Clase 20: Transparencia, Replicabilidad, y Credibilidad en Economía

Haciendo Economía I
Econ 2205

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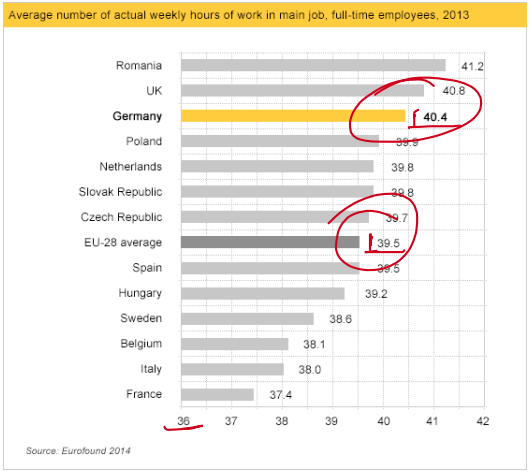
April 16, 2021

Plan para hoy

- Ser capaz de leer críticamente es una habilidad clave para los economistas
- Nos vamos a centrar en el manejo de datos,
  1. Como se suelen manipular para confundir e inducir conclusiones erróneas
  2. La importancia de transparencia y reproducibilidad para la credibilidad en investigación
- El material de la clase viene de
  - www.callingbullshit.org de Carl T. Bergstrom and Jevin West
  - "Transparency, Reproducibility, and the Credibility of Economics Research" de Christensen y Miguel (2018)
- Recomendación para el tiempo libre: "How to Lie with Statistics" de Darrell Huff (1954)
- Tangencial: The Signal and the Noise: Why So Many Predictions Fail de Nate Silver (2020)

Manipular las gráficas



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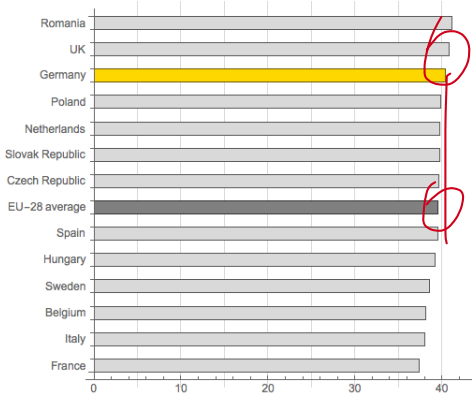

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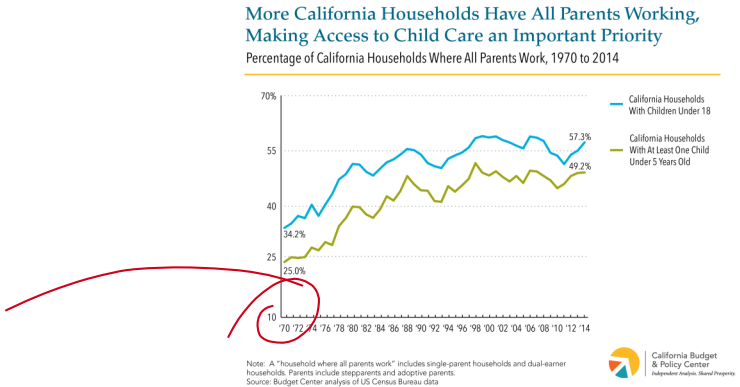

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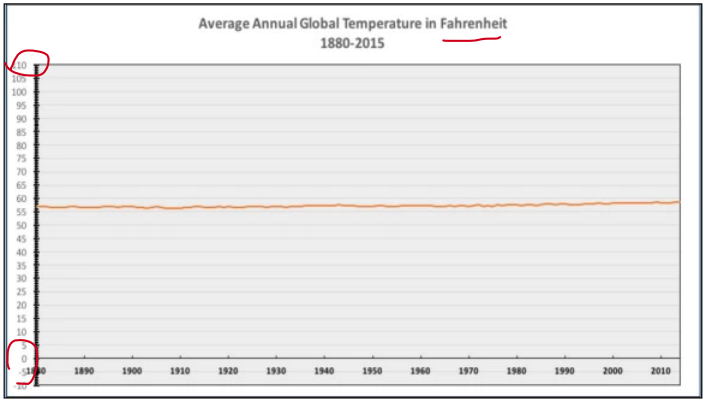

