Economic Studies 186

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Essays on Inequality, Insolvency and Innovation

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Abstract
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First Impressions Last – Does Inequality Increase Status Consumption and Household Debt? (with Elin Molin): Recent decades have seen an increase in income inequality and household debt-to-GDP ratios in many countries, and several studies have suggested that higher income inequality spurs borrowing among nonrich households through their preference to "Keep up with the Joneses". In this paper, we show that standard Keeping up with the Joneses utility functions cannot generate this relationship unless one imposes the implausible assumption that the rich are more impatient than the nonrich. Second, we present an extended version of the Keeping up with the Joneses utility function, in which the main assumption is that status is built up over the life-cycle. We find that this model generates outcomes that are consistent with data and we discuss its implications for other models of household borrowing behavior.

Top Incomes and Consumption of the Nonrich – Is there a Swedish Trickle-Down Effect? (with Elin Molin): A recent empirical study by Bertrand and Morse (2016) suggests that the surge in US income inequality has led to higher consumption among nonrich households. Their evidence indicates that this is driven by a preference for maintaining status. Sweden is the country within the OECD where inequality has increased the most during the last decades. We use detailed Swedish micro data and replicate the study by Bertrand and Morse (2016). Moreover, we extend the analysis by exploring local inequality within age groups, to capture that households are more likely to interact with households in a similar phase of life. In both analyzes we find a positive relationship between rising top incomes and nonrich consumption. An increase of 10 percent of the 90th or 95th percentile of the income distribution is associated with an increase in the consumption-to-income ratio of 0.09-1.65 percent. However, in the replication we cannot rule out that the effect is driven by a rational expectation of future income growth or lower income volatility. In our extension, we find no evidence for the non-causal channels; permanent income, precautionary savings and wealth effects. We provide suggestive evidence that this relationship can be explained by a status-maintaining motive.

Inequality, Relative Deprivation and Financial Distress – Evidence from Swedish Register Data: Several studies have linked rising insolvency rates to increasing inequality and argued that this can be explained by individuals' desire to "Keep up with the Joneses". Using unique administrative register data on individual insolvencies in Sweden, I test whether the probability to become insolvent is related to inequality in one's reference group or to one's income distance relative to peers. Identification relies on area fixed effects, an extensive set of background characteristics and varying the definition of relevant reference groups. The main finding is that it is not inequality per se that drives insolvency, but that higher relative deprivation increases an individual's probability to become insolvent.

Risk-sharing and Entrepreneurship (with Matilda Kilström): In this paper, we study the role of risk-sharing in facilitating innovation. Studying entrepreneurship and innovation entails modeling an occupational choice and an effort choice. Risk-sharing may increase the number of individuals who become entrepreneurs by limiting the downside risk. The effort of entrepreneurs may, however, be hampered by high risk-sharing if this limits the returns faced by successful entrepreneurs relative to unsuccessful entrepreneurs. We construct a theoretical model where risk-sharing may be either private or provided through the welfare state by means of taxation. We show that the level of risk-sharing matters for the characteristics of entrepreneurs. Moreover, high taxes, which imply high equilibrium benefits paid out to unsuccessful entrepreneurs, encourage entrepreneurship but discourage effort.

Keywords: Inequality, Relative Deprivation, Consumption, Household Debt, Risk-sharing, Social Comparison, Status, Conspicuous Consumption, Innovation, Occupational Choice, Insolvency, Entrepreneurship

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Acknowledgments

When I was little, and someone asked me about my future, I always answered that I would be either a writer, an artist or just remain a student forever. I realize now that I have achieved all three: I have written a book, containing some nicely drawn graphs, and I have yet not left school. So, to my 8-year-old self: you would have been satisfied with the outcome!

It is important to state that this book, the graphs and my extended time as a student, would not have been possible without the support, motivation and hard work by many others. I first and foremost want to thank my main advisor Daniel Waldenström, for his tireless support. I am fortunate to work with a supervisor with such high involvement in, and knowledge of, questions related to income inequality. Thank you for believing in me and encouraging me to work on issues that I find interesting. This is also true about my co-advisor, Hans Grönqvist. Thank you for always being up to date on the latest research and methods – it has been truly helpful.

