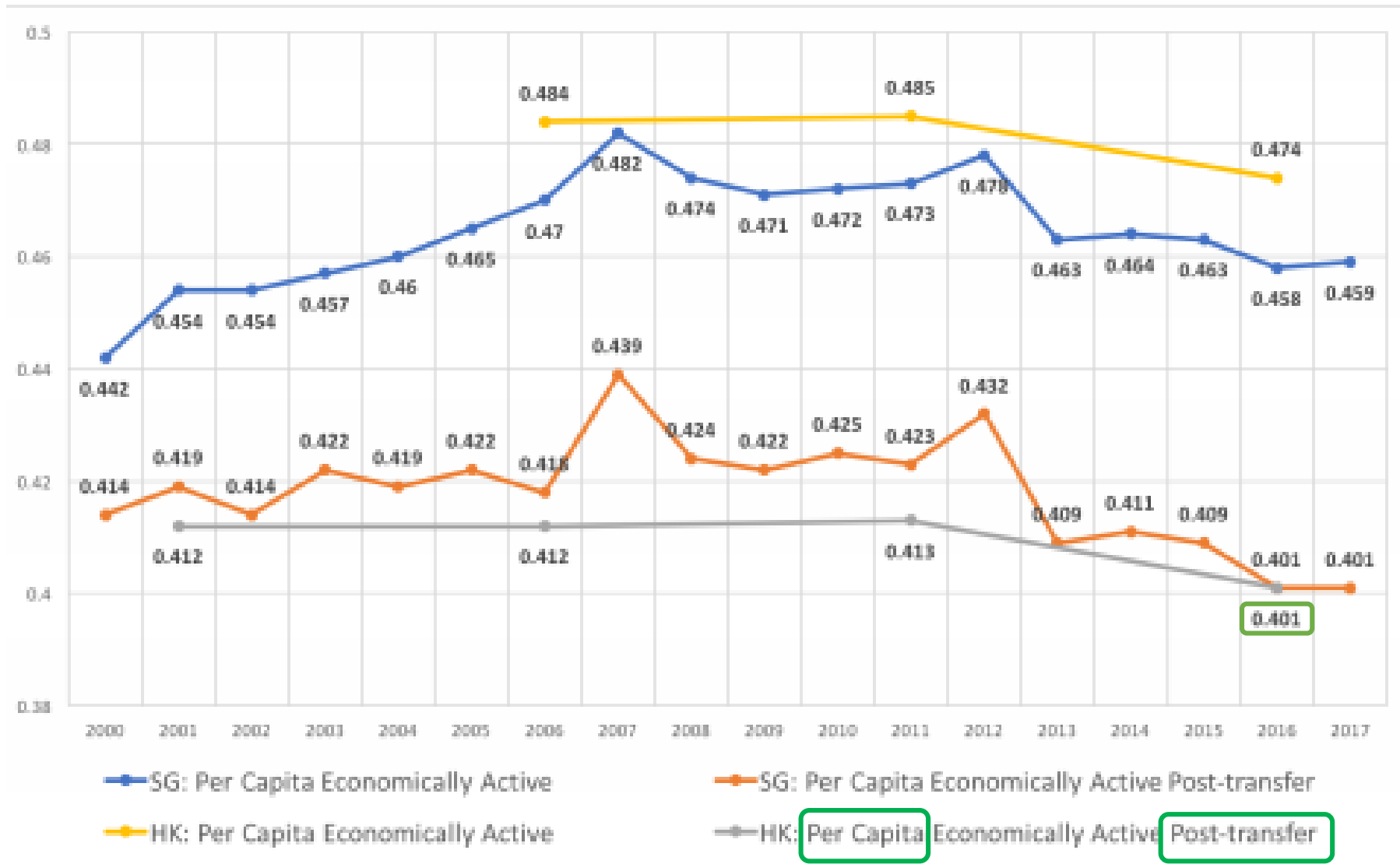


Source: South China Morning Post

Kao, E. (2017, February 27) Sharp Growth in Hong Kong's Elderly Population Worries Census Chief.

<https://www.scmp.com/news/hong-kong/education-community/article/2074440/sharp-growth-hong-kongs-elderly-population>

Hong Kong versus Singapore: Gini Coefficient based on Economically Active Households



Source: Hong Kong Census and Statistics Department, Singapore Department of Statistics
 Cheuk Ting Hung (2018), Income Inequality in Hong Kong and Singapore, P.13. . Retrieved from
<http://piketty.pse.ens.fr/files/Hung2018.pdf> (accessed May 10, 2021)

Use **Per Capita Income Post-Transfer**

- Gini Coefficients based on **post-social transfer post-tax household income** give a sense of the magnitude of the government's taxation and social benefits in mitigating household income disparity. During 1996-2016, this series is lower and flatter than the Gini coefficients based on original household income, indicating the government's programmes is somehow effective in reducing Gini coefficients.
- The above figure compares Gini coefficients of **Hong Kong and Singapore** based on **per capita income** for economically active households (which are the only series of Gini coefficients the Department of Statistics of Singapore published). Looking at Singapore, the Gini coefficients based on **per capita income for economically active households** exhibited a continuous upward trend between 2000 and 2007, but began to decrease since then. This indicator is **higher** in Hong Kong as compared to Singapore during 2006-2016, but **the position reverses when taxation and transfers are taken into account**.
- While this paper **does not cover wealth distribution** due to limited data availability, it is noteworthy that surging **property prices** has become a major concern in the Hong Kong society. The rise is attributable to the creation of wealth.
- Cheuk Ting Hung (2018), Income Inequality in Hong Kong and Singapore, P.13. Paper retrieved from <http://piketty.pse.ens.fr/files/Hung2018.pdf> (accessed May 10, 2021)

Interpretation Issues about Measurement (Gini Coefficient)

- Household income? **Per capita** income? **Post-tax post-social transfer** ?
- **Residual income after housing expenditure → Higher Gini / lower Gini ??** (Rent Prices in Hong Kong are **162.11% higher** than in Shenzhen)
- Current US dollar? 2011 PPP (**purchasing power parity**) ?
- **Relative income principle**: only relative income should matter, **not** income levels.
 - A **high**-income country and a **low**-income country can yield the **same Gini Coefficient**, as long as their incomes are **distributed in similar pattern**.
- **Independent of the size of the economy**
- **Income mobility**:
 - An individual undergoes **lifecycle** stages with different levels of income and accumulated wealth. → examining inequalities over the **life cycle instead of in any given year**.
 - However, **recent evidence** reveals that **lifetime inequality has strongly increased for the younger cohorts over time**.

Interpretation issues about measurement

- **Apart** from profits/salary, individuals may also have ...
 - **Assets/Wealth**: Inheritance, appreciation of assets, borrowings
 - **Other incomes**: rental income, investment income
 - Elderly: life-long savings
- **Sample bias**
 - For example, **small countries** or **countries with less economic diversity** frequently tend to show **low coefficients**, while **large economically diverse** countries usually demonstrate **high coefficients**.
 - <https://corporatefinanceinstitute.com/resources/knowledge/economics/gini-coefficient/>

Covid-19 further entrenched income, health, racial and educational inequalities across Hong Kong, experts say

- Society's most vulnerable have suffered disproportionately during the pandemic, with many low-paying jobs gone, parents and their children confined to tiny homes, and domestic helpers and the poor elderly at heightened risk of exposure
- The government's response – funnelling money to businesses instead of directly to workers – has only worsened the plight of the lower class, experts say

Victor Ting [+ FOLLOW](#)

Published: 9:30am, 28 Dec, 2020 -

[Why you can trust SCMP](#)



Society's poorest and most vulnerable have been hard hit by the pandemic, experts say. Illustration: Henry Wong

SCMP(2020,Dec 28). Covid-19 further entrenched income, health, racial and educational inequalities across Hong Kong, experts say. *South China Morning Post*. <https://www.scmp.com/news/hong-kong/health-environment/article/3115488/how-covid-19-further-entrenched-income-health>



hong kong + income disparity + covid19

COVID-19 related health inequality exists even in a city where disease incidence is relatively low: a telephone survey in Hong Kong

PDF

FREE

Roger Yat-Nork Chung^{1, 2}, Gary Ka-Ki Chung², Michael Marmot^{2, 3}, Jessica Allen³, Dicken Chan¹, Peter Goldblatt³, Hung Wong^{2, 4}, Eric Lai⁵, Jean Woo^{2, 5}, Eng-Kiong Yeoh^{1, 2}, Samuel Y S Wong^{1, 2}

Correspondence to Dr Roger Yat-Nork Chung, School of Public Health and Primary Care, The Chinese University of Hong Kong, Hong Kong 26451, Hong Kong; rychung@cuhk.edu.hk

Abstract

Background We examined whether COVID-19 could exert inequalities in socioeconomic conditions and health in Hong Kong, where there has been a relatively low COVID-19 incidence.

Methods 752 adult respondents from a previous random sample participated in a telephone survey from 20 April to 11 May 2020. We examined demographic and socioeconomic factors, worry of COVID-19, general health, economic activity, and personal protective equipment (PPE) and related hygiene practice by deprivation status. The associations between deprivation and negative COVID-19 related issues were analysed using binary logistic regressions, while the associations of these issues with health were analysed using linear regressions. Path analysis was conducted to determine the direct effect of deprivation, and the indirect effects via COVID-19 related issues, on health. Interactions between deprivation and the mediators were also tested.

Results Deprived individuals were more likely to have job loss/instability, less reserves, less utilisation and more concerns of PPE. After adjustments for potential confounders, being deprived was associated with having greater risk of low reserve of face masks, being worried about the disease and job loss/instability. Being deprived had worse physical ($\beta=-0.154$, $p<0.001$) and mental health ($\beta=-0.211$, $p<0.001$) and had an indirect effect on mental health via worry and job loss/instability (total indirect effect: $\beta=-0.027$, $p=0.017$; proportion being mediated=11.46%). In addition, significant interaction between deprivation and change of economic activity status was observed on mental health-related quality of life.

Conclusion Even if the COVID-19 incidence was relatively low, part of the observed health inequality can be explained by people's concerns over livelihood and economic activity, which were affected by the containment measures. We should look beyond the incidence to address COVID-19 related health inequalities.

Journal of epidemiology and community health.

July 2021 - Volume 75 - 7

Retrieved from

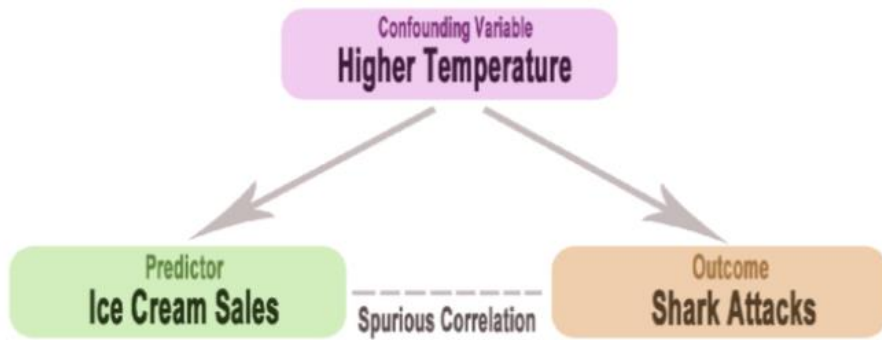
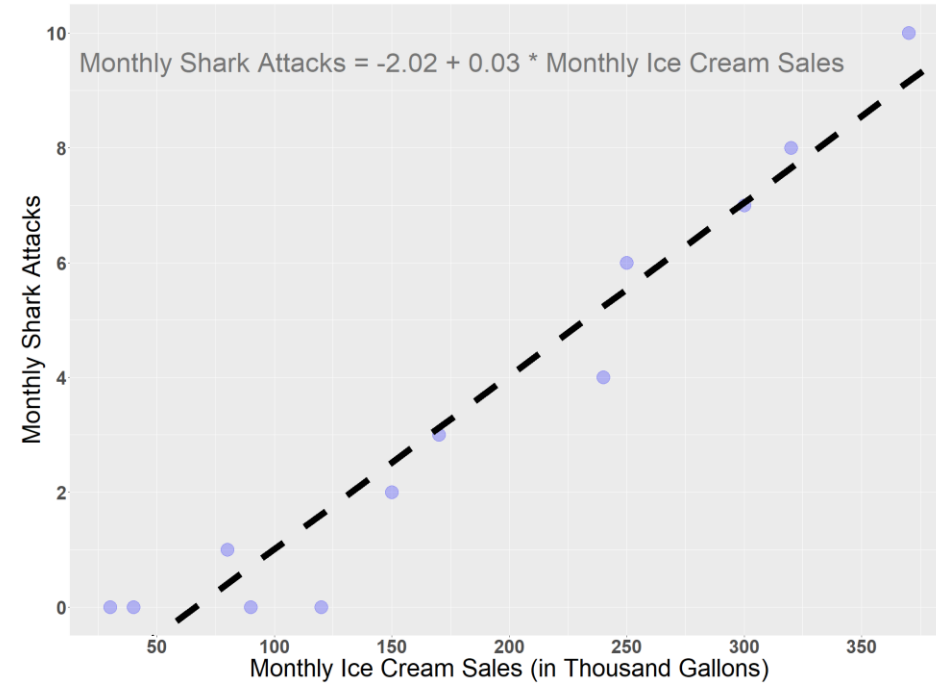
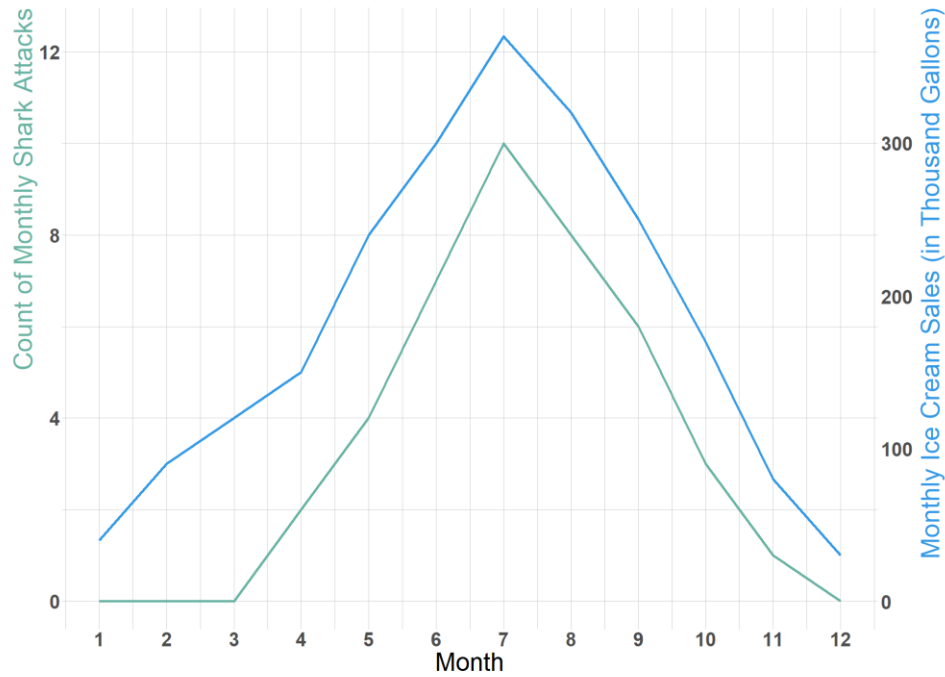
<https://jech.bmj.com/content/75/7/616>

Correlation, Causation and Theory

Theory

- A theory (or hypothesis) is **an explanation (prediction)** of a phenomenon, **without** necessarily **explaining why** such events are taking place.
- A **causal** relationships (hypothesis or theory) between variables. **X explains (or predicts) Y**. (e.g., current income explain consumption, $Con = f(\text{income}) = Con = 100 + 0.8 \text{ Income}$)
- Presence of **Correlation** does **not necessarily imply causality**:
 - $EDU = f(INCOME)$ or $INCOME = f(EDU)$?
 - $CPI = f(PPI)$? –control supply (cost) , or $PPI = f(CPI)$ -- control?Cost push or demand-pull inflation? (use **contractionary fiscal/monetary policy to reduce inflation** ?)
- **Correlation** itself may be **suggestive: spurious correlation**
 1. **Non-stationary time series data:** A child's height is correlated to China's GDP? → correlation is driven by trend → **cointegration test.**
 2. **Caused by third variable:** **Shark attacks rise when ice cream sales rise** ? (**Rising heat** may cause more people to **swim**, and **buy more ice cream**)

Spurious Correlation (**Third** Variable Effect)



- Diagrams only show a positive relationship, a negative relationship, or no relationship between **two** variables.
- **Don't** use diagrams to “**prove**” correlation or causation

Spurious Correlation (Third Variable Effect)

$i \downarrow \rightarrow$ house price increase ?? (recession?)