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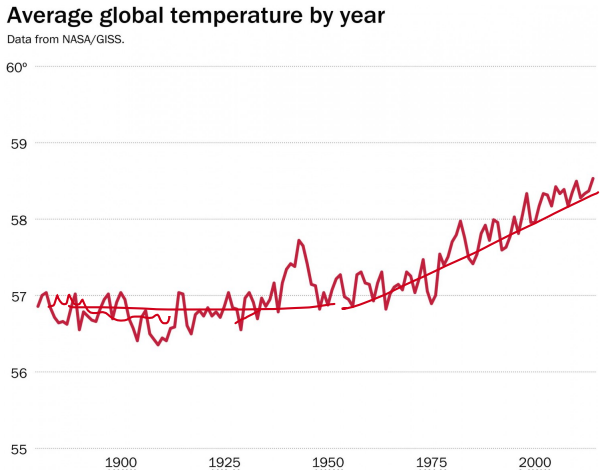

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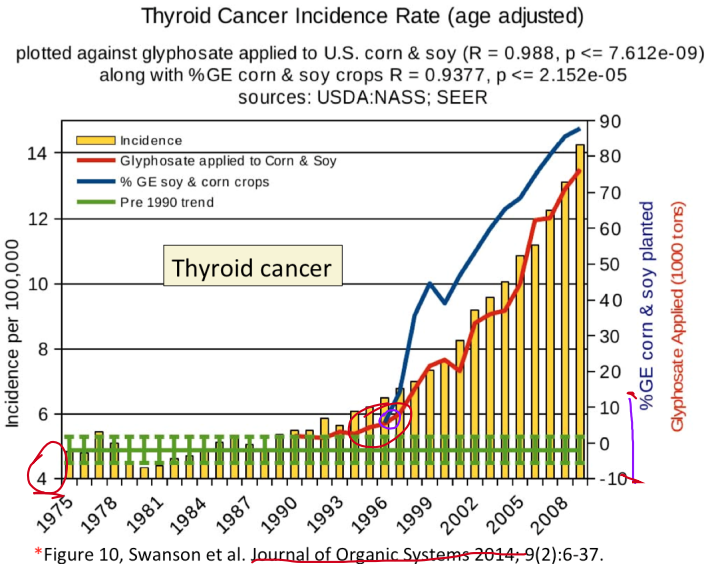
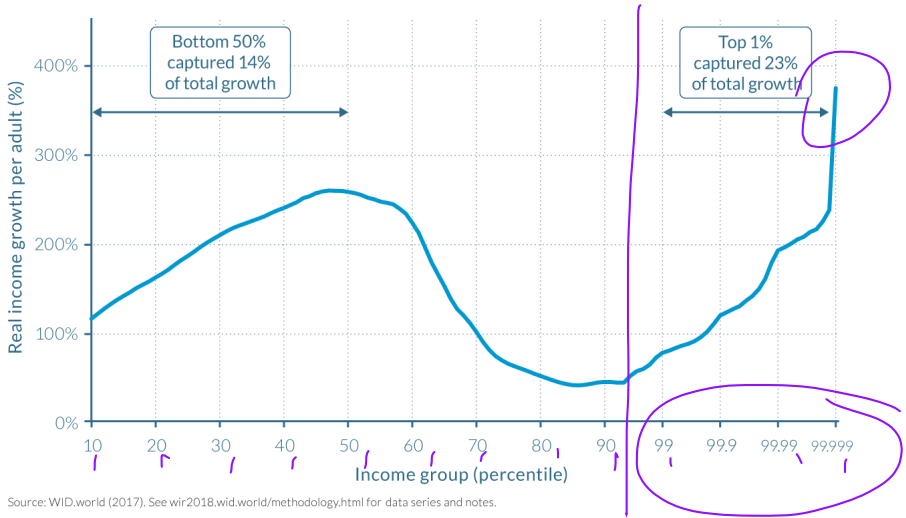


*Figure 10, Swanson et al. Journal of Organic Systems 2014; 9(2):6-37.

Manipular las gráficas



Source: WID.world (2017). See wir2018.wid.world/methodology.html for data series and notes.