Many other colleagues have read and commented on the papers in this thesis: thank you Niklas Bengtsson, Timo Boppart, John Hassler, Nils Gottfries, Georg Graetz, Per Krusell, Lars Ljungqvist, Arash Nekoei, Mårten Palme, Jesper Roine, Anna Seim and Jósef Sigurdsson for invaluable comments.

Three of the paper in this thesis are joint work with two close friends and colleagues, Matilda Kilström and Elin Molin. I am lucky to have found such compatible and competent co-authors. Elin and I met during our first undergraduate year at Stockholm School of Economics and we wrote our master's thesis together. We spent hours huddled over desks with pen and paper to derive first-order conditions. It feels surreal to see the results of our work here, printed between the covers. Matilda and I started talking about Swedish entrepreneurship and innovation while reading a paper for a class at New York University. After years of reading about entrepreneurs and unicorns, doing comparative statics and simulating 3D-graphs, this initial conversation finally ended up as a paper. I look forward to seeing how this project will develop. Thank you Matilda and Elin for being my partners; meticulous and patient when I am too eager.

When I think back at my time as a PhD student, several other people contributed to making this an unforgettable experience. Maria Olsson,

my office-partner, former roommate and dear friend. We started the program together and have since spent uncountable hours together, commuting between Stockholm and Uppsala, studying for tough exams, sharing an apartment in New York, doing yoga and reading each other's drafts. When I started the PhD-program, I also met Aino-Maija Aalto, Henrik Andersson, Olle Hammar, Dagmar Müller and Lucas Tilley. Thank you for being so generous, relaxed, smart and knowledgeable – these years would never have been the same without you! I am also grateful to have met all the other PhD-students at Uppsala University, you are such a wonderful crowd, always supportive and happy to share your comments and insights.

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Miko! My partner in life, my best friend and supporter. We met on the second day of university and have since then been together for twelve years – sharing 16 sqm in a student corridor, living in a former spa in Beijing, planning our wedding while living on separate continents, and now raising two kids. Thank you for carefully reading and correcting my work, and always motivating me – I could not have done it without you! And, to Miriam and Naomi, thank you for having such strong and fun personalities, forcing me to stop thinking of work whenever you are around. I love being your mother.

Contents

Introduction

> *Tis very certain that each man carries in his eye the exact indication of his rank in the immense scale of men, and we are always learning to read it*[1]
>
> – Ralph Waldo Emerson, *The Conduct of Life* (1860)

Questions related to economic inequality have long been at the heart of research in social sciences. Among neoclassical economists, the standard belief is that income and wealth inequality are determined by the marginal productivity of capital and labor. Hence, a person's income is simply a function of his or her productivity and effort, and inequality is an inevitable outcome of the free market mechanism, and as such, not of great importance for economic research. After decades of increasing economic inequality in the Western world (World Inequality Lab, 2018, OECD, 2011, 2009), there has been a renewed interest among economists to study the economic consequences (Stiglitz, 2012). A pressing question is whether inequality is harmful to society, and if so, what are the possible explanations? For researchers, perhaps the most important question is: are these explanations substantiated by empirical evidence?

In 2009, Richard G. Wilkinson and Kate Pickett published *The Spirit Level: Why More Equal Societies Almost Always Do Better*, with graphs exhibiting negative correlations between high inequality and outcomes such as health, education, well-being, violence and crime (Wilkinson and Pickett, 2009).

Around the same time, concerns were raised regarding the role of inequality in causing the 2008 financial crisis. In his book *Fault Lines: How Hidden Fractures Still Threaten the World Economy*, Raghuram Rajan argues that the widening income gaps in the US led to political pressure to broaden access to housing credit and home ownership, which in turn distorted lending in the financial sector (Rajan, 2010). He writes that: "the political response to rising inequality – whether carefully planned or an unpremeditated reaction to constituent demands – was to expand lending to households, especially low-income ones. The benefits – growing consumption and more jobs – were immediate, whereas paying the inevitable bill could be postponed into the future. Cynical as it may seem, easy credit has been used as a palliative throughout history by governments that are unable to address the deeper anxieties of the middle class directly" (Rajan, 2010, p. 9).

[1] See Emerson (1860)

In the wake of these books, and other similar claims, there was a surge of papers trying to substantiate the relationship between inequality and the negative outcomes with theoretical and empirical evidence.

