UiT Norges arktiske universitet

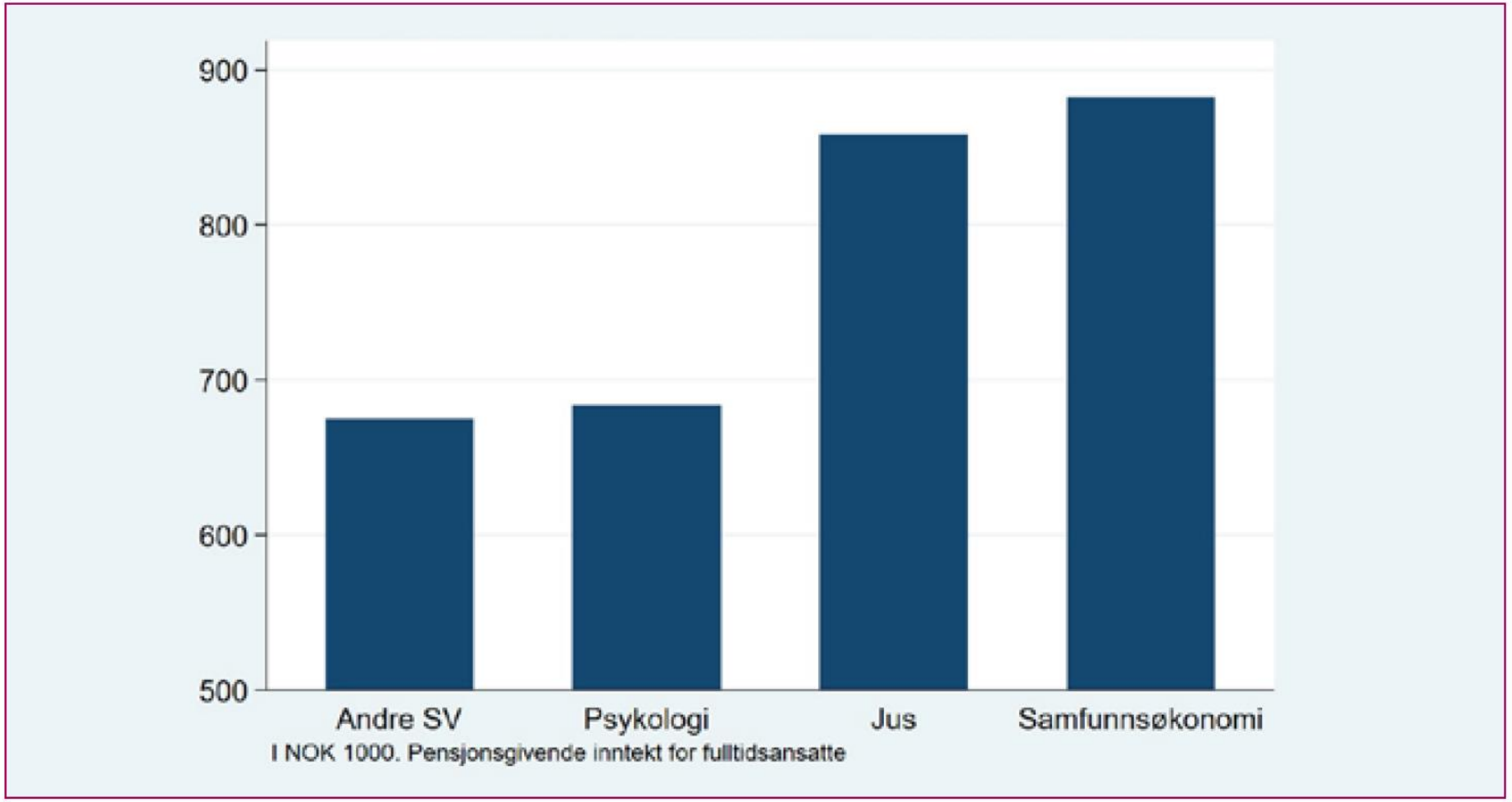
SOK-1004 Økonomiske emner med programmering