On the horizontal axis, the world population is divided into a hundred groups of equal population size and sorted in ascending order from left to right, according to each group's income level. The Top 1% group is divided into ten groups, the richest of these groups is also divided into ten groups, and the very top group is again divided into ten groups of equal population size. The vertical axis shows the total income growth of an average individual in each group between 1980 and 2016. For percentile group p99p99.1 (the poorest 10% among the world's richest 1%), growth was 77% between 1980 and 2016. The Top 1% captured 23% of total growth over this period. Income estimates account for differences in the cost of living between countries. Values are net of inflation.

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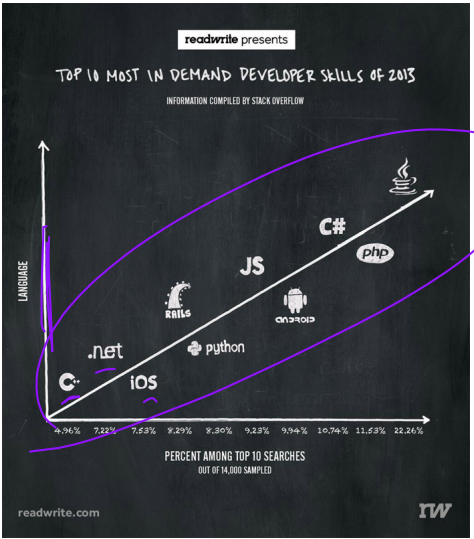

Ojo la naturaleza de las variables

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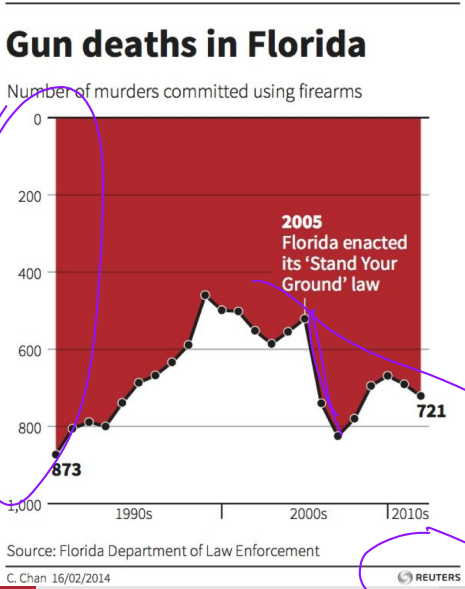


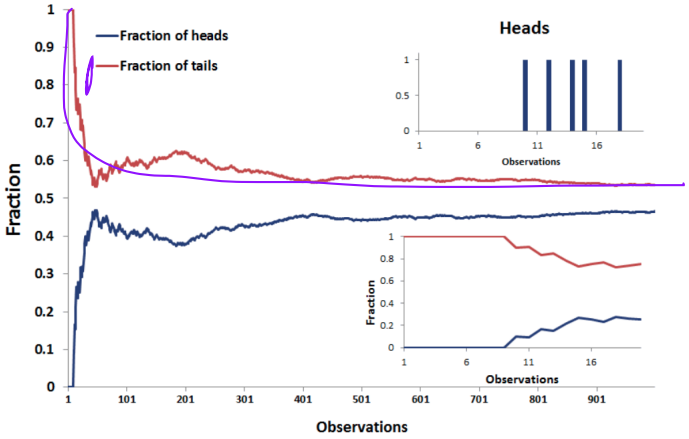
Podemos identificar el problema

Cierta ciudad cuenta con dos hospitales. En el hospital más grande, nacen alrededor de 45 bebés cada día, y en el hospital más pequeño, nacen alrededor de 15 bebés cada día. Como saben, alrededor del 50% de todos los bebés son varones. Sin embargo, el porcentaje exacto varía de un día a otro. A veces puede ser superior al 50%, a veces inferior.

Durante un período de 1 año, cada hospital registró los días en los que más del 60% de los bebés nacidos eran varones. ¿Qué hospital crees que registró más días de este tipo?