One causal explanation for the relationship between inequality and the negative outcomes mentioned in the literature is the individual's concern for status. The main point in Wilkinson and Pickett (2009) is that inequality leads to undesirable outcomes because individuals care about their relative standing in society, and are willing to sacrifice a great deal to sustain their position. They claim that the constant struggle to keep up with the incomes of the rich may lead to issues such as increased stress levels, stress-related diseases, mental illness – and for those who are worst off: violence and crime.

The idea that individuals care about their relative position has long been a theme in economic and political literature. It is mentioned in writings by the Roman poet Horace[2], but is mostly accredited to writers such as Adam Smith and Thorstein Veblen. Smith depicts humans as first and foremost striving for social approval (Smith, 1759, p. 515, VII.3.3). This makes individuals desire to better their condition; with a better condition comes more wealth, and in turn, social approval (Paganelli, 2009).

Even though Smith believed that the desire for status was a natural part of being human, he saw the associated moral consequences: "The disposition to admire, and almost to worship, the rich and the powerful, and to despise, or, at least, to neglect, persons of poor and mean condition, though necessary both to establish and to maintain the distinction of ranks and the order of society, is, at the same time, the great and most universal cause of the corruption of our moral sentiments" (Smith, 1759, p. 126; I.3.1).

Veblen also saw the human need for approval of others and said that "the usual basis of self-respect is the respect accorded by one's neighbors" (Veblen, 1899, p. 39). Veblen's theory about conspicuous consumption, that individuals consume to improve their status by replicating the consumption of those in higher rank, is still prominent in economic and political thought. Social influences in consumption decisions were also acknowledged by James Duesenberry, who introduced the relative income hypothesis. The hypothesis states that the consumption and saving decision is dictated by the comparison of one's income to that of others; individual savings "can be regarded as a rising function of his percentile position in the income distribution" (Duesenberry, 1949, p. 45). Other contemporary economists also debated this topic; Arthur Pigou, said, as an argument for distributing incomes from the rich to the poor, that "a

[2]Leibenstein (1950) mentions the description of conspicuous consumption in the texts by Horace, 65-8 BC

larger proportion of the satisfaction yielded by the incomes of rich people comes from their relative, rather than from their absolute, amount. This part of it will not be destroyed if the incomes of all rich people are diminished together" (Pigou, 1920, VIII.3). Melvin Reder suggested a ban against unfair consumption, to retract resources that were wasted due to "competitive consumption" (Reder, 1947).

Social comparison is a well established concept in economic thought, however, there is no consensus regarding its effects on growth and well-being. Although Smith saw that conspicuous consumption had adverse moral consequences, he believed that it can generate growth through its positive effect on demand (Wisman, 2019). Veblen instead saw a behavior that resulted in wasted resources. He believed that conspicuous consumption was wasteful in the sense that it "does not serve human life or human well-being on the whole" (Veblen, 1899, pp. 96, 97).

Numerous studies have evaluated the existence and effect of social comparison. According to Ralph Waldo Emerson, individuals are aware of their own rank, and we can learn to read the rank of others. In an experiment, Kalma (1991) shows that this reading happens instantly; a rank-ordering of individuals exists after a first glance, before even one word has been spoken. Fershtman and Weiss (1998) discuss how status preferences may have evolved evolutionarily. If individuals observe that people who care about their relative position have a higher probability of surviving, they will imitate this behavior. The observation that status behavior is a general tendency among primates supports this view.[3] Huberman et al. (2004) show that individuals value status independently of any monetary consequence and are willing to give up material payoffs to gain recognition among their peers. They conduct an experiment in four different countries, and find similar results regardless of the cultural background of the participants. In a related paper, Charness et al. (2014) find that individuals increase their effort when they are informed about their relative position, even though pay-offs are fixed. They also find that individuals are willing to give up resources to improve their ranking by artificially increasing their performance, or sabotaging the work of other participants. Feltovich and Ejebu (2014) investigate consumption and saving decisions in a life-cycle game. Individuals that observe the consumption of the most successful players decrease their savings compared to individuals that are not informed of the consumption of the other players, thereby lowering their life-time utility. The experimental results confirm the existence of a concern for relative position and show that there are both positive and negative outcomes of social comparison.