Forelesning 1 – Økonomisk etterforskning

Derek J. Clark

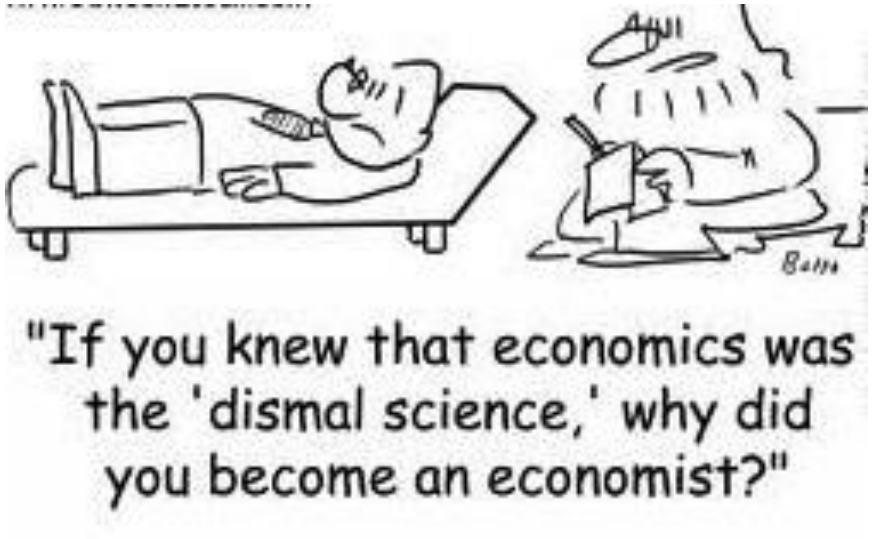
«Økonomer er bare opptatt av penger!»

- Nei, men

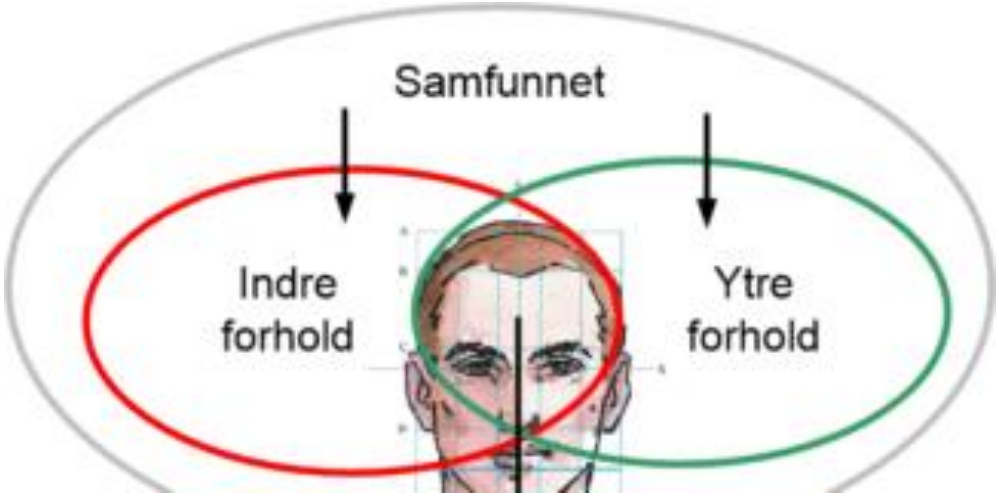


Figur 2: *Hva de tjener i 2017. Gjennomsnitt.*

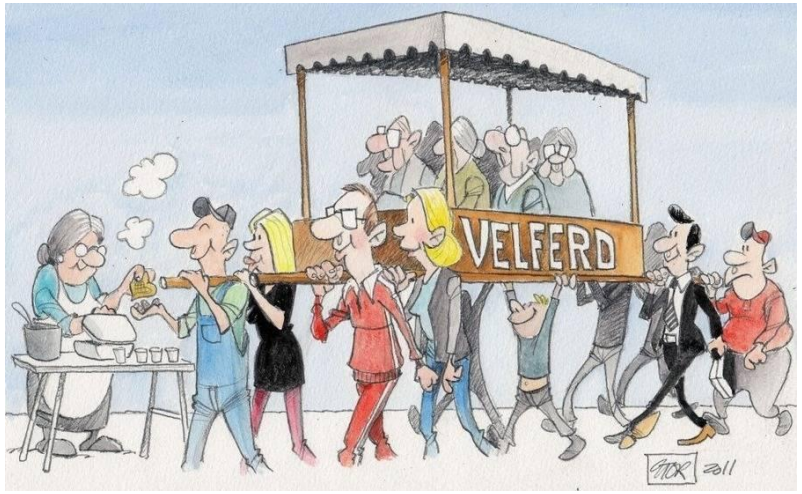
«From zero to hero?»