土地註冊處 成交登記 二手市評

撰文：葉敬誠 編輯：馮正其 美術：陳彩鈺

議息在即

利率見頂 非好消息

美國聯儲局將在8月8日議息，事前聯儲局主席伯南克暗示可望暫停加息。本地有不少代理已發表報告，估計下半年成交可望受利率見頂而好轉。

大概在去年此專欄開始時，筆者指出在97年之後加息周期時，樓價亦多數向上。相反，在減息周期，樓價多數向下。以03年開始的樓市上升周期而言，最優惠利率由5厘上升至目前的8厘至8.25厘，期間未見樓價回落。而在97至03年，利率與樓價均反覆下跌。大致而言，本地樓價與利率的同步率甚高。

現時利率有望見頂，根據上文提到的現象，是否意味樓價止步，甚至有以下調的壓力？

加息周期影響成交

利率停止上升，反映美國經濟增長放緩，不算是好消息。不過，世上總有很多人以為停止加息是件好事，如無意外，利率停止上升的消息，將刺激本地樓市有一輪的成交急升（出現的時間看議息結果而定，如果8月8日已暫停加息，成交暢旺的情況便會較早出現；相反，如果8月8日仍是加息，樓市暢旺的情況便會延遲出現。）

但在一輪成交急升後，樓市成交是否持續，便要看美國經濟，如當地增長真的放緩，美股便失去上升動力，本地的股市及樓市亦難獨善其身。

當然，最壞的情況不是利率不變，真正的壞消息是減息，但估計美息下調，最早要在明年才出現。屆時又會有一批以為減息是好消息的人入市，樓市才會進入真正的低潮。

不過，最壞的情況出現機會不大。在美國要減息之前，美國經濟都應該沒有太大問題。如無意外，最大的可能性是，美國經濟增長不太好也不太差，現時的利率水平維持一段長時間，香港對外貿易平平。在此大環境下，樓價仍是平穩居多。

免費索取成交資料

讀者只要填妥以下表格寄至本刊，便可免費獲得指定物業的最新10宗成交，每次最多可查詢兩個物業。本刊提供的成交資料取自EPRC（經濟地產庫）的土地註冊處成交。

姓名：_____

聯絡電話：_____

希望獲得成交資料的物業（地區）：

- _____
- _____

備註：（讀者如需要屋苑內指定座數/指定單位的成交，請列明）

- _____
- _____

本人選擇以下方式索取物業成交資料（請在括號內加上✓號）：

傳真：（號碼）_____

郵寄：（地址）_____

（如讀者選擇以郵寄方式取得物業成交資料，請附貼上\$1.4郵票的回郵信封乙個）

地址：香港北角渣華道321號柯達大廈2期6樓
《置業家居》收

信封面請註明：索取物業成交資料

*影印本無效

置業家居

Presence of **Correlation** Does **not** Necessarily Imply **Causality**

The original JAMA research paper



JAMA The Journal of the American Medical Association

Home Current Issue All Issues Online First Collections CME Multimedia

Online First >

Special Communication | April 10, 2016

The Association Between Income and Life Expectancy in the United States, 2001-2014 FREE

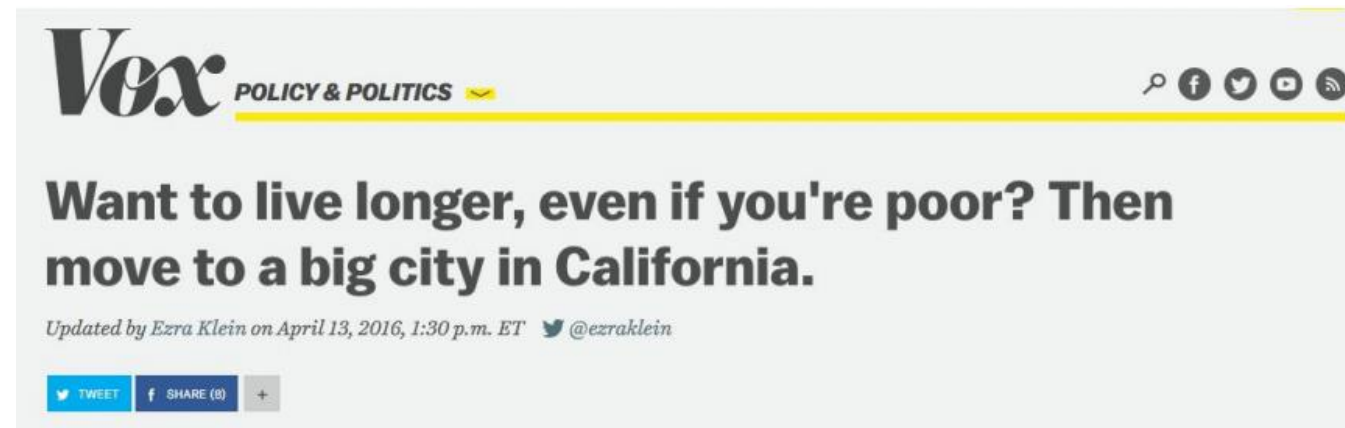
ONLINE FIRST

Raj Chetty, PhD¹; Michael Stepner, BA²; Sarah Abraham, BA²; Shelby Lin, MPhil³; Benjamin Scuderi, BA⁴; Nicholas Turner, PhD⁵; Augustin Bergeron, MA⁴; David Cutler, PhD⁴

[+] Author Affiliations

JAMA. Published online April 10, 2016. doi:10.1001/jama.2016.4226

Text Size: A A A



Vox POLICY & POLITICS

Want to live longer, even if you're poor? Then move to a big city in California.

Updated by Ezra Klein on April 13, 2016, 1:30 p.m. ET @ezraklein

TWEET SHARE (8)

Barter, R. (n.d.) Correlation vs Causation: Why the Media gets it wrong.
Retrieved from
http://www.rebeccabarter.com/cv/talks/Cal_Day_Presentation.pdf

Causation?

➤ Post hoc fallacy

- When two events occur in time sequence, the first event is **necessarily the cause** of the second event (indeed, it is not necessarily).
- The last straw on the camel's back
- **Coincidence and causality? (The last straw on the camel's back)**

Causation

- **Don't** use diagrams to “prove” correlation or causation (out of the theory)
- Correlation should be based on theory
- **Correlation + sensible theory (based on theory in the curriculum)** suggest (but **do not prove**) **causality**
 - **Vaccines create external benefits :**
 - When a person receives the vaccine, he passes along the positive benefits of the vaccine to others (external benefits)
 - However, when someone gets a vaccine, they bear all of the costs and only reap some of the benefits of the vaccine.
 - Results in an under demand for #COVID-19 shots.
 - **Increasing private benefits (more subsidy or more risky to be infected) will increase the number of people getting vaccinated (diagram can be used)**
- Causality Tests (Granger Causality Test, impulse response Analysis..)

AN INVESTIGATION INTO THE DYNAMIC RELATIONSHIP BETWEEN CPI AND PPI: EVIDENCE FROM THE UK, FRANCE AND GERMANY

KAI-YIN WOO, SHU-KAM LEE and CHO-YIU JOE NG

<https://doi.org/10.1142/S0217590818500261> | Cited by: 0

< Previous

Next >

[View Article](#)

[Tools](#) [Share](#)

Abstract

This paper examines the dynamic relationship between the consumer price index (CPI) and the producer price index (PPI) in the UK, France and Germany from 1997 to 2013. We employ the momentum-threshold autoregressive (MTAR) cointegration model for empirical analysis. The results show that the CPI and the PPI are cointegrated with bi-directional long-run Granger causality between CPI and PPI, signifying the existence of both demand-pull and the cost-push nature of inflation. The estimates of threshold vector error correction models (TVECMs) indicate asymmetric adjustments to equilibrium, where upward adjustments are statistically significant but downward adjustments are sluggish and insignificant. Moreover, we generate the unconditional half-life estimates as a measure of persistence, which reveal robust evidence of complex non-linearities in the adjustment process. Our overall results provide valuable information for policymakers to formulate inflation-control policies and optimal policy horizons under a non-linear framework.

Keywords: Threshold cointegration · MTAR adjustment · Granger causality · mean bias · unconditional half-life

JEL: C12, C22, E31, O52

Source: World Scientific

<https://www.worldscientific.com/doi/abs/10.1142/S0217590818500261>

[Figures](#) [References](#) [Related](#)



Vol. 64, No. 05

Metrics

Downloaded 45 times

History

Published: 25 July 2018

Keywords

Threshold cointegration

MTAR adjustment

Necessary Condition/Factor

➤ – not sufficient condition

- If A implies B, or $A \rightarrow B$, or A only if B, or B is the necessary condition of A
 - We can say if ‘not B’ then necessarily ‘not A’.
- Examples:
 - Father implies male, it is incorrect to say that :
 - ‘if the one is a father, the one is father’
 - ‘if the one is not a father, the one is not a male’

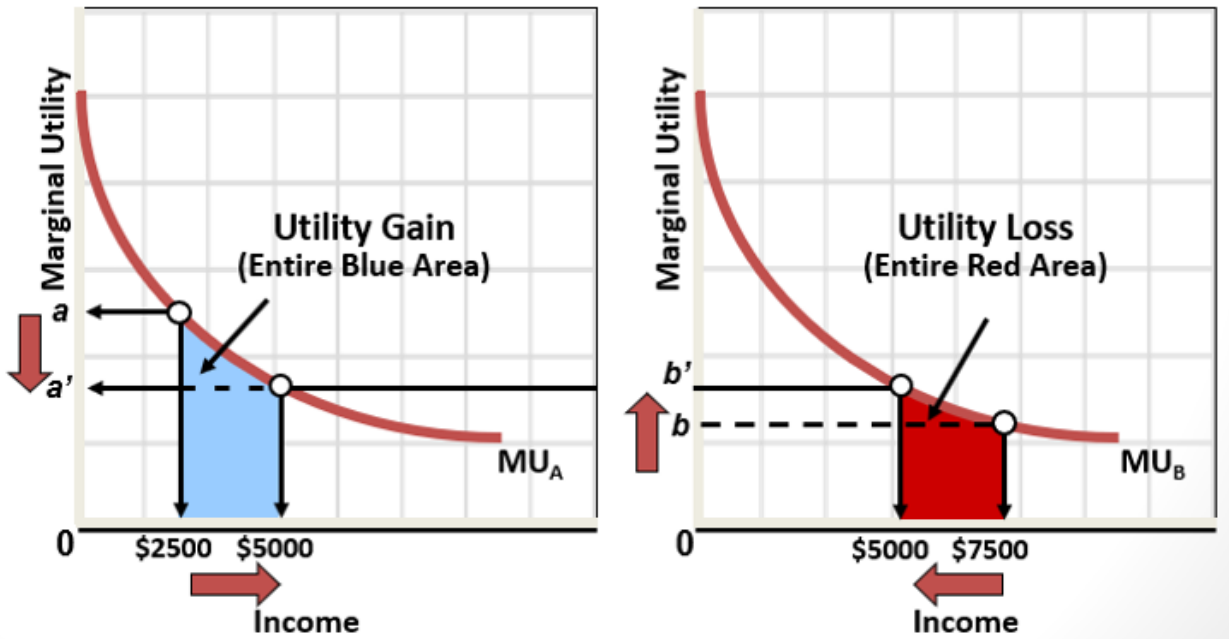
Note:

- A scientific theory must be able to be tested and conceivably proven false (or else, it is a **tautology**).
- Science **cannot** prove a model is **true**, but it can prove it is wrong.

Academic Theory and Practice: stealing is good for society?

Income equality is good for society:

Income equality maximizes total consumer utility from any particular level of output and income.



- Both A and B will maximize their combined utility when any amount of income is equally distributed. If income is unequally distributed, the marginal utility derived from the last dollar will be greater for A than B.

➤ McConnell et al. (2021)

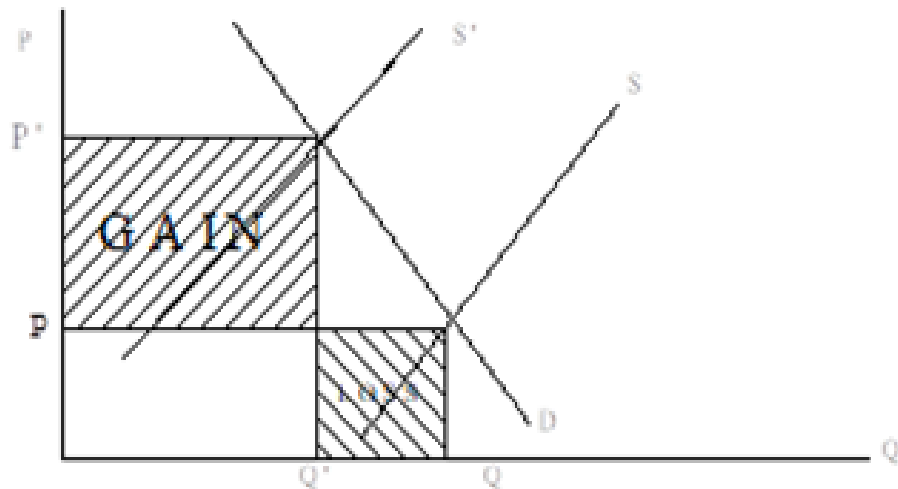


- Is **stealing** good (at least not bad) for society?
- Theory – no value judgement
- Transaction cost?

Academic Theory and Practice: Should the psychoactive drugs be Decriminalized?

McConnell C. R., Brue S. L., & Flynn S. M., 2021. Economics: Principles, Problems, & Policies, 22nd ed., McGraw-Hill.

- Demand for drugs is **highly inelastic** and presents problems for law enforcement. Stricter enforcement reduces supply from S to S' , **raises prices and revenues for sellers**, and provides more incentives for sellers to remain in business. Crime may also increase as **buyers have to find more money to buy** their drugs.
- However, **opponents** of legalization expect that **occasional users** or “dabblers” have a **more elastic demand** and would **increase their use at lower, legal prices**. Removal of the legal prohibitions might make drug use more **socially acceptable** and shift demand to the right. (Saffer H, Chaloupka F. The demand for illicit drugs. Economic Inquiry. 1999;37:401–411.)



- On October 17th 2018 cannabis became legal in **Canada**. The purpose of the Cannabis Act is to **protect public health, public safety, and to "[...] create a strict legal framework to control the production, distribution, sale, and possession of cannabis across Canada"**.
- **Cannabis prices in the state of Washington fell** by **77%** in the three years after cannabis was **legalized**.