This thesis investigates the effect of inequality on the behavior of individuals and households, with a focus on the question of social comparison,

[3]See Frank (2011) for a discussion about the evolution of relative preferences.

which is one suggested channel through which inequality affects individual choices. As seen above, there are various ways of naming social comparison – social status, relative position, social approval, rank – but they all refer to the observation that it is not only the absolute level of income and wealth that matters for individual well-being, but also the relative level in terms of the above. This issue is addressed both from a theoretical and empirical perspective. Using survey and register data, we evaluate the relationship between income inequality and outcomes such as household consumption, household debt, insolvency and innovation.

In *Chapter 1*, written in collaboration with Elin Molin, we are motivated by previous empirical literature showing that there is a positive relationship between income inequality and household debt in many countries in the Western world. It shows that low- and middle-income households stand for the increase in household debt. A causal explanation, suggested by Frank et al. (2014) and Bertrand and Morse (2016), is that low- and middle-income households borrow to keep up with the increasing consumption of the rich. In our paper, we consider a set of utility functions that incorporate a concern for relative consumption. They all build on the "Keeping up with the Joneses" model, which was first formalized by Abel (1990)[4] and Galí (1994) as a way to understand the social aspect of portfolio decisions. Different forms were later suggested by Clark and Oswald (1998) and Ljungqvist and Uhlig (2000). The common denominator in these models is that social comparison, or Keeping up with the Joneses, is a rational behavior, and not a result of impatience or time-inconsistency.

First, we evaluate these previously used models with Keeping up with the Joneses utility and find that none of them give rise to the described relationship between inequality and household debt. We conclude that a concern for relative consumption is, by itself, insufficient to make individuals change their behavior. In these models, the individuals' desire to smooth consumption over time dominates their concern for status. They are not willing to sacrifice consumption tomorrow to increase their status today. We then develop a model where status consumption is an investment that continues to generate utility in future periods, which gives households an incentive to borrow for consumption in the first period. Intuitively, if a household buys an expensive car they will still receive status from this consumption in the next period, either because the car is still in their possession or because people remember that this household used to drive around in a fancy car. Hence, households do not start each period with zero status. When the incomes, and therefore consumption,

[4]Abel used the term "Catching up with the Joneses"; in his model households compare their consumption to the reference consumption in the previous period.

of the rich go up, low- and middle-income households borrow in order to increase their status through higher consumption.

In *Chapter 2*, we provide micro evidence supporting our model in *Chapter 1*, by replicating a study by Bertrand and Morse (2016) using Swedish data. They show that there is a positive relationship between income inequality and higher consumption among low- and middle-income households. Their evidence suggests that this is driven by a preference for maintaining status. We extend their analysis by exploring inequality within age groups in municipalities, to capture that households are more likely to interact with households in a similar phase of life. In both analyses, we find a positive relationship between rising top incomes and the consumption of households that are not in the top, referred to as the "nonrich". A ten percent increase in top incomes is associated with around 1 percent increase in consumption-to-income ratios among the nonrich households.

However, in the replication we cannot rule out that the effect is driven by an expectation of future income growth or lower income volatility. In our extension, we find no evidence of the non-causal channels; permanent income, precautionary savings and wealth effects. We provide suggestive evidence that this relationship can be explained by a status motive. With the survey data on consumption, we can distinguish between different types of consumption, following existing classifications to divide consumption in terms of their visibility. In line with Thorsten Veblen's theory on conspicuous consumption, we find that as top incomes rise, the low- and middle-income households increase their consumption of visible goods. Our results indicate that households increase their consumption, as a response to rising top incomes in order to maintain their status.

It is important for both scholars and policy makers to know whether there are any adverse effects of inequality and social comparison. Increased consumption and household debt are by themselves not negative outcomes, as long as they do not lead to financial distress. In *Chapter 3*, I use unique individual data on insolvencies from the Swedish Enforcement Authority (Kronofogdemyndigheten) linked to Swedish register data on incomes, and other background characteristics, to evaluate whether inequality increases the risk of financial distress. The hypothesis is that high inequality leads to higher consumption among low-income households, who want to keep up with higher consumption levels in their reference group. In turn, this leads to lower savings and a higher risk of becoming insolvent. Access to individual panel data allows me to answer several important questions and to overcome some of the methodological problems in the previous research. I evaluate different measures of inequality, as well as relative deprivation, and employ different assumptions on the relevant reference group. I find that it is not inequality per se that drives insolvency, but that higher relative deprivation in comparison to the reference group increases the probability of becoming insolvent.