Det handler om mennesker…..



og …..



«Best» mulig fordeling av samfunnets ressurser?

Økonomisk «etterforskning»

- Spesifiser problemstillingen
- Forenkle virkelighet med en modell
- Innhente data
- Kjør analyse
- Presenter og evaluer resultatene
- Foreslå tiltak
- Evaluer tiltakene

Problemstillingen

- Avgrenset tema
- Et spørsmål eller påstand
- Utforskende og presis

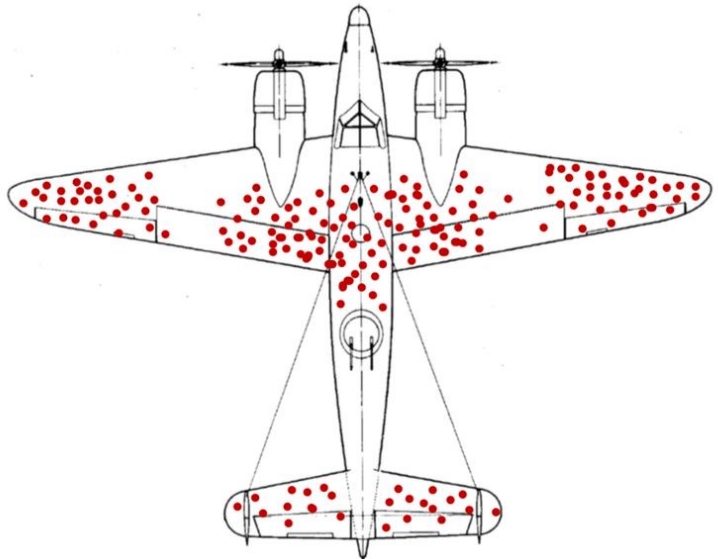
Modell av virkelighet

- T-bane i Oslo: modell og virkelighet
- London underground

Innhente data

- Forstå hva du har (og hva du mangler)

Section of plane	Bullet holes per square foot
Engine	1.11
Fuselage	1.73
Fuel system	1.55
Rest of the plane	1.8