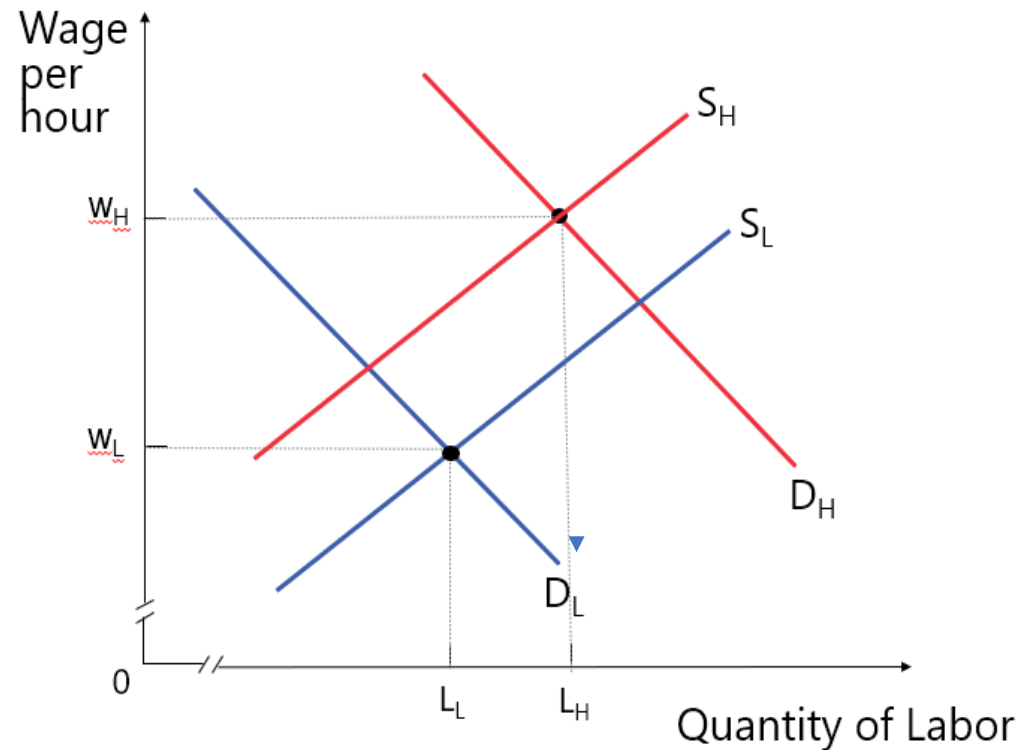
Workshop
Why Happened
Sources of Income Inequality

Why happened? Sources of Income Inequality

- **Don't** use diagrams to “prove” correlation or causation
 - Affected by **other** variables
 - Driven by **trend** (nonstationary series)
- **Correlation + sensible theory (based on theory in the curriculum)** suggest (but **do not prove**) **causality**

Why happened: Theory - Different level of human capital

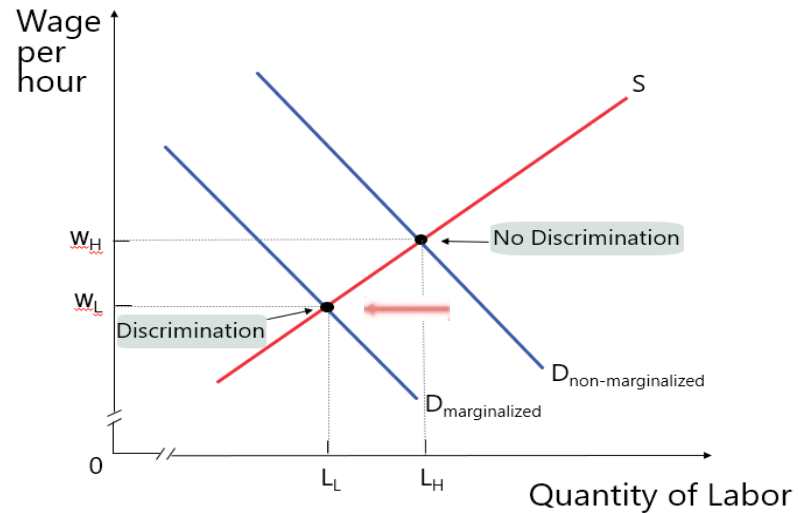
- Innate ability, education and training
- **High-skilled** labours have a relatively **higher demand** (D_H) and **lower supply** (S_H) than the low-skilled labours (D_L and S_L).
- There will be a higher equilibrium wage rate for labours with greater human capital.



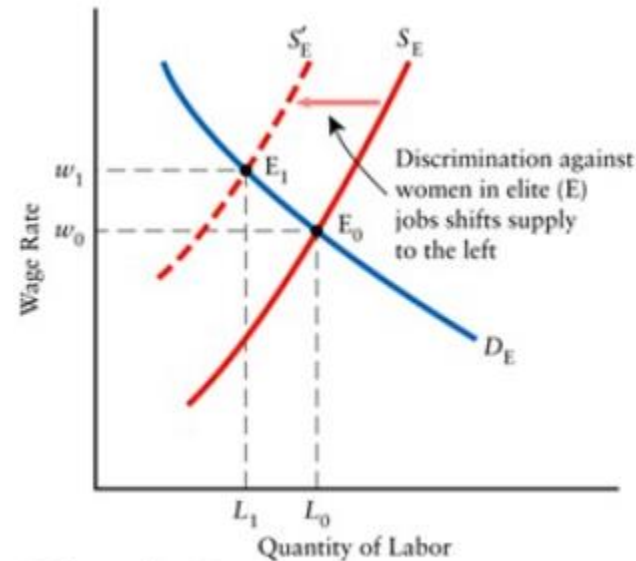
Why happened: Theory -Discriminations

Discriminations in age, gender, race, religion, and the effect on hiring and wage rate

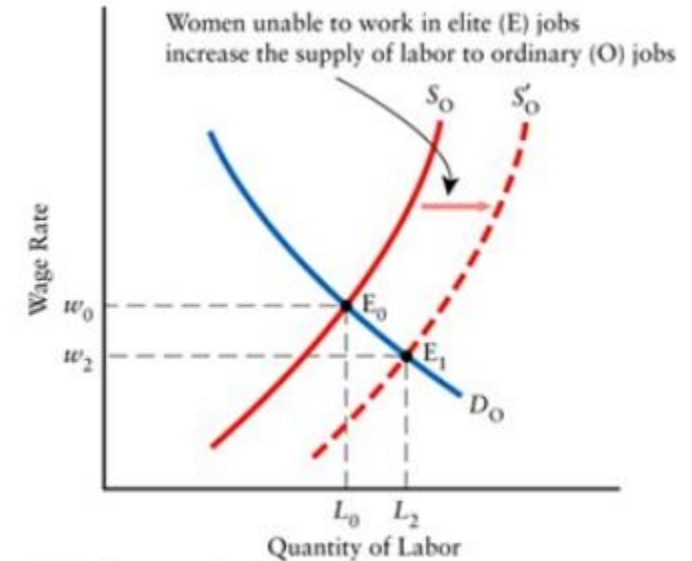
(a)



(b) <https://slideplayer.com/slide/6371714/>



(i) Elite market (E)

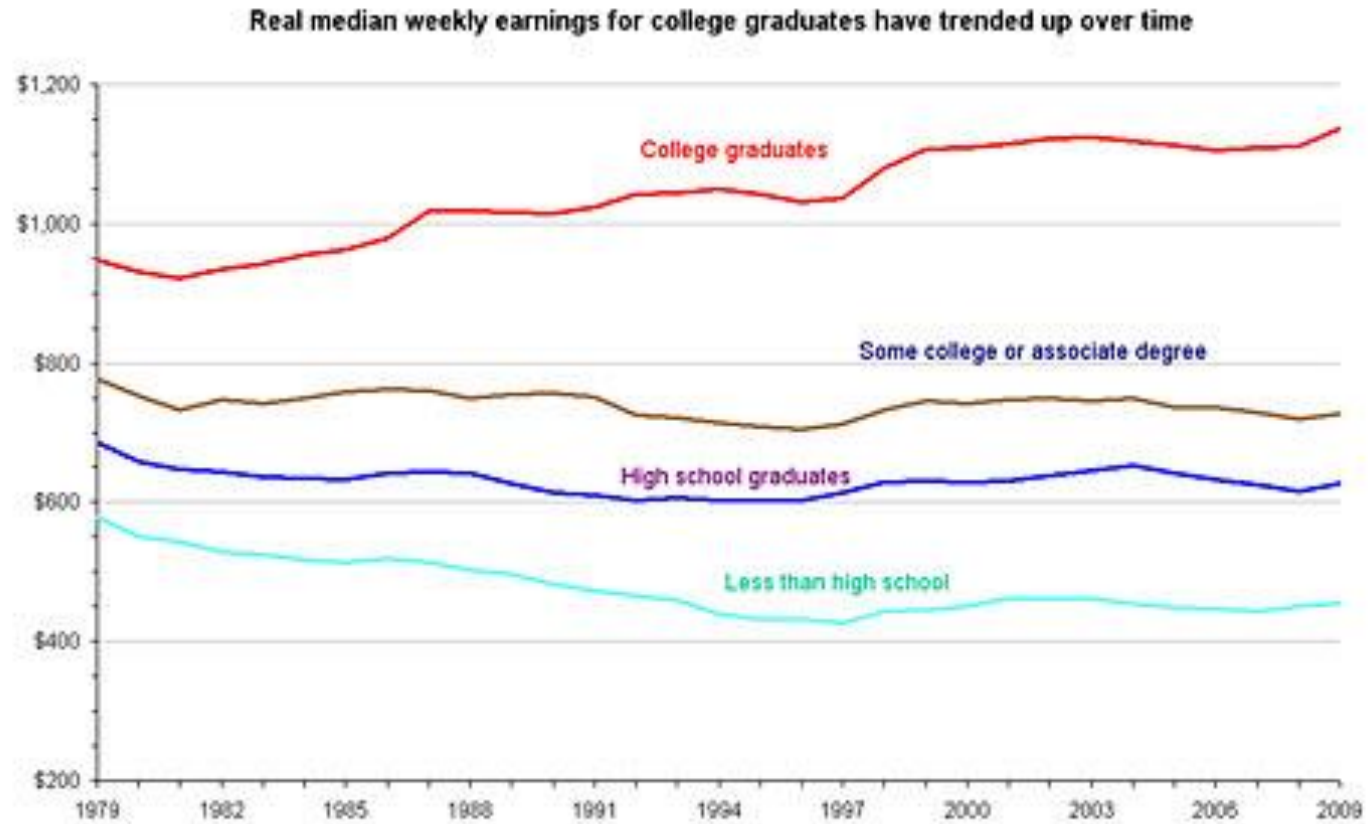


(ii) Ordinary market (O)

- Labour **demand (elite jobs)** for the **discriminated** labour is **lower than** that of the non-discriminated, resulting in a lower equilibrium wage rate for the discriminated, despite the discriminated labour the same or even higher level of productivity.
- On the labour supply side, if the **discriminated** are marginalized to certain **restricted occupations** (e.g. poor female aged 60-65 can mainly work as **cleaners**), this occupational crowding effect causes an **excessive supply of female cleaners** relative to demand in these occupations, resulting in lower wages and incomes.
 - On the contrary, if **women** and minorities are **restricted** from entering into **male-dominated** occupations, there would also be an **undersupply** of workers, with similar results in wages and incomes.

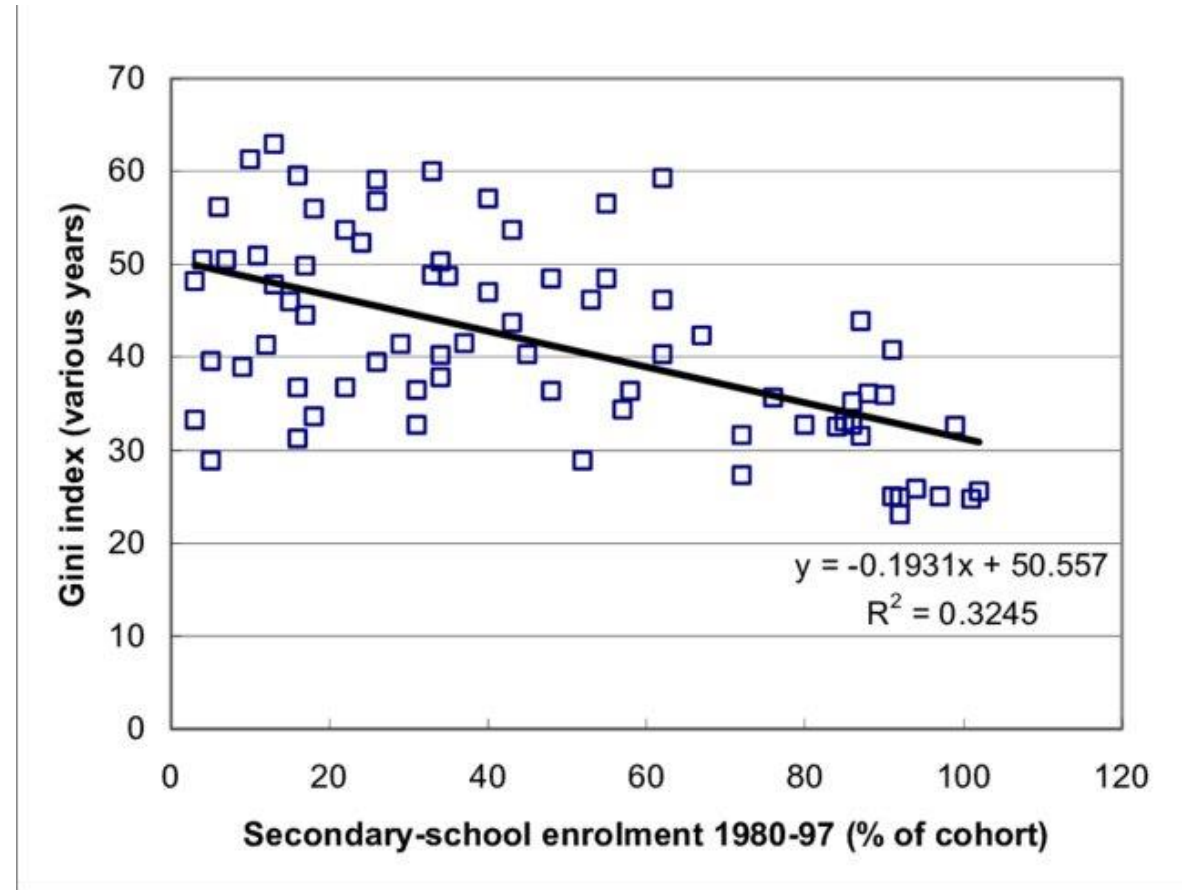
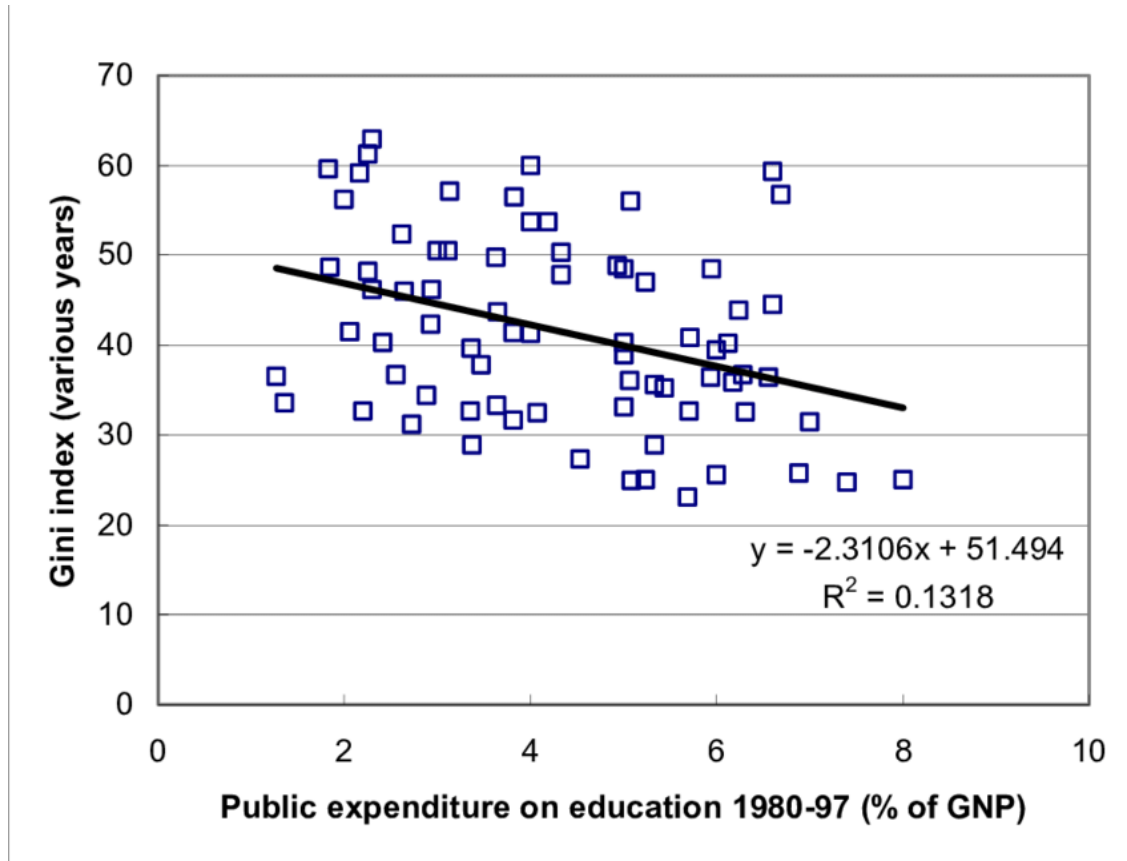
Practice