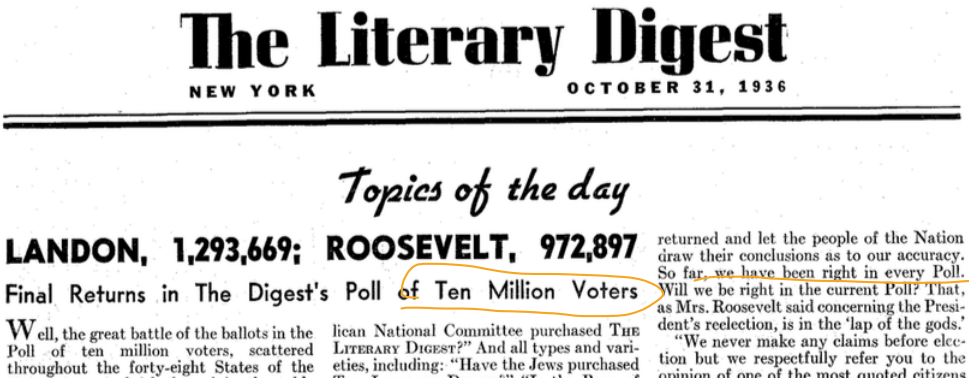
1. El hospital más grande
2. El hospital más pequeño
3. Más o menos iguales (es decir, dentro del 5% entre sí)

Muestras Pequeñas



Source: https://towardsdatascience.com/lessons-from-how-to-lie-with-statistics-57060c0d2f19

Muestras sesgadas



The Literary Digest

NEW YORK — OCTOBER 31, 1936

Topics of the day

LANDON, 1,293,669; ROOSEVELT, 972,897

Final Returns in The Digest's Poll of Ten Million Voters

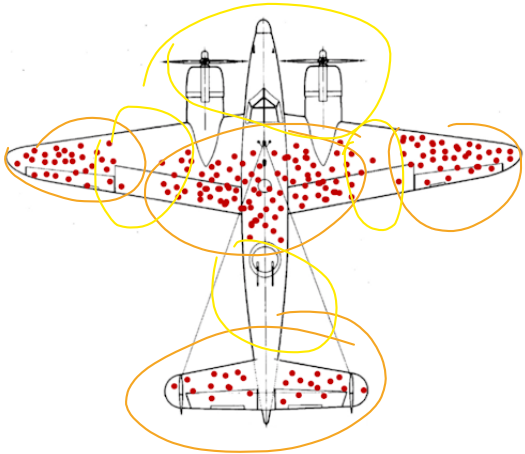
Well, the great battle of the ballots in the Poll of ten million voters, scattered throughout the forty-eight States of the

lican National Committee purchased THE LITERARY DIGEST?" And all types and varieties, including: "Have the Jews purchased

returned and let the people of the Nation draw their conclusions as to our accuracy. So far, we have been right in every Poll. Will we be right in the current Poll? That, as Mrs. Roosevelt said concerning the President's reelection, is in the 'lap of the gods.'

"We never make any claims before election but we respectfully refer you to the

Muestras sesgadas



Extrapolaciones fuera de muestra

Nature

brief communications

Momentous sprint at the 2156 Olympics?

Women sprinters are closing the gap on men and may one day overtake them.

The 2004 Olympic women's 100-metre sprint champion, Yuliya Nesterenko, is assured of fame and fortune. But we show here that — if current trends continue — it is the winner of the event in the 2156 Olympics whose name will be etched in sporting history forever, because this may be the first occasion on which the race is won in a faster time than the men's event.

The Athens Olympic Games could be viewed as another giant experiment in human athletic achievement. Are women narrowing the gap with men, or falling further behind? Some argue that the gains made by women in running events between the 1930s and the 1980s are decreasing as the women's achievements plateau[1]. Others contend that there is no evidence that athletes, male or female, are reaching the limits of their potential[1,2].

In a limited test, we plot the winning times of the men's and women's Olympic finals over the past 100 years (ref. 3; for data set, see supplementary information) against the compe-