Abraham Wald

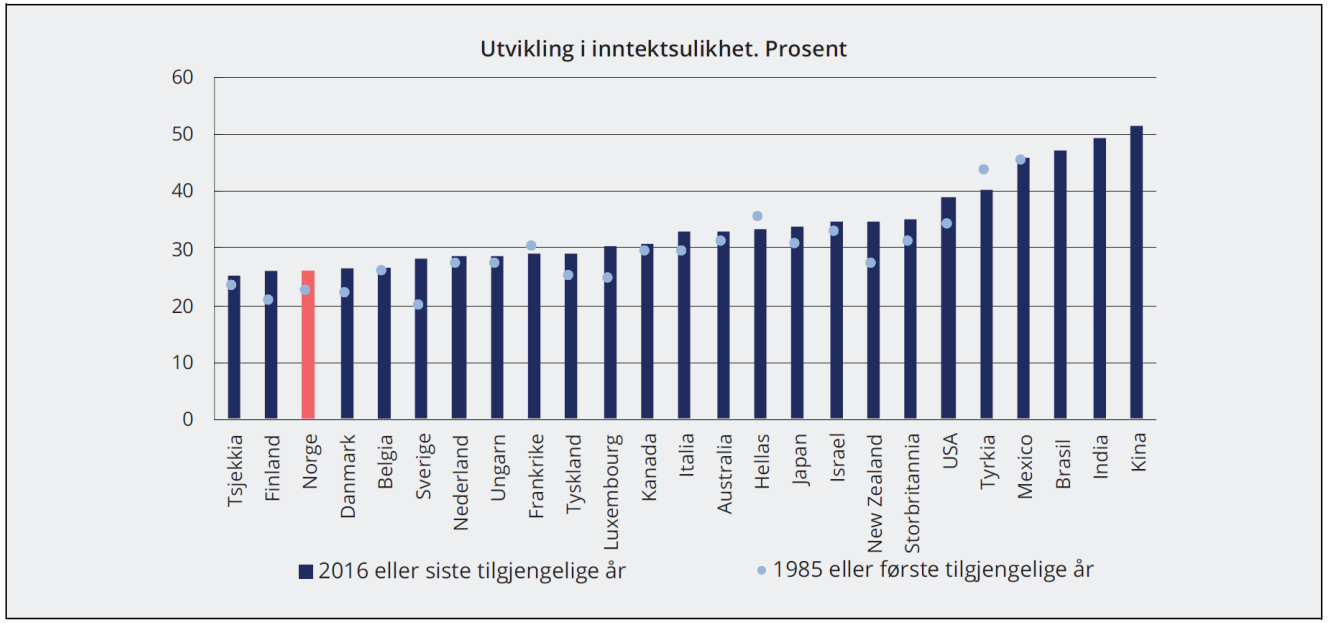
Økonometrisk analyse

$$\%\, medaljepoeng = f(\%BNP, befolkning, helse, utdanning)$$

'GDP alone explains 55% of the variation in Olympic medals won since 1960'. *The Economist 8.8.21.*

Presentasjon av resultater

- Datavitenskap gir oss mange muligheter:
  - Reiser på London undergrunn
  - Eksempel fra Gapminder
  - Måling av ulikhet:



Figur 2.5 Gini-indeks for inntekt etter skatt. 1985[1] og 2016 eller siste tilgjengelige år. OECD-skala

Er resultatene fornuftige?

nature publishing group

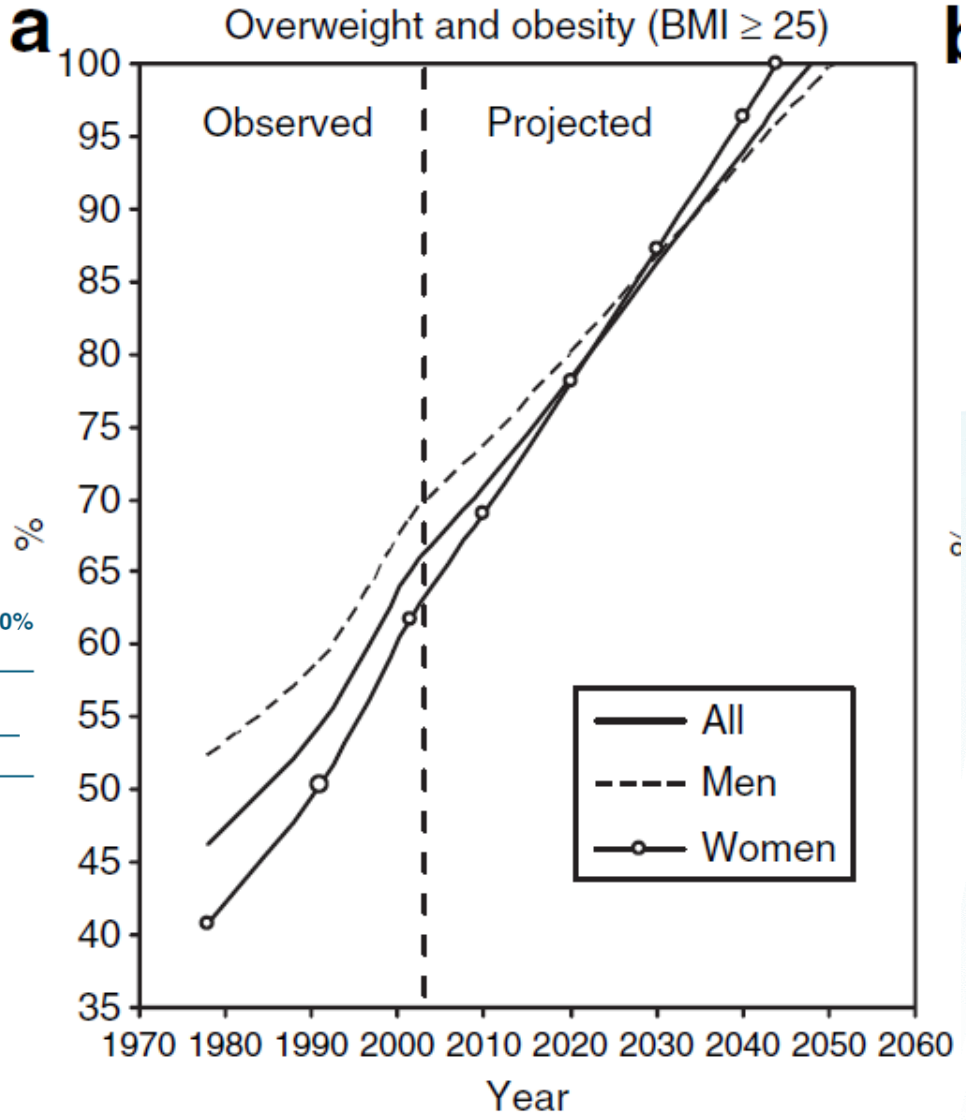
ARTICLES
EPIDEMIOLOGY

Will All Americans Become Overweight or Obese? Estimating the Progression and Cost of the US Obesity Epidemic