Why happened: Different level of human capital



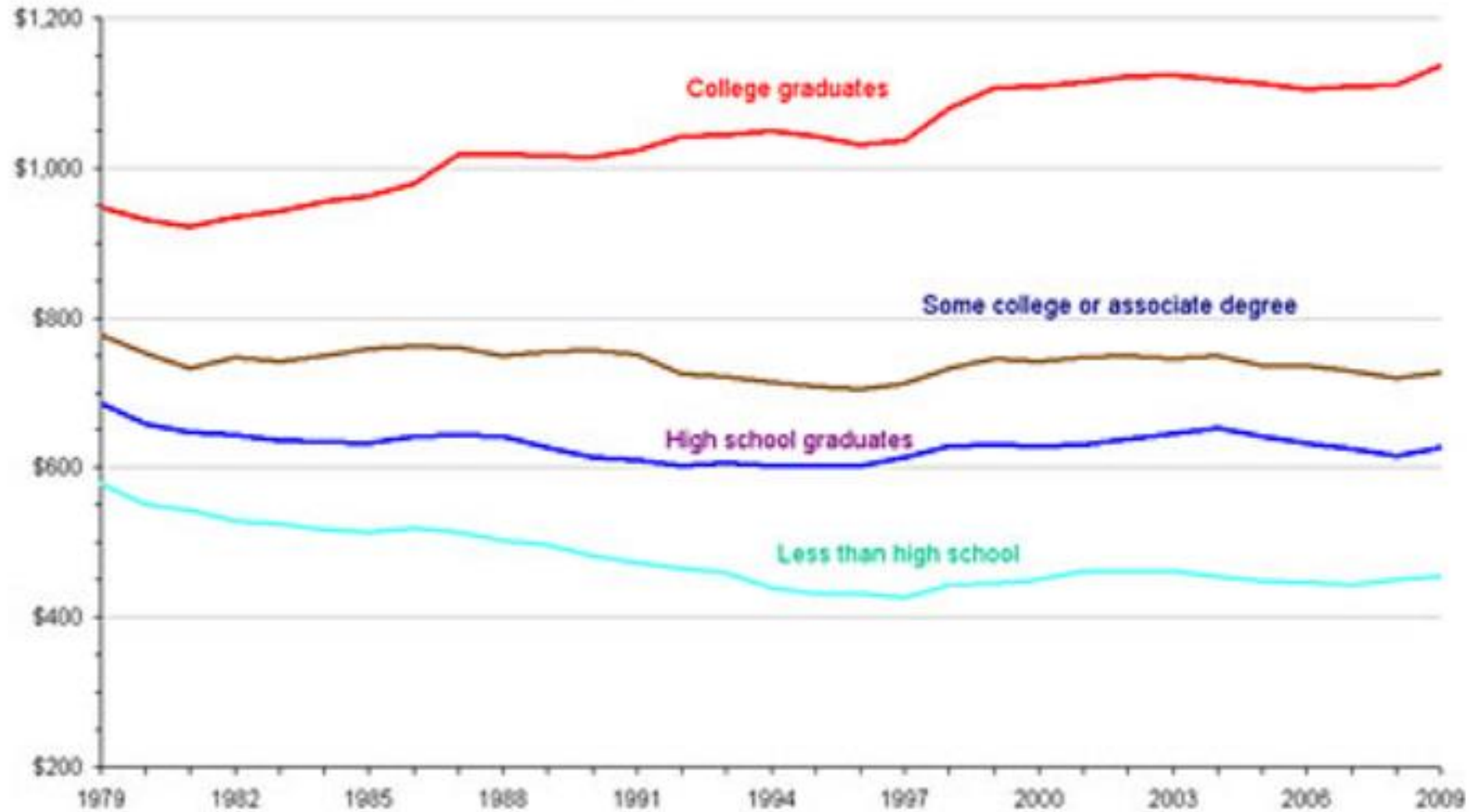
Stanford Center on Poverty and Inequality (2011) 20 Facts About U.S. Inequality that Everyone Should Know. *Stanford Center on Poverty and Inequality*.
<https://inequality.stanford.edu/publications/20-facts-about-us-inequality-everyone-should-know>

Why happened: Expenditure on **Education** and Income



Thorvaldur Gylfason & Gylfi Zoega, 2002. "Inequality and Economic Growth: Do Natural Resources Matter?," CESifo Working Paper Series 712, CESifo.

Real median weekly earnings for college graduates have trended up over time

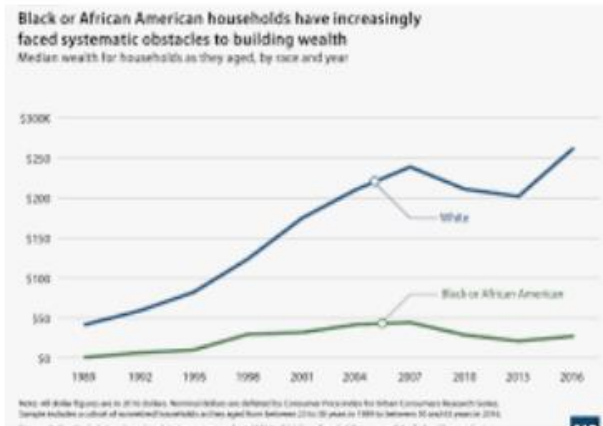


Source: Bureau of Labor Statistics, *Charting the U.S. Labor Market in 2006*; see <http://www.bls.gov/cps/labor2006/home.htm>. Updated to 2009 by Steve Hipple of the Bureau of Labor Statistics; see <http://economix.blogs.nytimes.com/2010/05/17/the-value-of-college-2/>

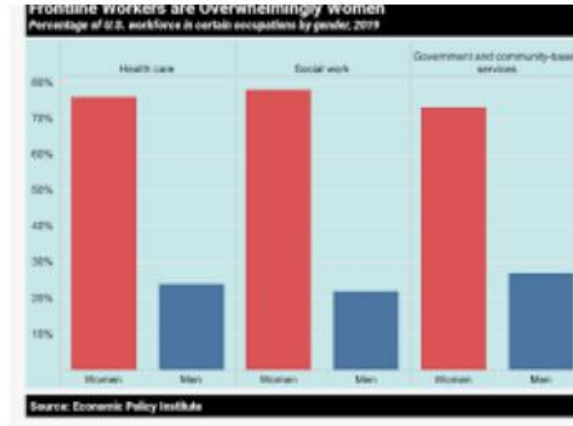
inequality.org

weforum.org

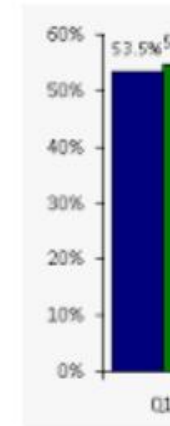
pewresearch.org



Systematic Inequality - Center for ...
americanprogress.org



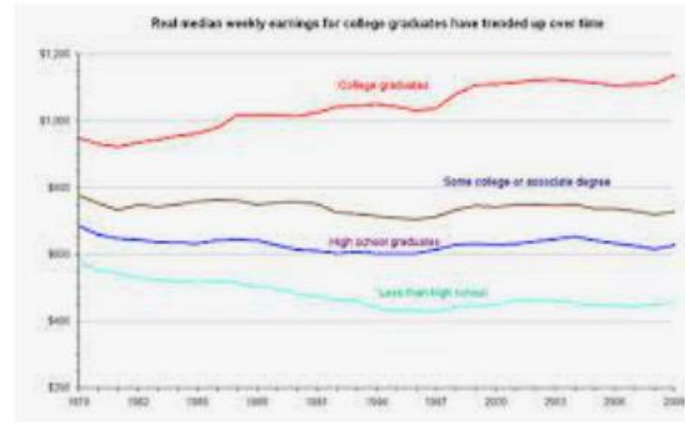
Gender Economic Inequality - Inequality...
inequality.org



20 Facts About Inequality...
inequality.st



Systematic Inequality - Center for ...
americanprogress.org

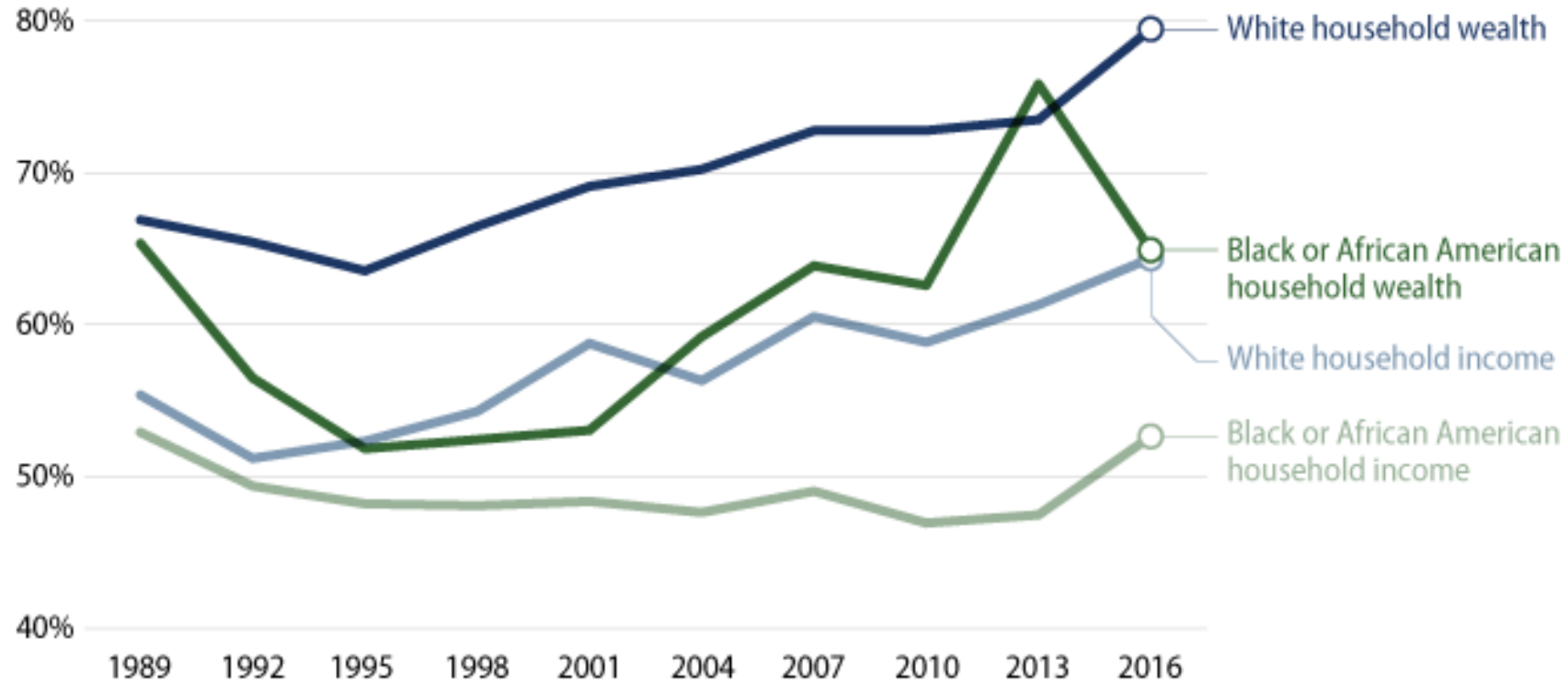


20 Facts About U.S. Inequality that ...
inequality.stanford.edu

FIGURE 1

Wealth is substantially more concentrated than income

Wealth and income shares of top 20 percent of income earners, by race and year



Note: Shares are based on separate distributions for white and black or African American households. Sample includes all nonretired households 25 years and older.

Source: Authors' calculations based on data in survey years from 1989 to 2016 from Board of Governors of the Federal Reserve System, "Survey of Consumer Finances (SCF)," available at <https://www.federalreserve.gov/econres/scfindex.htm> (last accessed October 2017).



TABLE 2

White households have had greater wealth and income than black or African American households

Wealth inequality from 1989 to 2016, by race

	Share with zero or negative wealth		Median ratio of wealth to income		Mean ratio of wealth to income	
	White	Black or African American	White	Black or African American	White	Black or African American
1989	7.1%	32.2%	180.8%	32.1%	440.8%	204.8%
1992	7.1%	21.2%	176.7%	37.6%	444.4%	184.9%
1995	6.7%	23.4%	174.8%	62.8%	459.0%	182.3%
1998	8.2%	19.3%	187.4%	71.9%	505.9%	191.9%
2001	6.3%	17.7%	219.2%	66.9%	534.2%	164.9%
2004	6.9%	17.5%	229.8%	68.9%	622.7%	252.9%
2007	7.6%	20.8%	245.6%	57.2%	639.0%	260.7%
2010	11.6%	22.7%	183.2%	45.6%	636.7%	195.7%
2013	10.0%	28.7%	188.9%	29.1%	592.4%	206.5%
2016	10.6%	25.8%	210.7%	39.3%	666.6%	176.7%

Note: All dollar figures are in 2016 dollars. Nominal dollars are deflated by Consumer Price Index for Urban Consumers Research Series. Sample includes all nonretired households 25 years and older.

Source: Authors' calculations based on data in survey years from 1989 to 2016 from Board of Governors of the Federal Reserve System, "Survey of Consumer Finances (SCF)," available at <https://www.federalreserve.gov/econres/scfindex.htm> (last accessed October 2017).



Practice
Sources of Inequality
in Hong Kong

Data Searching

Google Image Search

- income education Hong Kong
- salary education Hong Kong
- Others: income, salary, wage, earnings...