This mean that individuals are more likely to become insolvent if they live in areas where they are relatively poorer, suggesting that social comparison can drive insolvency. I also find that the effect differs in magnitude depending on the choice of reference group, where the important group for social comparison seems to be individuals in the same age-group. A specific contribution is my study of the gender differences in status comparison. Even though men and women are almost equally represented among insolvent individuals, the relationship between relative deprivation and insolvency is ten times higher for men.

This paper contributes to the literature on insolvency and the negative effects of inequality. Being insolvent inhibits consumption possibilities and can decrease the incentive to work, since a large share of the income goes to repayment of debts. Lately, over-indebtedness has been suggested as one of the main reasons behind the 2008 financial crisis (Atkinson and Morelli, 2015, van Treeck, 2014). This, together with the negative impact on individual well-being, makes it important to understand the reasoning of individuals who become insolvent. If inequality makes people prone to become over-indebted, this provides policy makers with a strong reason to counteract inequality.

In *Chapter 4*, which is joint work with Matilda Kilström, we look at inequality from a different angle by studying its relationship to innovation and risk-sharing. There is a large body of literature on the relationship between inequality and economic growth, of which several papers focus on the role of innovation. Some argue that inequality and low welfare spending is necessary to incentivize innovation. Others claim that risk-sharing is crucial for promoting innovation because it lowers the threshold to entrepreneurship by decreasing the downside risk. If the former argument is true, we would not expect countries like Sweden to be on the forefront of innovation. However, in 2019, Sweden was named the EU's Innovation Leader, followed by Finland and Denmark.[5] Sweden has long been highly ranked in terms of innovation in rankings by for example the Global Innovation Index and Bloomberg Innovation Index, but in the top ten we also find countries with higher inequality and less public risk-sharing, such as the US and the UK. Hence, there is no clear policy recommendation for the optimal degree of risk-sharing.

In our paper, we evaluate the role of risk-sharing in facilitating innovation. First, we establish some general patterns using cross-country data on innovation and risk-sharing among OECD countries. We find a positive relationship between public risk-sharing and innovation and a negative relationship between inequality and innovation. We use these findings as a motivation for a simple model. Studying entrepreneurship and innovation entails modeling an occupational choice and an effort

[5]The ranking is done by the European Innovation Scoreboard (2019).

choice. Risk-sharing may increase the number of individuals who become entrepreneurs by limiting the downside risk. The effort of entrepreneurs may, however, be hampered by high risk-sharing if this limits the returns faced by successful entrepreneurs relative to unsuccessful entrepreneurs. We construct a theoretical model where risk-sharing may be either private, through savings, or public, through the welfare state. We show that the level of risk-sharing matters for the characteristics of entrepreneurs. Moreover, high taxes – which imply high equilibrium benefits paid out to unsuccessful entrepreneurs – encourage entrepreneurship but discourage effort.

Together, these papers contribute to the now expanding field of inequality research, and specifically, to the research on the role of social comparison in individual decision-making. The theoretical and empirical results suggest that relative income and social comparison affect households' economic choices, leading to more consumption of status-generating goods and services, increased household debt – and in the worst case – over-indebtedness and insolvency.

In 2004, when Robert Lucas, Jr. wrote "of the tendencies that are harmful to sound economics, the most seductive, and in my opinion the most poisonous, is to focus on questions of [income] distribution" (Lucas, 2009, p. 8), it was the dominant view of the profession. He stressed the overwhelming importance of economic growth and believed that it was the single most effective way to eliminate poverty. The financial crisis in 2008 and the availability of new data series showing how inequality has grown in most developed economies are examples that changed the view of inequality among economists. And there is a lot more to learn. It appears that a certain degree of inequality is inevitable in today's society – it might even be that inequality is motivating and spurs higher effort. Is there a turning point, where inequality becomes harmful, or does it depend on the context? What are the determinants behind the increasing inequality around the world and what are its consequences? What can we expect of economic inequality in the future, when many risk losing their jobs to automation or artificial intelligence, or have already lost them in the crisis caused by the 2020 coronavirus pandemic? With these questions in mind, I look forward to following the development of inequality research.