Youfa Wang[1], May A. Beydoun[1], Lan Liang[2], Benjamin Caballero[1] and Shiriki K. Kumanyika[3]

Table 2 Future projections:[a] time when the prevalence of overweight or obesity among US adults will reach 80, 85, 90, and 100% and prevalence of overweight (BMI ≥ 95th percentile[b]) among US children will reach 30, 40, and 50%

	Gender	Ethnicity	Year when the prevalence will reach 80%	90%	100%
US adults					
Overweight and obesity (BMI ≥ 25 kg/m²)	All	All	2022	2035	2048
	Men	All	2020	2035	2051
	Women	All	2022	2033	2044



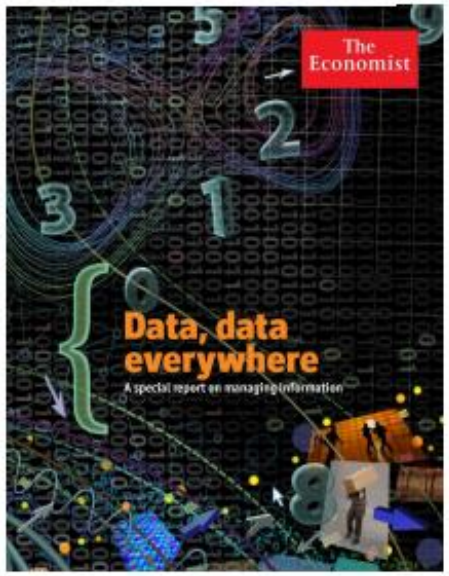
Foreslå og evaluer tiltak

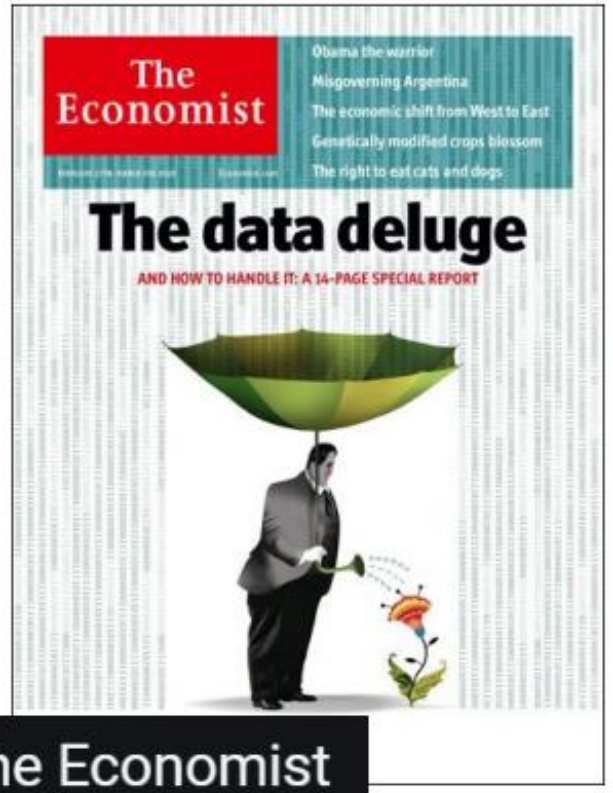
Har tiltaket ønsket effekt?

Datavitenskap (fra kollega Prof. Øystein Myrland)

Volume 455 Issue 7209, 4 September 2008

Feb 27th 2010 edition ›





The data deluge | Feb 27th 2010 | The Economist

What is data science?

The future belongs to the companies and people that turn data into products.

By Mike Loukides. June 2, 2010

We've all heard it: according to Hal Varian, statistics is the next sexy job. Five years ago, in What is Web 2.0, Tim O'Reilly said that "data is the next Intel Inside." But what does that statement mean? Why do we suddenly care about statistics and about data?