Different keywords, different insights

Google search results for "income education hong kong". The search bar is highlighted with a red box. Below the search bar are various filters and a grid of image search results. The results include charts and tables related to income inequality, university graduates, and household income in Hong Kong.

social mobility tax gini coefficient income tax employees disposable income inequality

Figure 1: Gini-coefficients of household and individual income inequality 1971-2011

Figure 2: Rate of savings of university graduates relative to secondary school graduates at different ages

Figure 4: Number of Emigrants Leaving Hong Kong 1983-2014

Growing Up in Hong Kong Before and ... wanyujian.hku.hk

median wage - survey ... hongkongfp.com

Growing Up in Hong Kong Before and ... wanyujian.hku.hk

Growing Up in Hong Kong Before and ... wanyujian.hku.hk

Monthly Household researchgate.net

Table 3: Estimates of Income Inequality for Households and Working Individuals (1982-2013)

	1981	1986	1991	1996	2001	2006	2011
Household Income							
P50 (HK\$)	1,001	2,004	4,241	5,209	4,266	7,292	4,452
P90 (HK\$)	7,891	14,116	18,111	22,091	15,178	26,997	16,887
Ratio (P90/P50)	7.8	7.0	4.3	4.2	3.5	3.7	3.8
Gini Coefficient-Cruzeir Estimate	0.451	0.413	0.439	0.391	0.326	0.331	0.344
Working Population - Individual Income							
P50 (HK\$)	648	1,165	2,369	4,017	3,966	5,649	3,376
P90 (HK\$)	3,641	6,318	14,019	23,096	16,491	31,176	18,244
Ratio (P90/P50)	5.6	5.4	5.9	5.8	4.1	5.5	5.4
Gini Coefficient-Cruzeir Estimate	0.439	0.423	0.437	0.411	0.403	0.420	0.399

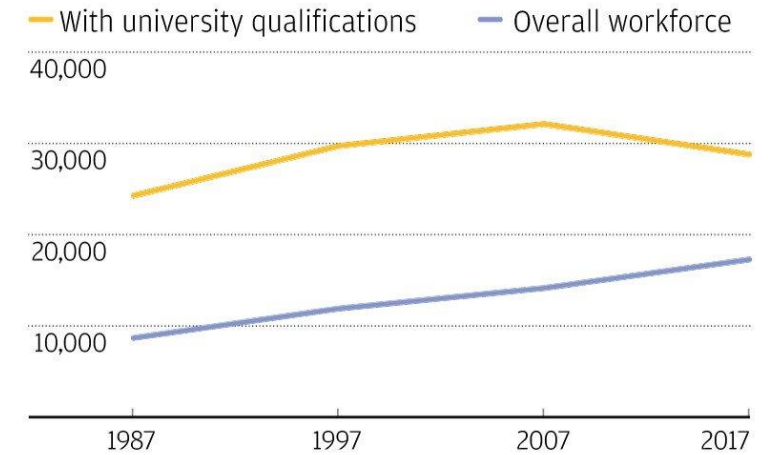
Yue Chim Richard Wong ... wanyujian.hku.hk

median monthly household income... statista.com

low income students in Hong Kong ... scmp.com

Do Affordable English Schools in Hong ... thekhub.com

Median monthly salary of employees in Hong Kong (HK\$)



Source: New Century Forum study

SCMP

Google search results for "salary education hong kong". The search bar is highlighted with a red box. Below the search bar are various filters and a grid of image search results. The results include charts and tables related to salary distribution, bonuses, and income inequality in Hong Kong.

tax income tax foreign domestic helper singapore teaching tax rates household income

100% Almost everyone earns 161,000 HKD or less

75% of employees earn 76,500 HKD or less

50% of employees earn 38,250 HKD or less

25% of employees earn 19,125 HKD or less

Education Average Salaries in Hong Kong ... salaryexplorer.com

Average Salary in Hong Kong 2021 - The ... salaryexplorer.com

Hong Kong university graduates take ... scmp.com

Secondary School Teacher Average Salary ... salaryexplorer.com

Education Average Salaries in Hong Kong ... salaryexplorer.com

Hong Kong fresh graduates taking home ... humanresourcesonline.net

Growing Up in Hong Kong Before and ... wanyujian.hku.hk

Education Average Salaries in Hon... salaryexplorer.com

Table 1: Salaries Distribution Hong Kong

Industries	Starting salaries (HK\$)	Compared with 2019
1. Medical / Pharmaceutical	35,050	▲ 4%
2. Building / Construction	18,500	▲ 2%
3. Financial Services (Non-Bank Organization)	18,321	▼ 1%
4. Banking	18,175	▼ 1%
5. Government & Public Organization	17,161	▼ 1%
6. Engineering	17,133	▼ 2%
7. Property Development & Management	16,929	▲ 7%
8. Management Consultancy / Service	16,800	▲ 1%
9. Information & Communications Technology	16,618	▼ 5%
10. Education & Training	16,447	▲ 4%

Percentage of employees who received a bonus:

- With Bonus: 35%
- No Bonus: 62%

Average Bonus Rate from 2% to 7% of the base salary

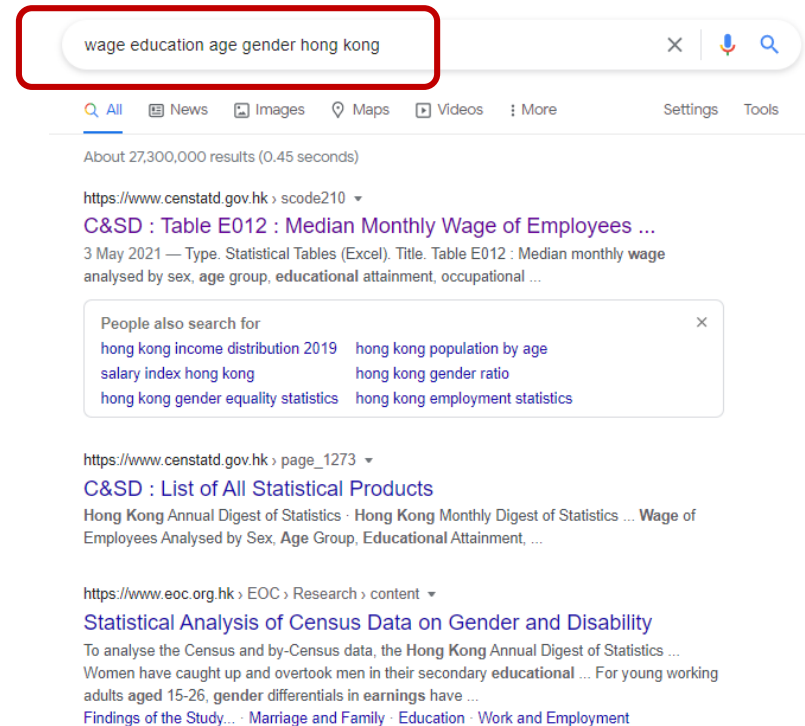
Source: SCMP

<https://www.scmp.com/news/hong-kong/education/article/2178402/hong-kong-university-graduates-take-home-less-pay>

Data Searching

Data Searching – Using Search Engines

- Google Search: wage education age gender Hong Kong
- Is it an authoritative source?



The screenshot shows a Google search interface. The search bar at the top contains the text "wage education age gender hong kong" and is highlighted with a red rectangular box. Below the search bar, there are navigation tabs for "All", "News", "Images", "Maps", "Videos", and "More". The search results section shows "About 27,300,000 results (0.45 seconds)". The first result is from "https://www.censtatd.gov.hk" and is titled "C&SD : Table E012 : Median Monthly Wage of Employees ...". Below this, there is a "People also search for" section with a list of related search terms: "hong kong income distribution 2019", "hong kong population by age", "salary index hong kong", "hong kong gender ratio", "hong kong gender equality statistics", and "hong kong employment statistics". The second result is from "https://www.censtatd.gov.hk" and is titled "C&SD : List of All Statistical Products". The third result is from "https://www.eoc.org.hk" and is titled "Statistical Analysis of Census Data on Gender and Disability".

Data Searching

Data Searching – Useful Data Sources

The screenshot displays the website of the Census and Statistics Department, The Government of the Hong Kong Special Administrative Region. The header includes the department's logo and name, along with utility icons for notifications, search, printing, and accessibility. A teal navigation bar contains links for Statistics, News and Media, Participating in Surveys, Trade Documents Matters, Understanding Statistics, Service Desk, and About Us.

Below the navigation bar, there are several data cards and a search bar:

- By Subject** > Snapshot of Hong Kong
- List of All Statistical Products
- Search for Statistics
- Interactive Statistics
- Population**: 7 474.2 (Year-end 2020 Number ('000) (Provisional figure))
- Unemployment (seasonally adjusted)**: 6.2 (2/2021 (Provisional figure))
- Composite Consumer Price Index**: +0.8 (Apr 2021 Year-on-year % change)
- Industry Codes** search bar

On the right side, there is a promotional banner for the "About C&SD New Website" featuring a tablet displaying the website's interface and a "2/14" indicator.

Data Searching

Data Searching – Useful Data Sources

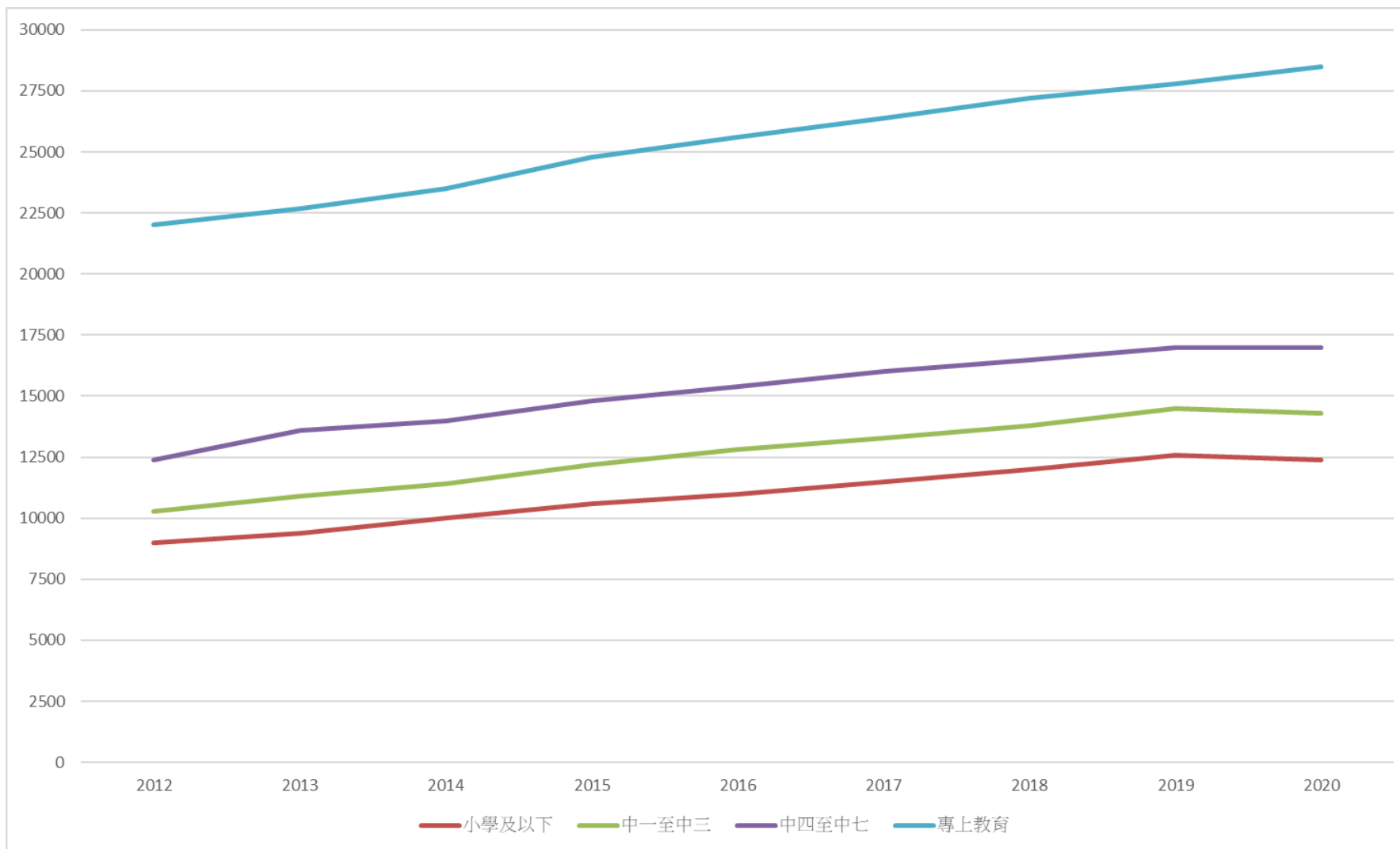
The screenshot shows the homepage of the Census and Statistics Department website. At the top, there is a navigation bar with links for Statistics, News and Media, Participating in Surveys, and Trade Documents Matters. Below this, there are three main categories: Statistical Products, Commodity Codes, and Industry Codes. A search bar is present with the text 'wage education' entered, and a 'Search' button. Below the search bar, there are 'Hot searches' for GDP, Population, CPI, and Income.

Census and Statistics Department, Hong Kong
<http://www.censtatd.gov.hk/>

<https://www.censtatd.gov.hk/en/EIndexbySubject.html?pcode=D5250017&scode=210>

The screenshot shows the 'Search for Statistics' page. The search bar contains 'wage education'. The search results are displayed in a list format. The first result is 'Table E012 : Median Monthly Wage of Employees Analysed by Sex, Age Group, Educational Attainment, Occupational Group and Industry Section'. The second result is 'Table E015 : Median Hourly Wage of Employees Analysed by Sex, Age Group, Educational Attainment, Occupational Group and Industry Section', which is highlighted with a purple box. The third result is 'Report of Salaries and Employee Benefits Statistics - Managerial and Professional Employees (Excluding Top Management)'. The fourth result is 'Table E2016H : 2016 Population By-census - Main Tables (New Town)'. The fifth result is 'Table E2001P : 2001 Population Census - District Profiles'. The page also includes a 'Filter by Statistical Subject' section with a list of subjects and their counts, and a 'Product Type' dropdown menu.

Data Presentation

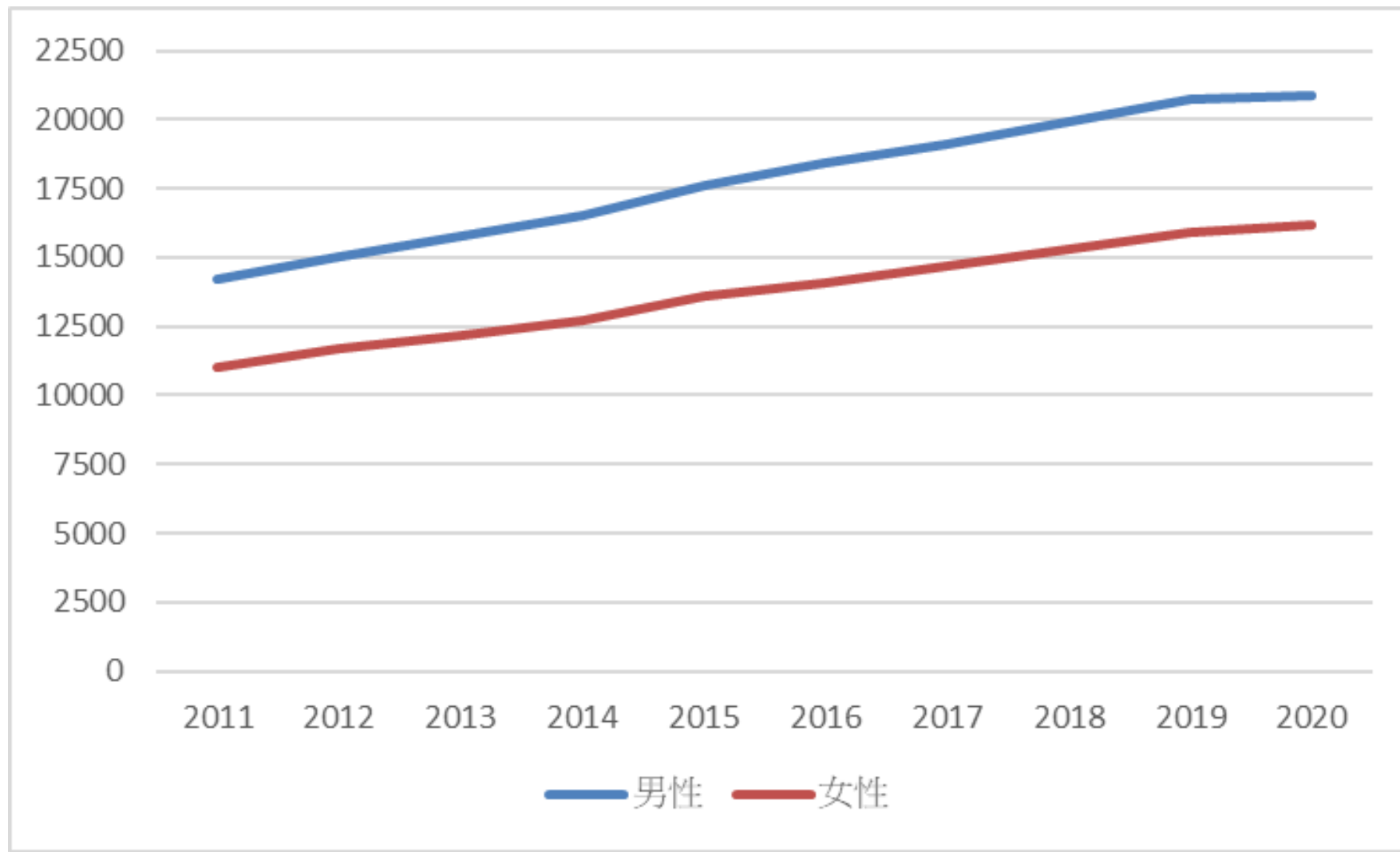


Median Monthly Wage of
Employees Analysed by
Educational Attainment,
2011-2020

按教育程度劃分的僱員每
月工資中位數, 2012-2020

Note:
Other Variables' effect?