References

Abel, A. B. (1990). Asset Prices under Habit Formation and Catching up with the Joneses. *American Economic Review*, 80(2):38–42.

Atkinson, A. B. and Morelli, S. (2015). Inequality and Crisis Revisited. *Economia Politica*, 32(1):31–51.

Bertrand, M. and Morse, A. (2016). Trickle-Down Consumption. *Review of Economics and Statistics*, 98(5):863–879.

Charness, G., Masclet, D., and Villeval, M. C. (2014). The Dark Side of Competition for Status. *Management Science*, 60(1):38–55.

Clark, A. and Oswald, A. (1998). Comparison-Concave Utility and Following Behaviour in Social and Economic settings. *Journal of Public Economics*, 70:133–155.

Duesenberry, J. (1949). *Income, Saving and the Theory of Consumer Behaviour*. Cambridge: Harvard University Press.

Emerson, R. W. (1860). *Conduct of Life*. Boston: Ticknor and Fields.

European Innovation Scoreboard (2019). (https://ec.europa.eu/growth/industry/policy/innovation/scoreboards_en [Accessed March 9, 2020]).

Feltovich, N. and Ejebu, O.-Z. (2014). Do Positional Goods Inhibit Saving? Evidence From a Life-Cycle Experiment. *Journal of Economic Behavior and Organization*, 107:440–454.

Fershtman, C. and Weiss, Y. (1998). Social Status and Economic Performance: A Survey. *European Economic Review*, 42:801–820.

Frank, R. (2011). *The Darwin Economy*. Princeton: Princeton University Press.

Frank, R., Dijk, O., and Levine, A. S. (2014). Expenditure Cascades. *Review of Behavioral Economics*, 1:55–73.

Galí, J. (1994). Keeping up with the Joneses: Consumption Externalities, Portfolio Choice, and Asset Prices. *Journal of Money, Credit and Banking*, 26(1):1–8.

Huberman, B. A., Loch, C. H., and Önçüler, A. (2004). Status As a Valued Resource. *Social Psychology Quarterly*, 67(1):103–114.

Kalma, A. (1991). Hierarchisation and Dominance Assessment at First Glance. *European Journal of Social Psychology*, 21(2):165–181.

Leibenstein, H. (1950). Bandwagon, Snob and Veblen Effects in the Theory of Consumers' Demand. *Quarterly Journal of Economics*, 64(2):183–207.

Ljungqvist, L. and Uhlig, H. (2000). Tax Policy and Aggregate Demand under Catching up With the Joneses. *American Economic Review*, 90(3):356–366.

Lucas, R. (2009). The Industrial Revolution: Past and Future. Technical report, The Region (2003 Annual Report of the Federal Reserve Bank of

Minneapolis).

OECD (2009). Growing Unequal. Income Distribution and Poverty in OECD Countries. Technical report, OECD.

OECD (2011). Divided We Stand - Why Income Inequality Keeps Rising. Technical report, OECD.

Paganelli, M. P. (2009). Approbation and the Desire to Better One's Condition in Adam Smith. *Journal of the History of Economic Thought*, 31(1):79–92.

Pigou, A. C. (1920). *The Economics of Welfare*. London: Macmillan.

Rajan, R. (2010). *Fault Lines*. Princenton: Princeton University Press.

Reder, M. (1947). *Studies in the Theory of Welfare Economics*. London: Macmillan.

Smith, A. (1759). *The Theory of Moral Sentiments*. Edinburgh: A. Kincaid and J. Bell.

Stiglitz, J. (2012). *The Price of Inequality. How Today's Divided Society Endangers our Future*. New York: W.W. Norton.

van Treeck, T. (2014). Did-Inequality Cause the U.S. Financial Crisis? *Journal of Economic Surveys*, 28(3):421–448.

Veblen, T. (1899). *The Theory of the Leisure Class*. New York: Modern Library.

Wilkinson, R. G. and Pickett, K. (2009). *The Spirit Level*. London: Allen Lane.

Wisman, J. D. (2019). Adam Smith and Thorstein Veblen on the Pursuit of Status Through Consumption versus Work. *Cambridge Journal of Economics*, 43(1):17–36.

World Inequality Lab (2018). World Inequality Report 2018. Technical report, WID.

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