In this post, I examine the many sides of data science – the technologies, the companies and the unique skill sets.

The web is full of "data-driven apps." Almost any e-commerce application is a data-driven application. There's a database behind a web front end, and middleware that talks to a number of other databases and data services (credit card processing companies, banks, and so on). But merely using data isn't really what we mean by "data science." A data application acquires its value from the data itself, and creates more data as a result. It's not just an application with data; it's a data product. Data science enables the creation of data products.

Maps are data made into a product. (source: New York Public Library)

The Age of Big Data

By STEVE LOHR
Published: February 11, 2012

The New York Times
SundayReview

Click Here To Access!

Data Science som vitenskap [De Veaux et al. (2017)]

“science of planning for, acquisition, management, analysis of, and inference from data”

“... emphasis on using data to describe the world”

“Data science is inherently interdisciplinary. Working with data requires the mastery of a variety of skills and concepts, including many traditionally associated with the fields of statistics, computer science, and mathematics.”

“Data at the Core”

“Analytical (Computational and Statistical) Thinking”

Ikke alltid nødvendig å være "big" for å være relevant

Forbes

Apr 30, 2014, 07:36am EDT

How Big Data Can Predict The Wine Of The Century

SAP BRANDVOICE | Paid Program
Innovation

By James Marland, Vice President, Network Growth, Ariba – an SAP Company

While Moneyball, and Brad Pitt's good looks, became the face that launched a thousand big data blog posts, I've often thought about other examples, which might appeal to those who prefer to pour a glass a wine versus pore over box scores and Hadoop clusters. This begs the question: Can Big Data help me find a good bottle of wine?

According to the book "Supercrunchers", the answer is yes. Imagine trying to determine if 2013 will be a good year for cabernet because you want to invest in wine futures or want to place an early order for a few cases of the good stuff from your wine merchant. The usual approach is to ask a wine connoisseur who has decades of experience and uses the "swish and spit" technique to expose complex wine flavors.

How an Economist Cracked the Wine Business by Predicting Prices With 90% Accuracy

Ashenfelter could've brought down an empire using a simple math formula

Nabil Alouani Follow
Dec 22, 2020 · 5 min read ★

Illustration created by the author from a Twitter post

Orley Ashenfelter's adventure started with a revelation at a wine store. While holding a bottle he couldn't recognize, Ashenfelter knew he had two options:

1. Roll another $20 dice at the risk of a disappointing taste.
2. Spend half his salary to guarantee a fine drink.

Predicting the Quality and Prices of Bordeaux Wine

Orley Ashenfelter Author Notes

The Economic Journal, Volume 118, Issue 529, 1 June 2008, Pages F174–F184, https://doi-org.mime.uit.no/10.1111/j.1468-0297.2008.02148.x