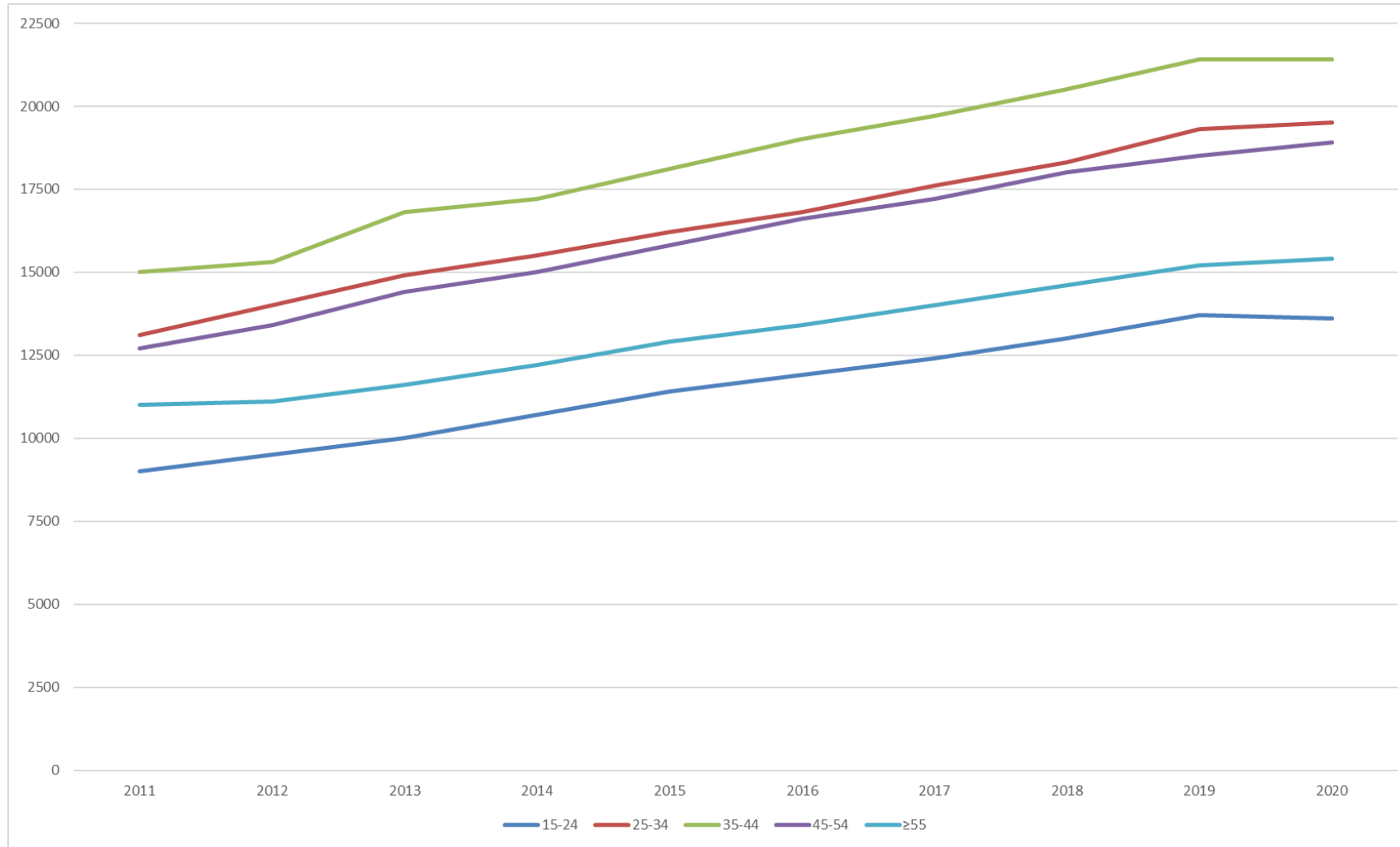
Data Presentation



Median Monthly Wage of
Employees Analysed by **Sex**,
2011-2020
按性別劃分的僱員每月工
資中位數, 2011-2020

Note:
Other Variables' effect?

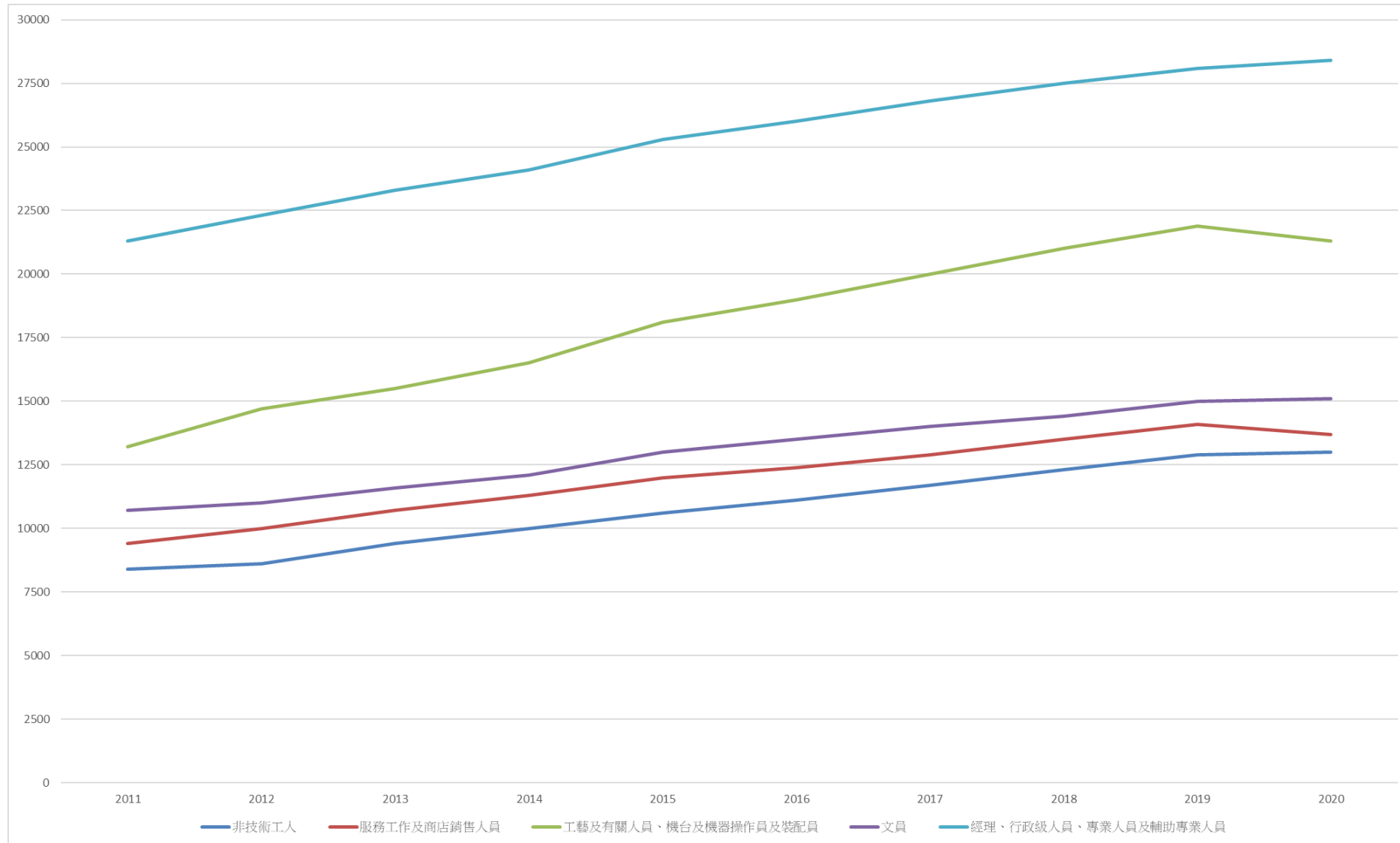
Data Presentation



Median Monthly Wage of
Employees Analysed by **Age**
Group
按年齡組別劃分的僱員每月工
資中位數, 2011-2020

Note:
Other Variables' effect?

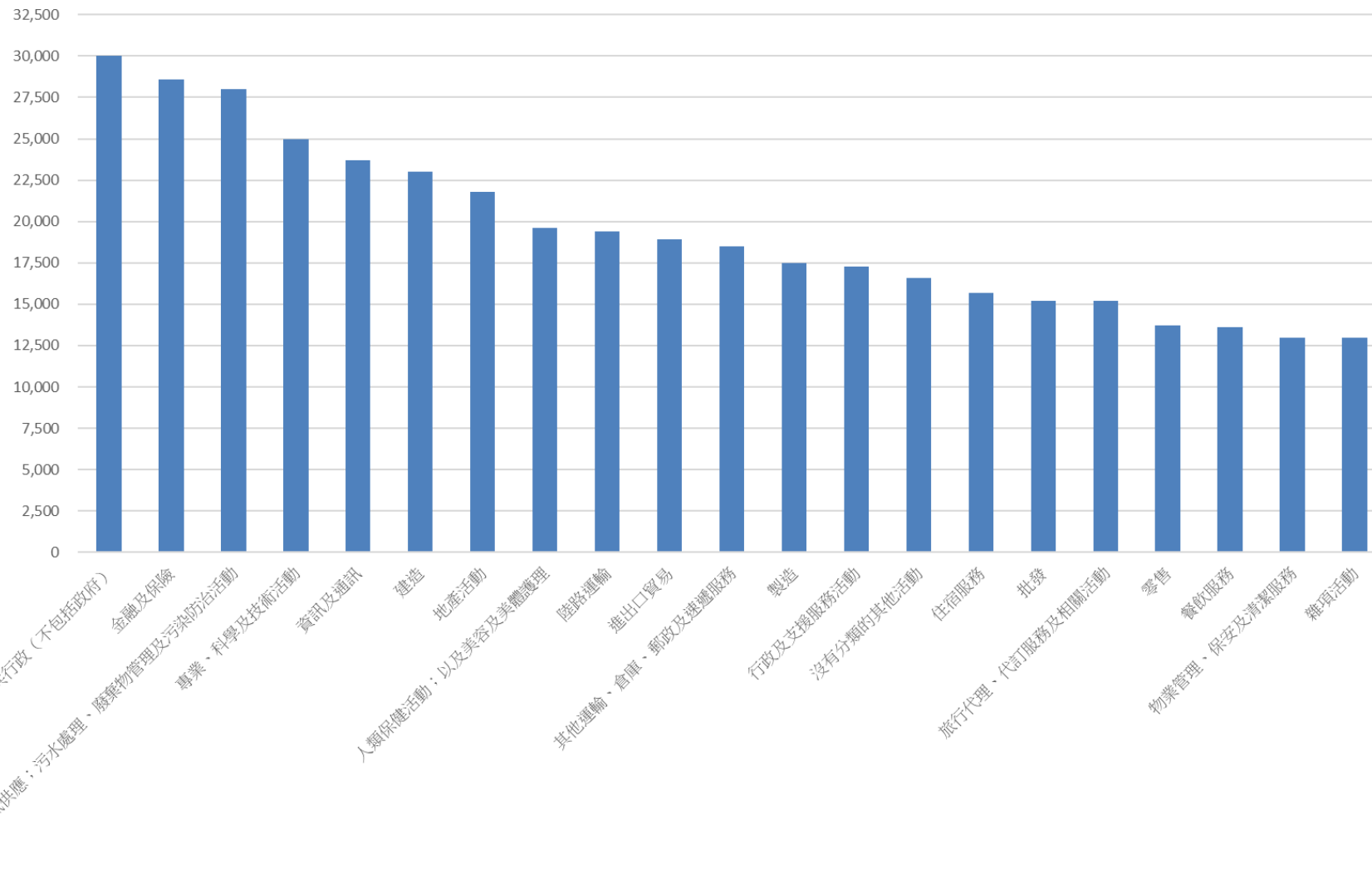
Data Presentation



Median Monthly Wage
of Employees Analysed
by **Occupational Group**
按職業組別劃分的僱
員每月工資中位數，
2011-2020

Note:
Other Variables' effect?

Data Presentation



Median Monthly Wage of
Employees Analysed by
Industry Section
按行業主類劃分的僱員每月
工資中位數, 2020

Note:
Other Variables' effect?