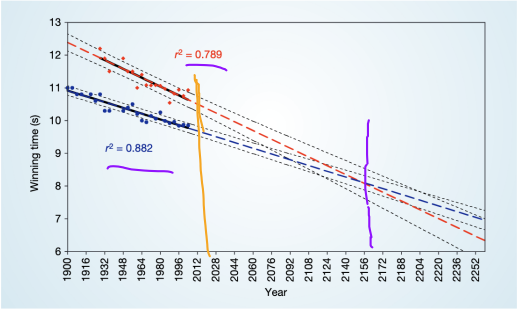
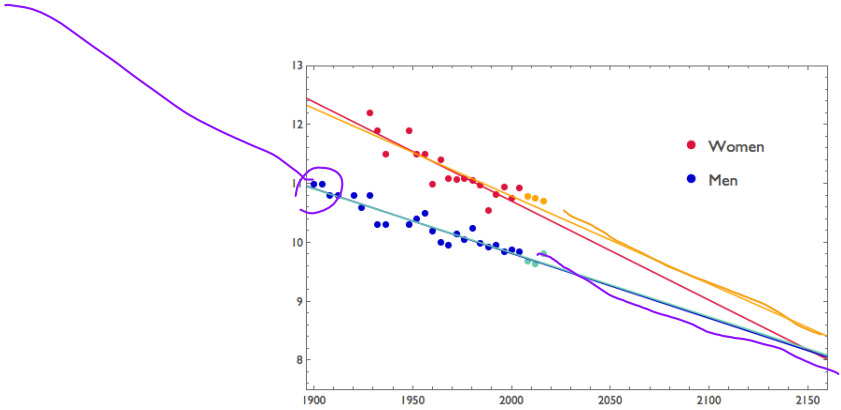


Figure 1 The winning Olympic 100-metre sprint times for men (blue points) and women (red points), with superimposed best-fit linear regression lines (solid black lines) and coefficients of determination. The regression lines are extrapolated (broken blue and red lines for men and women, respectively) and 95% confidence intervals (dotted black lines) based on the available points are superimposed. The projections intersect just before the 2156 Olympics, when the winning women's 100-metre sprint time of 8.079 s will be faster than the men's at 8.098 s.

Extrapolaciones fuera de muestra



Cifras absolutas para manipular importancia

Food Stamp Fraud at All-Time High: Is It Time to End the Program?

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Dec 27, 2016 // 3:08pm As seen on Fox & Friends

REACTION: Actress Carrie Fisher Dies at Age 60 After Heart Attack

Should Japanese PM Shinzo Abe Apologize for Pearl Harbor Attack?

Cop Whose House Burned Down Gets Christmas Surprise From Randy Travis

Food stamp fraud is at an all-time high, with cases this year including a state lawmaker and even a millionaire.

According to the USDA, $70 million of taxpayer money was wasted in 2016 due to food stamp fraud.

Transparencia y reproducibilidad en Economía

Is Economics Research Replicable?
Sixty Published Papers from Thirteen Journals Say
"Usually Not"

Andrew C. Chang* and Phillip Li†

September 4, 2015 → 2017

Controversia de Reinhart & Rogoff

The New York Times

Opinion

OP-ED CONTRIBUTORS

Debt, Growth and the Austerity Debate

By Carmen M. Reinhart and Kenneth S. Rogoff

April 25, 2013

320

CAMBRIDGE, Mass.

IN May 2010, we published an academic paper, "Growth in a Time of Debt." Its main finding, drawing on data from 44 countries over 200 years, was that in both rich and developing countries, high levels of government debt — specifically, gross public debt equaling 90 percent or more of the nation's annual economic output — was associated with notably lower rates of growth.

Controversia de Reinhart & Rogoff

Growth in a Time of Debt
Carmen M. Reinhart and Kenneth S. Rogoff
NBER Working Paper No. 15639
January 2010, Revised January 2010
JEL No. E2,E3,E6,F3,F4,N10

ABSTRACT

We study economic growth and inflation at different levels of government and external debt. Our analysis is based on new data on forty-four countries spanning about two hundred years. The dataset incorporates over 3,700 annual observations covering a wide range of political systems, institutions, exchange rate arrangements, and historic circumstances. Our main findings are: First, the relationship between government debt and real GDP growth is weak for debt/GDP ratios below a threshold of 90 percent of GDP. Above 90 percent, median growth rates fall by one percent, and average growth falls considerably more. We find that the threshold for public debt is similar in advanced and emerging economies. Second, emerging markets face lower thresholds for external debt (public and private)—which is usually denominated in a foreign currency. When external debt reaches 60 percent of GDP, annual growth declines by about two percent; for higher levels, growth rates are roughly cut in half. Third, there is no apparent contemporaneous link between inflation and public debt levels for the advanced countries as a group (some countries, such as the United States, have experienced higher inflation when debt/GDP is high). The story is entirely different for emerging markets, where inflation rises sharply as debt increases.