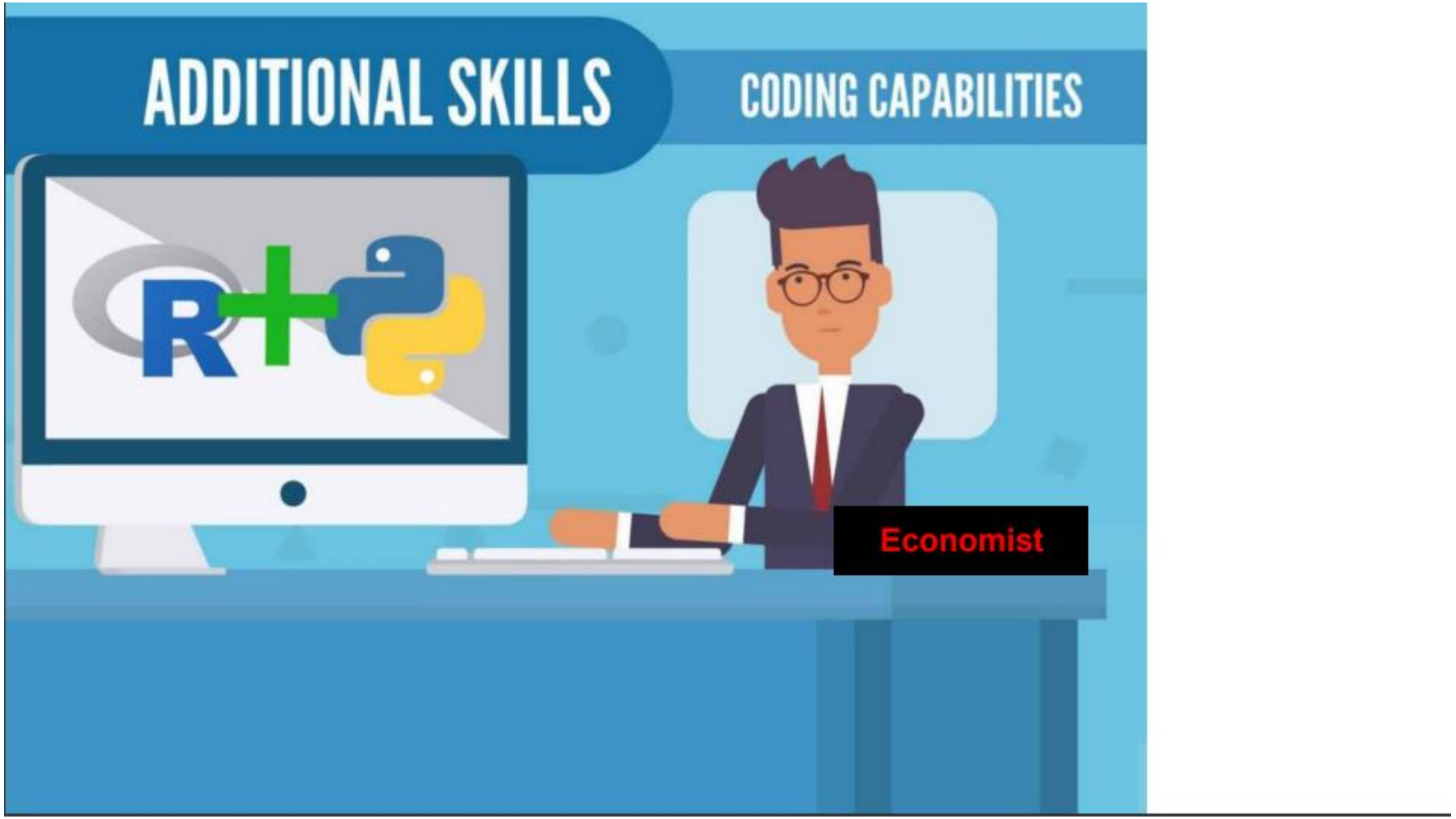
Published: 29 May 2008

Table 2 Regressions of Log Wine Price on Climate Variables

Independent variables	(1)		(2)	
Age of vintage	0.0354	(0.0137)	0.0238	(
Average temperature over growing season (April–September)	–		0.6160	(
Rain in August	–		−0.00386	(
Rain in the months preceding the vintage (October–March)	–		0.00117	(
Average temperature in September	–		–	
R-squared	0.212		0.828	
Root mean squared error	0.575		0.287	

Notes. All regressions are of the (logarithm of) the price of different vintages of a portfolio of Bordeaux chateau wines on climate variables, using as data the vintages of 1952–80, excluding the 1954 and 1956 vintages, which are now rarely sold; all regressions contain an intercept, which is not reported. Standard errors are in parentheses.

Samfunnsøkonomi med datavitenskap



Programmeringsverktøy

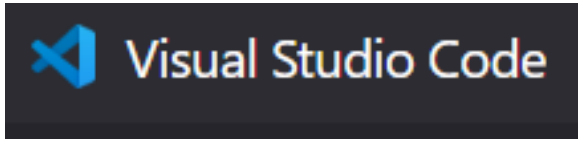
- https://jupyter.uit.no/hub/login

  - Web-basert
  - R og Python som programmeringsspråk
  - Markdown som tekstspråk

Andre muligheter (lokal nedlasting)