The Consequences of Income Inequality Based on Theories

Impacts: The Consequences of income Inequality

➤ The Benefits of Economic Inequality

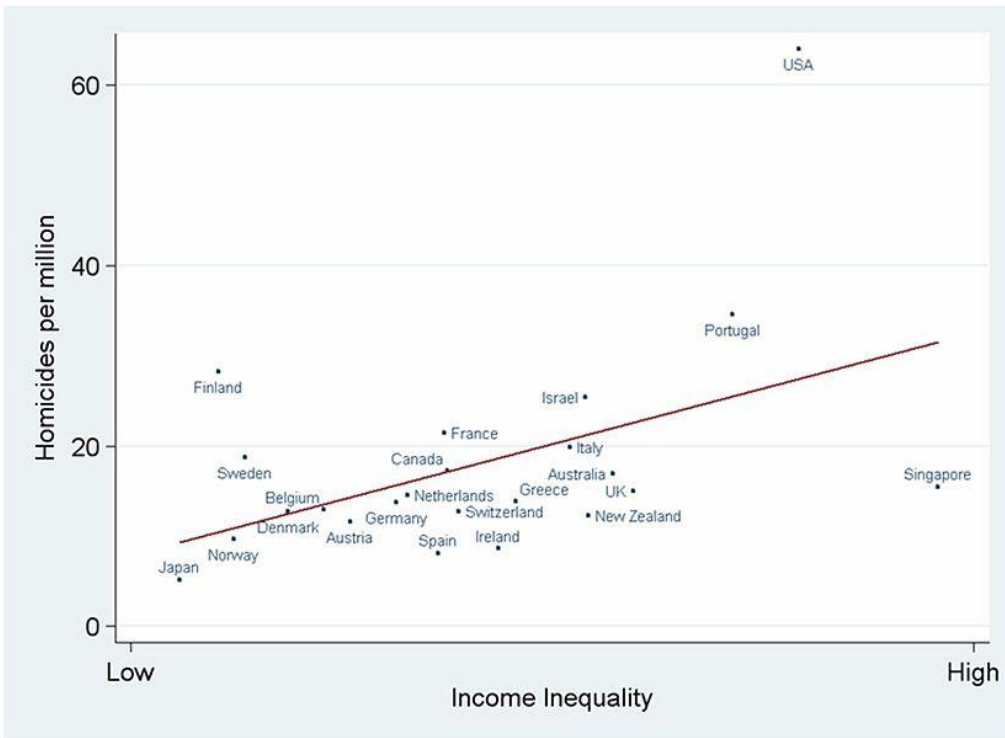
- Inequality Drives Growth
- Inequality Increases Fairness

➤ The Disadvantages of Economic Inequality

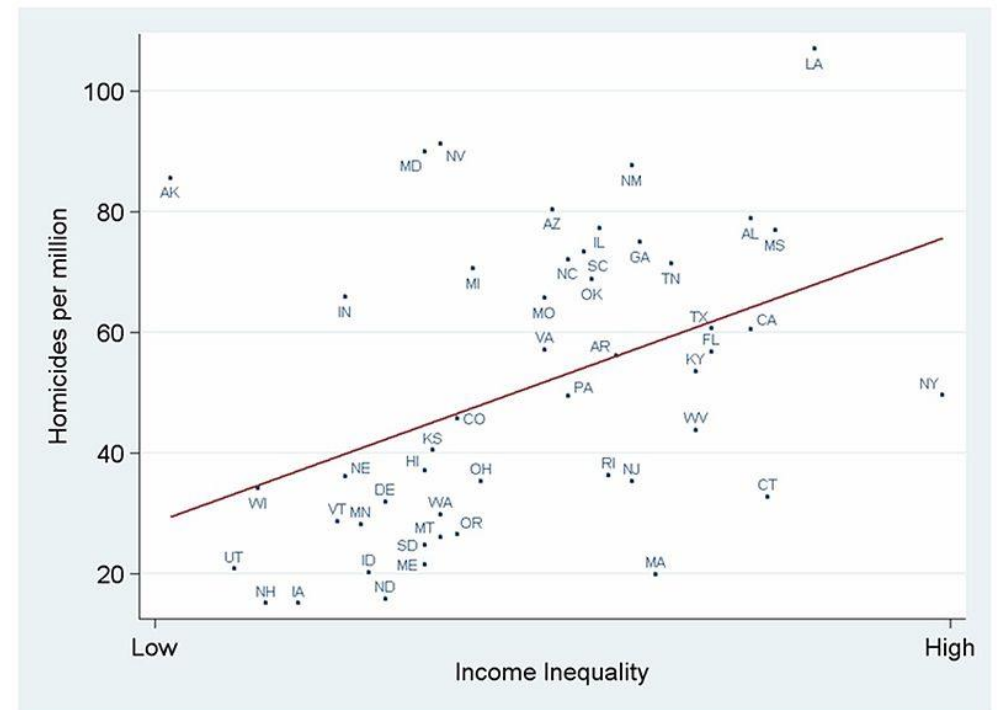
- Inequality Stifles Growth
- Inequality Increases Crime
- Inequality Decreases Health
- Economic Inequality Increases Political Inequality
- Inequality Decreases Education
 - <https://sevenpillarsinstitute.org/consequences-economic-inequality/>
 - <https://www.oecd.org/social/in-it-together-why-less-inequality-benefits-all-9789264235120-en.htm>
- **Causes and Consequences of Income Inequality (advanced level)**
 - <https://www.elibrary.imf.org/view/journals/006/2015/013/article-A001-en.xml?language=en>

Impacts: The Consequences of Income Inequality

Homicide Rates are Higher in More Unequal Rich Countries



Homicide Rates are Higher in More Unequal US States



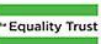
Source: Wilkinson & Pickett, *The Spirit Level* (2009)

www.equalitytrust.org.uk



Source: Wilkinson & Pickett, *The Spirit Level* (2009)

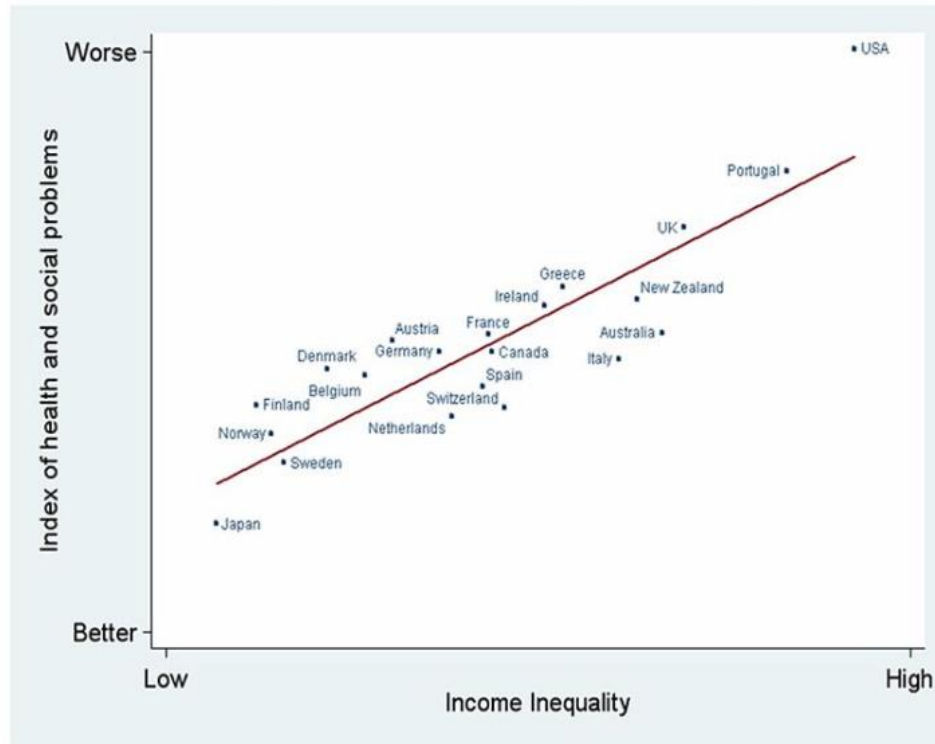
www.equalitytrust.org.uk



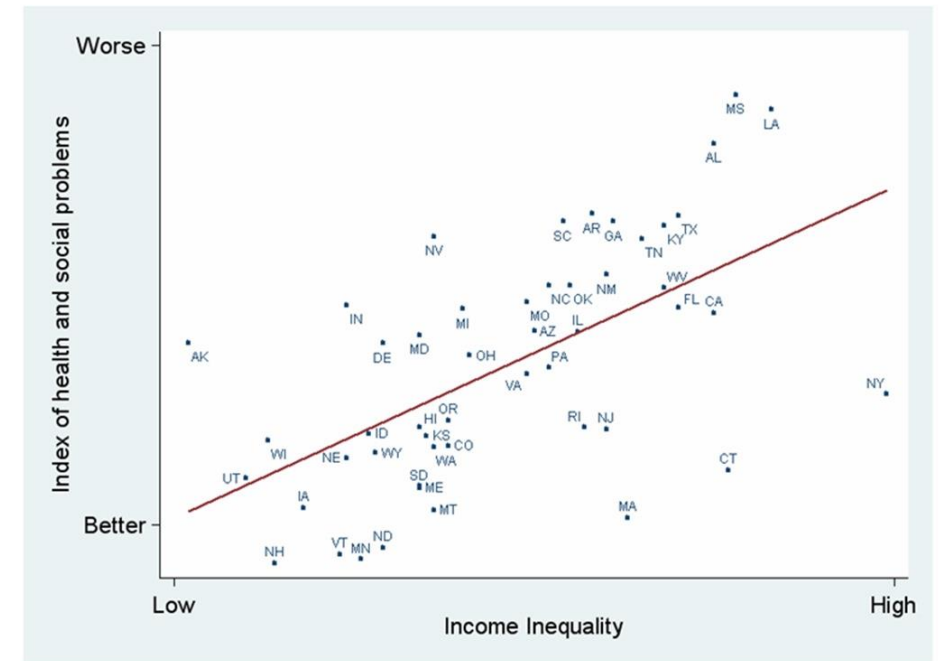
Impacts: The Consequences of Income Inequality

Health and Social Problems are Worse in More Unequal Countries

- Index of:**
- Life expectancy
 - Math & Literacy
 - Infant mortality
 - Homicides
 - Imprisonment
 - Teenage births
 - Trust
 - Obesity
 - Mental illness – incl. drug & alcohol addiction
 - Social mobility



Health and Social Problems are Worse in More Unequal US States



Source: Wilkinson & Pickett, *The Spirit Level* (2009)

www.equalitytrust.org.uk

Equality Trust

Source: Wilkinson & Pickett, *The Spirit Level* (2009)

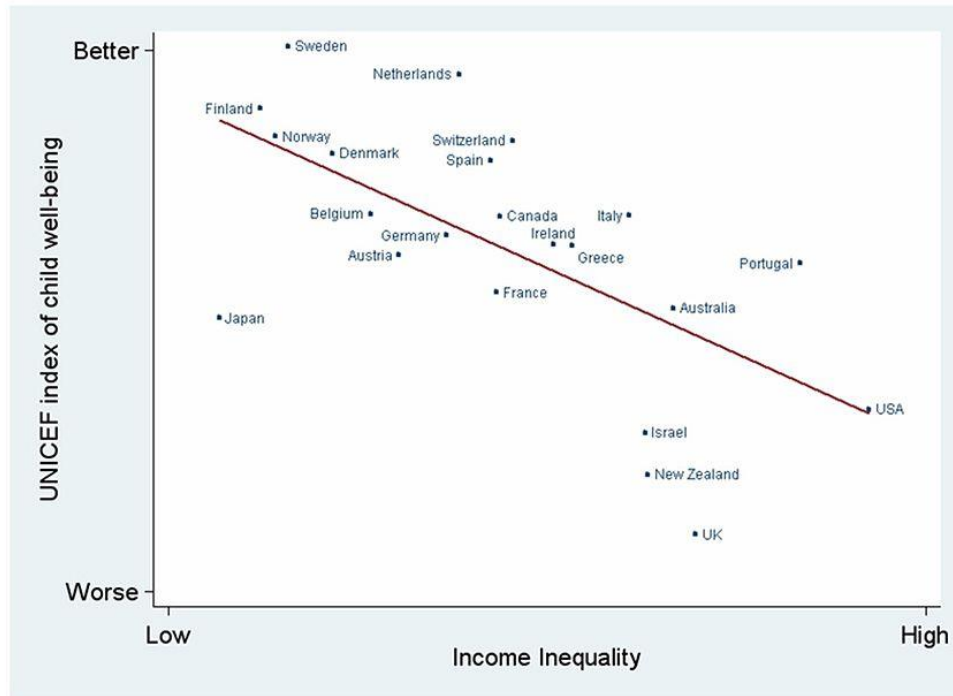
www.equalitytrust.org.uk

Equality Trust

Effects of Economic Inequality. (2021, May 9). In *Wikipedia*.
https://en.wikipedia.org/wiki/Effects_of_economic_inequality

Impacts: The Consequences of Income Inequality

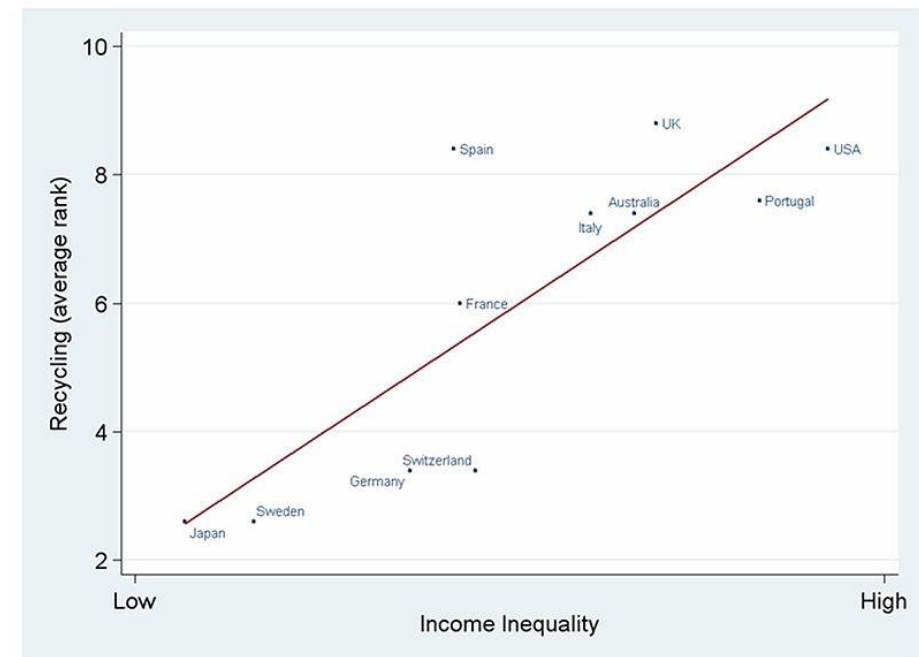
Child Well-being is Better in More Equal Rich Countries



Source: Wilkinson & Pickett, *The Spirit Level* (2009)

www.equalitytrust.org.uk 

More Equal Countries Rank Better (1 is best) on Recycling



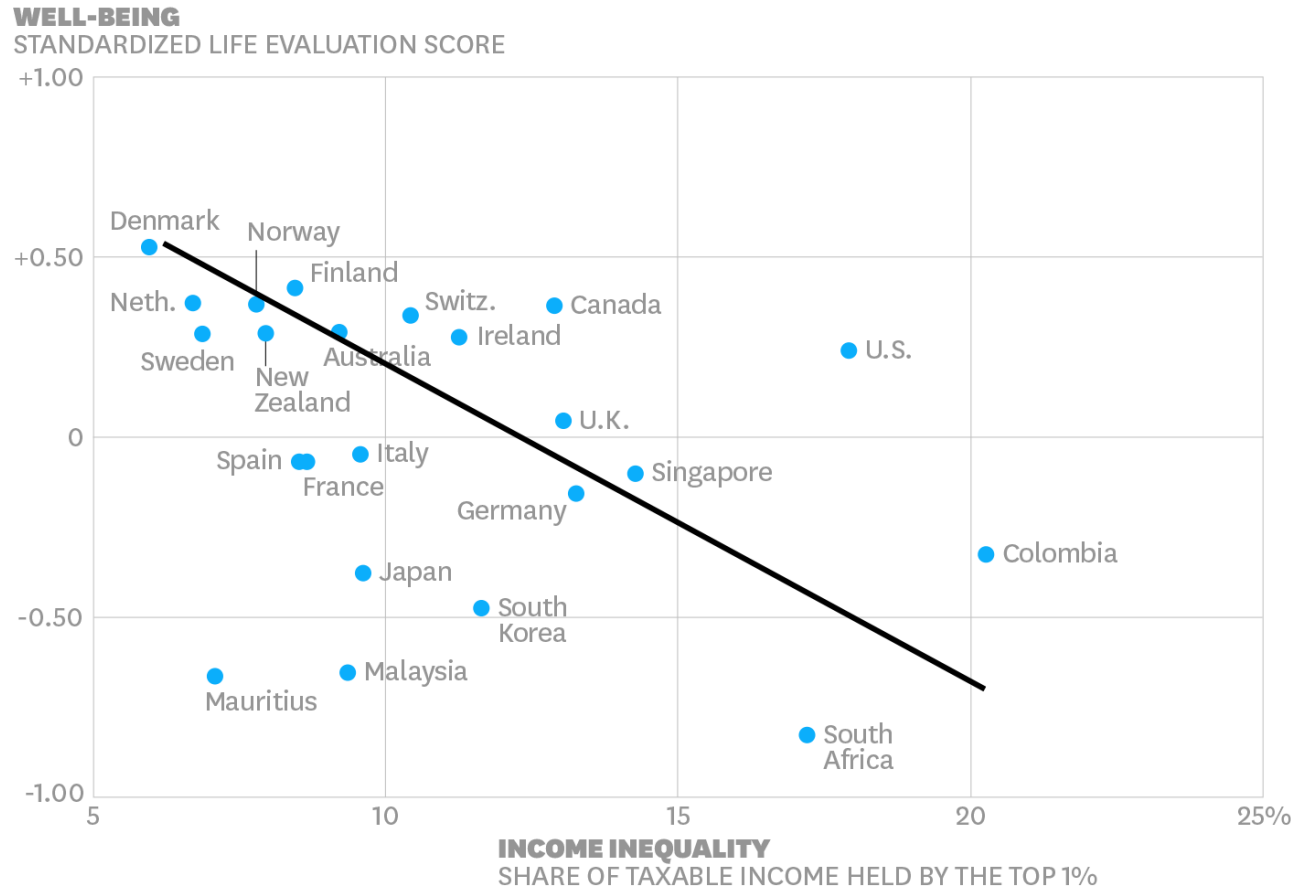
Source: Wilkinson & Pickett, *The Spirit Level* (2009)