Controversia de Reinhart & Rogoff

Does high public debt consistently stifle economic growth? A critique of Reinhart and Rogoff

Thomas Herndon, Michael Ash and Robert Pollin*

We replicate Reinhart and Rogoff (2010A and 2010B) and find that selective exclusion of available data, coding errors and inappropriate weighting of summary statistics lead to serious miscalculations that inaccurately represent the relationship between public debt and GDP growth among 20 advanced economies. Over 1946–2009, countries with public debt/GDP ratios above 90% averaged 2.2% real annual GDP growth, not −0.1% as published. The published results for (i) median GDP growth rates for the 1946–2009 period and (ii) mean and median GDP growth figures over 1790–2009 are all distorted by similar methodological errors, although the magnitudes of the distortions are somewhat smaller than with the mean figures for 1946–2009. Contrary to Reinhart and Rogoff's broader contentions, both mean and median GDP growth when public debt levels exceed 90% of GDP are not dramatically different from when the public debt/GDP ratios are lower. The relationship between public debt and GDP growth varies significantly by period and country. Our overall evidence refutes RR's claim that public debt/GDP ratios above 90% consistently reduce a country's GDP growth.

Key words: Public debt, Austerity
JEL classifications: E60, E62, E65

Incapacidad para replicar resultados

	Number of articles (requests)	Attempted reprod.	Successful reprod.	Reprod. rate | attempted	Reprod. rate | empirical article
Dewald et al. (1986) before policy change	62	5	3	60.0%	4.8%
Dewald et al. (1986) after policy change	92	3	2	66.7%	2.2%
McCullough et al. (2006)	193	62	14	22.6%	7.3%
Chang & Li (2017)	67	59	29	49.2%	43.3%

Source: https://hdsr.mitpress.mit.edu/pub/fgpmpj11/release/3

Incapacidad para replicar resultados

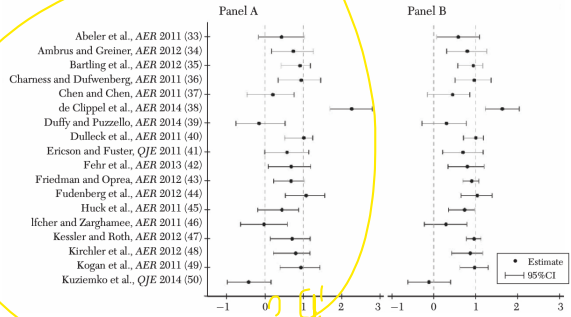

Figure 3. Replicability in Experimental Economics

Notes: Figure from Camerer et al. (2016). Reprinted with permission from AAAS. Panel A: Plotted are 95% CIs of replication effect sizes (standardized to correlation coefficients). The standardized effect sizes are normalized so that 1 equals the original effect size (fig. S1 in Camerer et al. 2016 shows a non-normalized version). Eleven replications have a significant effect in the same direction as in the original study [61.1%; 95% CI = ⟨36.2%, 86.1%⟩]. The 95% CI of the replication effect size includes the original effect size for twelve replications [66.7%; 95% CI = ⟨42.5%, 90.8%⟩]; if one also includes the study in which the entire 95% CI exceeds the original effect size, this increases to thirteen replications [72.2%; 95% CI = ⟨49.3%, 95.1%⟩]. *AER* denotes the *American Economic Review* and *QJE* denotes the *Quarterly Journal of Economics*. Panel B: Meta-analytic estimates of effect sizes, combining the original and replication studies. Plotted are 95% CIs of combined effect sizes (standardized to correlation coefficients). The standardized effect sizes are normalized as in panel A (where again fig. S1 shows a non-normalized version). Fourteen studies have a significant effect in the same direction as the original study in the meta-analysis [77.8%; 95% CI = ⟨56.5%, 99.1%⟩].

Mensaje Final y Próxima Clase

- Ser capaz de leer críticamente es una habilidad clave para los economistas
  - Importante conocer las manipulaciones/sesgos (importante para no caer en ellas, **NO** para que ustedes las usen!!)
  - Pensar en la importancia de transparencia en la investigación,
    - Poner a disposición códigos y datos (si es posible), GitLab, Github, SVN, Docker ... son buenas herramientas
- Semana que viene:
  - Trabajo en clase sobre la Actividad 6: Resultados Potenciales