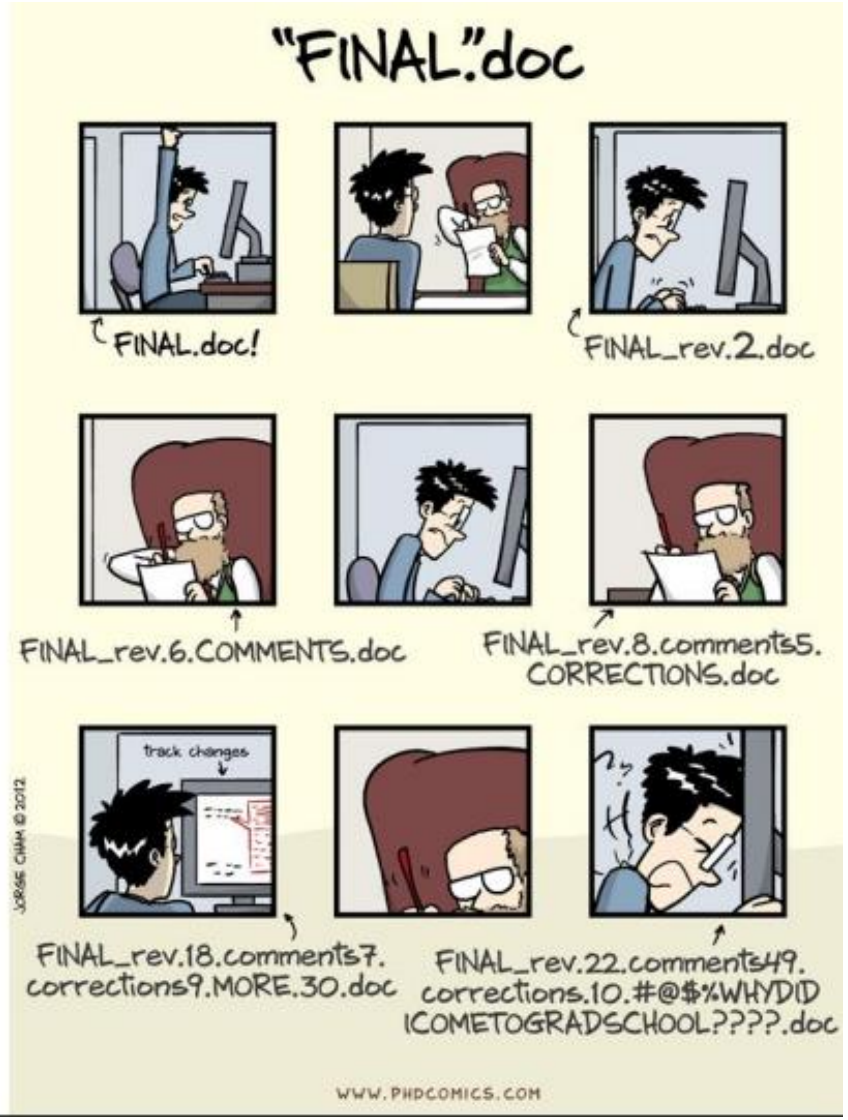
- https://www.rstudio.com/
- (https://posit.co/ fra oktober 2022)

- https://code.visualstudio.com/



«Holde styr på alt»

Versjonskontroll



Økonomi & Datavitenskap

Spesifiser problemstillingen

Forenkle virkelighet med en modell

Innhente data

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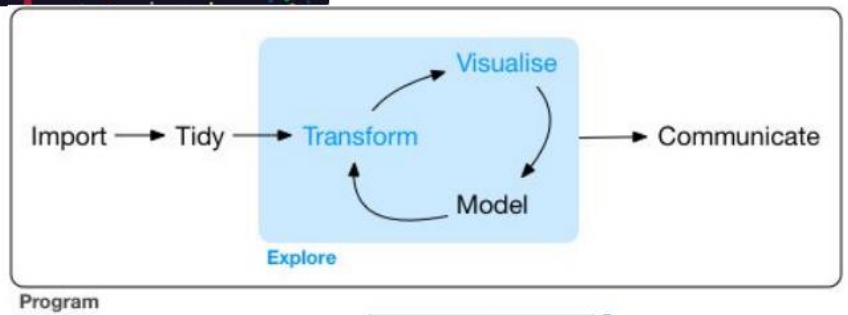
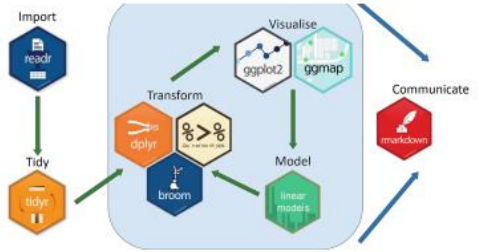
Foreslå tiltak

Evaluer tiltakene

tidyverse

Hadley Wickham's model





(Eksempel fra R)

Begge deler er viktig – teori og empiri