www.equalitytrust.org.uk 

Impacts: The Consequences of Income Inequality

Income Inequality Makes Whole Countries Less Happy

Overall Well-Being Drops as National Income Inequality Rises



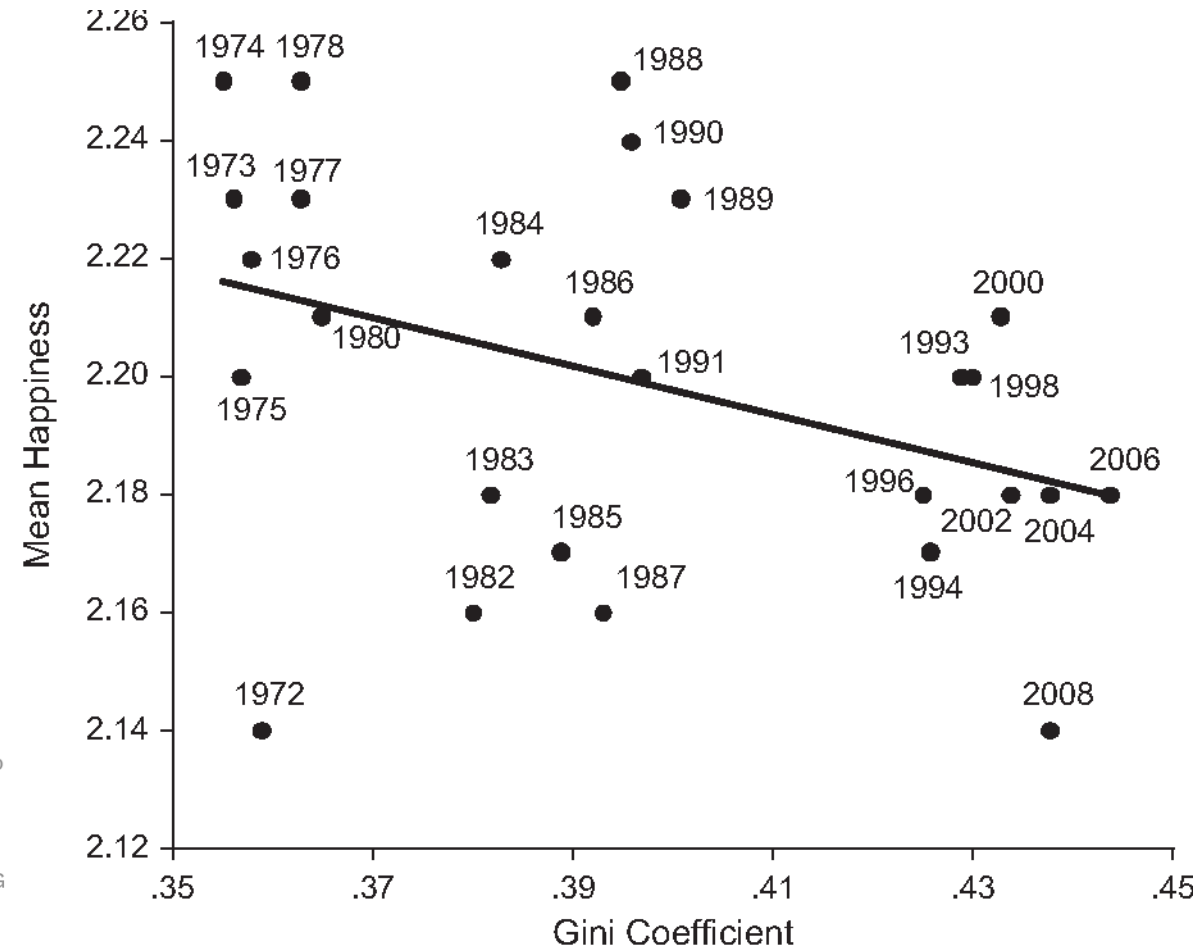
SOURCE JAN-EMMANUEL DE NEVE AND NICK POWDTHAVEE

© HBR.ORG

De Neve J. & Powdthavee N. (2016, January 12) Income Inequality Makes Whole Countries Less Happy. *Harvard Business Review*.

<https://hbr.org/2016/01/income-inequality-makes-whole-countries-less-happy>

Mean American happiness scores as a function of income inequality, as indexed by the Gini coefficient, from 1972 to 2008.



Oishi, Shigehiro, Selin Kesebir, and Ed Diener. 2011. Income inequality and happiness. *Psychological Science* 22:1095–1100.

Practice
Consequences of Inequality
in Hong Kong

Conclusion

➤ **Within** DSE curriculum knowledge

- Out of DSE curriculum knowledge:

Budget deficit → expansionary fiscal policy? **Only cyclically adjusted deficits** and surpluses as percentages of potential GDP provide the information needed to determine whether fiscal policy is expansionary, contractionary, or neutral. (McConnell et al. 2021)

- Diagrams can help understand complicated data, find patterns, identify trends, and tell a story. Think about the message you want to share with your students.
- Avoid using diagrams to “prove” correlation or causation.
 - **Based on theories**
 - Use dialogue / news/ media articles / comics.
- **Peer Review and Moderation** (teaching materials and examination papers) are helpful for **quality assurance** (unrelated to dignity).


REVIEWERS

Alison J. Adderley, *Valencia College*
Richard Agesa, *Marshall University*
Carlos Aguilar, *El Paso Community College, Valle Verde*
Yamin Ahmad, *University of Wisconsin-Whitewater*
Eun Ahn, *University of Hawaii, West Oahu*
Miki Anderson, *Pikes Peak Community College*
Giuliana Andreopoulos, *William Paterson University*
Thomas Andrews, *West Chester University of Pennsylvania*
Fatma Antar, *Manchester Community College*
Len Anyanwu, *Union County College*
Kathleen Arano, *Indiana University Southeast*
Emmanuel Asigbee, *Kirkwood Community College*
John Atkins, *Pensacola State College*
Moses Ayiku, *Essex County College*
Leon Battista, *CUNY Bronx Community College*
Wendy Bailey, *Troy University*
Dean Baim, *Pepperdine University*
Herman Baine, *Broward College*
Tyra Barrett, *Pellissippi State Community College*
David Barrus, *Brigham Young University, Idaho*
Jill Beccaris-Pescatore, *Montgomery County Community College*
Kevin Beckwith, *Salem State University*
Christian Beer, *Cape Fear Community College*
Robert Belsterling, *Pennsylvania State University, Altoona*
Laura Jean Bhadra, *Northern Virginia Community College, Manassas*
David Black, *University of Toledo*
Melissa Blankenship, *North Central Texas College*
Priscilla Block, *Broward College*
Augustine Boakye, *Essex County College*
William Byrd, *Troy University*
Stephanie Campbell, *Mineral Area College*
Bruce Carpenter, *Mansfield University*
Tom Cate, *Northern Kentucky University*
Semih Emre Çekin, *Texas Tech University*
Suparna Chakraborty, *University of San Francisco*
Claude Chang, *Johnson & Wales University*
Amy Chatagnier, *Mississippi Gulf Coast Community College-Gautier*
Shuo Chen, *State University of New York-Geneseo*
Jon Chesbro, *Montana Tech of the University of Montana*
Amod Choudhary, *Lehman College*
Constantinos Christofides, *East Stroudsburg University*
Kathy Clark, *Edison College, Fort Myers*
Wes Clark, *Midlands Technical College*
Jane Clary, *College of Charleston*
Jane Cline, *Forzyth Technical Community College*
Ana Carolina Corrales, *Miami Dade College - Wolfson Campus*
Patricia Daigle, *Mount Wachusett Community College*
Anthony Daniele, *St. Petersburg College-Gibbs*
Rosa Lee Danielson, *College of DuPage*
Ribhi Daoud, *Sinclair Community College*
Maria Davis, *Indian River State College, Central*
William L. Davis, *University of Tennessee-Martin*
Richard Dixon, *Thomas Nelson Community College*
Tanya Downing, *Cuesta College*
Scott Dressler, *Villanova University*

Brad Duerson, *Des Moines Area Community College*
Mark J. Eschenfelder, *Robert Morris University*
Maxwell Eseonu, *Virginia State University*
Michael Fenick, *Broward College*
Tyrone Ferdnace, *Hampton University*
Mary Flannery, *University of Notre Dame*
Jeffrey Forrest, *St. Louis Community College-Florissant Valley*
Richard Fowles, *University of Utah, Salt Lake City*
Mark Frascatore, *Clarkson University*
Shelby Frost, *Georgia State University*
Connel Fullenkamp, *Duke University*
Sudip Ghosh, *Penn State University-Berks*
Alex Gianella, *Fordham University*
Daniel Giedeman, *Grand Valley State University*
Scott Gilbert, *Southern Illinois University*
James Giordano, *Villanova University*
Susan Glanz, *St. John's University*
Lowell Glenn, *Utah Valley University*
Terri Gonzales, *Delgado Community College*
Michael Goode, *Central Piedmont Community College*
Paul Graf, *Indiana University-Bloomington*
Sheryl Hadley, *Johnson County Community College*
Moonsu Han, *North Shore Community College*
Charlie Harrington, *Nova Southeastern University, Main*
Virden Harrison, *Modesto Junior College*
Darcy Hartman, *Ohio State University*
Richard R. Hawkins, *University of West Florida*
Kim Hawtrey, *Hope College*
Glenn Haynes, *Western Illinois University*
Mark Healy, *Harper College*
Dennis Heiner, *College of Southern Idaho*
Michael Heslop, *Northern Virginia Community College, Annandale*
Christiana Hilmer, *San Diego State University*
Calvin Hoy, *County College of Morris*
Jesse Hoyt Hill, *Tarrant County College*
Jim Hubert, *Seattle Central Community College*
Greg W. Hunter, *California State Polytechnic University, Pomona*
Christos Ioannou, *University of Minnesota-Minneapolis*
Faridul Islam, *Utah Valley University*
Mahshid Jalilvand, *University of Wisconsin-Stout*
Ricot Jean, *Valencia Community College-Osceola*
Jonatan Jelen, *City College of New York*
Stephen Kaifa, *County College of Morris*
Brad Kamp, *University of South Florida, Sarasota-Manatee*
Robert Kao, *Park University*
Gus Karam, *Pace University, Pleasantville*
Kevin Kelley, *Northwest Vista College*
Chris Klein, *Middle Tennessee State University*
Barry Kotlove, *Edmonds Community College*
Richard Kramer, *New England College*
Felix Kwan, *Maryville University*
Ted Labay, *Bishop State Community College*
Alex Lancaster, *Tallahassee Community College*
Tina Lance, *Germana Community College-Fredericksburg*
Sarah Leahy, *Brookdale Community College*

Yu-Feng Lee, *New Mexico State University-Las Cruces*
Adam Y. C. Lei, *Midwestern State University*
Phillip Letting, *Harrisburg Area Community College*
Jim Lee, *Texas A&M University-Corpus Christi*
Hank Lewis, *Lone Star College*
Brian Lynch, *Lake Land College*
Zagros Madjd-Sadjadi, *Winston-Salem State University*
Laura Maghoney, *Solano Community College*
Svitlana Maksymenko, *University of Pittsburgh*
Vincent Mangum, *Grambling State University*
Christine Lucy Malakar, *Lorain County Community College*
Benjamin Matta, *New Mexico State University-Las Cruces*
Pete Mavrokordatos, *Tarrant County College-Northeast Campus*
Frederick May, *Trident Technical College*
Katherine McClain, *University of Georgia*
Michael McIntyre, *Copiah-Lincoln Community College*
Robert McKizzie, *Tarrant County College-Southeast Campus*
Kevin McWoodson, *Moraine Valley Community College*
Edwin Mensah, *University of North Carolina at Pembroke*
Randy Metheritis, *Richland College*
Ida Mirzaie, *The Ohio State University*
David Mitch, *University of Maryland-Baltimore County*
Ramesh Mohan, *Bryant University*
Daniel Morvey, *Piedmont Technical College*
Tina Mosleh, *Ohlone College*
Shahriar Mostashari, *Campbell University*
Stefan Mullinax, *College of Lake County*
Ted Muzio, *St. John's University*
Pattabiraman Neelakantan, *East Stroudsburg University of Pennsylvania*
John A. Neri, *University of Maryland*
Cliff Nowell, *Weber State University*
Alex Obiya, *San Diego City College*
Constantin Ogloblin, *Georgia Southern University*
Albert Okunade, *University of Memphis*
Mary Ellen Overbay, *Seton Hall University*
Tammy Parker, *University of Louisiana at Monroe*
Alberto Alexander Perez, *Harford Community College*
David Petersen, *American River College*
Mary Anne Pettit, *Southern Illinois University-Edwardsville*
Jeff Phillips, *Morrisville State College*
Robert Poulton, *Graceland University*
Dezzie Prewitt, *Rio Hondo College*
Joe Prinzing, *Lynchburg College*
Jaishankar Raman, *Valparaiso University*

Gregory Randolph, *Southern New Hampshire University*
Natalie Reaves, *Rowan University*
Virginia Reilly, *Ocean County College*
Tim Reynolds, *Alvin Community College*
Jose Rafael Rodriguez-Solis, *Nova Community College, Annandale*
John Romps, *Saint Anselm College*
Melissa Rueterbusch, *Mott Community College*
Mark Scanlan, *Stephen F. Austin State University*
Tom Scheiding, *Elizabethtown College*
Amy Schmidt, *Saint Anselm College*
Ron Schuelke, *Santa Rosa Junior College*
Richard Alan Seals, Jr., *Auburn University*
James K. Self, *Indiana University, Bloomington campus*
Sangheon Shin, *Alabama State University*
Alexandra Shiu, *McLennan Community College*
Dorothy Siden, *Salem State University*
Robert Simonson, *Minnesota State University, Mankato*
Timothy Simpson, *Central New Mexico Community College*
Jonathan Sleeper, *Indian River State College*
Jose Rodriguez Solis, *Northern Virginia Community College*
Camille Soltau-Nelson, *Oregon State University*
Robert Sonora, *Fort Lewis College*
Maritza Sotomayor, *Utah Valley University, Orem*
Nick Spangenberg, *Ozarks Technical Community College*
Dennis Spector, *Naugatuck Valley Community College*
Thomas Stevens, *University of Massachusetts, Amherst*
Tamika Steward, *Tarrant County College, Southeast*
Robin Sturik, *Cuyahoga Community College Western-Parma*
Travis Taylor, *Christopher Newport University*
Regina Tawah, *Bowie State University*
Ross Thomas, *Central New Mexico Community College*
Mark Thompson, *Augusta State University*
Owen Thompson, *University of Wisconsin Milwaukee*
Deborah Thorsen, *Palm Beach State College*
Michael Toma, *Armstrong Atlantic State University*
Dosse Toulaboe, *Fort Hays State University*
Adriana Vamosiu, *University of San Diego*
Jeff Vance, *Sinclair Community College*
Brandon Walcutt, *Mohawk Valley Community College*
Cheryl Wachenheim, *North Dakota State University-Fargo*
Christine Wathen, *Middlesex County College*
Wendy Wysocki, *Monroe County Community College*
Edward Zajicek, *Winston-Salem State University*
Sourushe Zandvakili, *University of Cincinnati*



Thanks!