consideration to how occupational classes are associated with cultural, social and economic processes. Here, it is possible to take advantage of new forms of data to explore congruencies and differences in their perspectives. Nationally representative surveys often do not have developed questions on cultural or social capital. And with sample sizes rarely extending beyond 10,000 people, there are often limits to examining outliers and 'microclasses'.

There is a growing interest in using tax records to examine economic inequality. For these there is no need to sample, and analyses of income and occupation can take place on the entire population. Such data has no information on social and cultural capital, but they could perhaps be combined with 'geodemographic data', collected by market researchers in local neighbourhoods. This has extensive information on consumption and spending. Similarly, Google, Facebook, Amazon and others hold a vast trove of data on communication, connections, consumption, health status and so on.

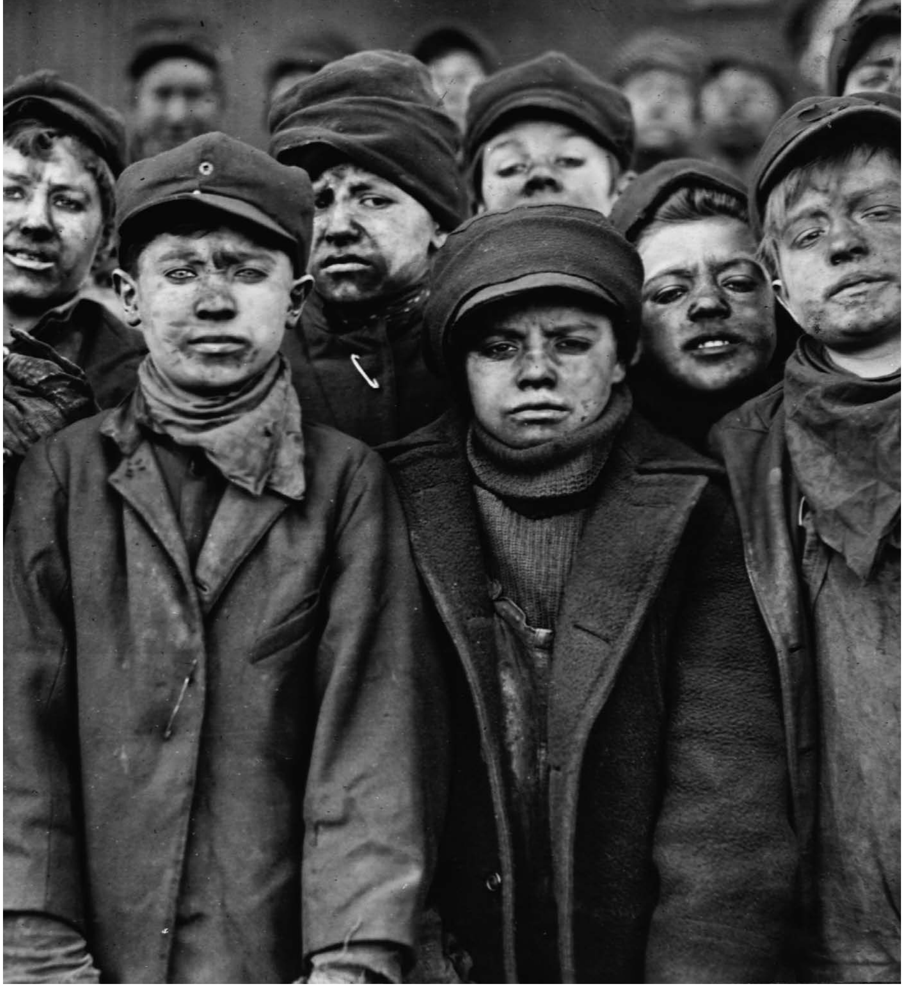
As a first step, developing interdisciplinary work offers exciting possibilities. Engaging economists, anthropologists and political scientists alongside sociologists is the most likely way of making petty internal disputes look parochial. Social scientists have been slower than natural scientists in moving away from disciplinary identities towards interdisciplinary teams that work on common problems.

The study of our unequal, riven societies can only be tackled if scholars and policymakers from all fields pool their skills. ■

Mike Savage *is co-director of the International Inequalities Institute at the London School of Economics and Political Science.*
e-mail: m.a.savage@lse.ac.uk

1. Savage, M. *et al. Sociology* **47,** 219–250 (2013).
2. Tyler, I. *Revolting Subjects: Social Abjection and Resistance in Neoliberal Britain* (Zed Books, 2013).
3. Goldthorpe, J. H., Llewellyn, C., & Payne, C. *Social Mobility and Class Structure in Modern Britain* (Clarendon, 1980).
4. Rose, D. & Harrison, E. (eds) *Social Class in Europe: An Introduction to the European Socio-economic Classification* (Routledge, 2010).
5. Williams, M. *Work Employ. Soc.* http://doi.org/bqfx (2016).
6. Erikson, R. & Goldthorpe, J. H. *The Constant Flux: A Study of Class Mobility in Industrial Societies* (Clarendon Press, 1992).
7. Maloutas, T. *South Eur. Soc. Polit.* **12,** 443–460 (2007).
8. Weeden, K. A. & Grusky, D. B. *Am. J. Sociol.* **117,** 1723–1785 (2012).
9. Prieur, A. & Savage, M. *Eur. Soc.* **15,** 246–267 (2013).
10. Mills, C. *Sociology* **48,** 437–444 (2014).
11. Milanovic, B. *Global Inequality: A New Approach for the Age of Globalization* (Harvard Univ. Press, 2016).

LEWIS WICKES HINE/LOC/CORBIS/GETTY



Child coal-mine workers.

Income inequality is cyclical

Periodic rises and falls in the gap between the rich and poor over centuries indicate that inequality will not grow forever, argues **Branko Milanovic**.

For the past 30 years or so, income inequality has been on the rise across the globe. It has increased in the United States, China, Russia — even in Sweden and Finland, long thought to be paragons of equality.

What's driving this increase? And does the unprecedented dominance of capitalism mean that there are no longer countervailing forces to stop inequality's rise? Or might a self-regulating mechanism eventually reduce it, even in a capitalist world?

To answer these questions, we need both to look at our immediate past and take a longer historical view. Thanks to archival data on wages and incomes from as far back as the 1200s, we can start to do just that.

First, some terminology. Inequality is frequently confused with poverty, and income elided with wealth or earnings. Throughout this article, I deal with inequality in income. Standard definitions of income do not include capital gains, resulting, for instance, from an increase in property or share value. And income is different from wealth (the sum of all marketable goods currently owned) and from earnings (which include only wages and work-related benefits).

Moreover, inequality is not the same as poverty, a concept that depends on defining a poverty line, below which people with less than a certain amount of income are deemed 'poor'. Poverty ▶

is, in principle, reduced by economic growth. No such simple relationship exists between economic growth and inequality.

LOOKING BACK

Since the early 1980s, income inequality has increased substantially in all advanced economies, with the biggest rises (about 20%, when measured by the Gini coefficient; see 'Income and inequality'), in the United States, the United Kingdom and Israel. It has also increased in former Communist countries, particularly in Russia (by about 50%), as well as in 'emerging' economies such as India and China (where it has almost doubled since the Maoist period of the mid-twentieth century).

This development has been a surprise to economists. Theories established in the 1950s and 1960s held that high political demand for redistribution would keep inequality low once economies became 'advanced' (meaning that people have relatively high levels of income, wealth and education, and birth and death rates are relatively low). Likewise, economists predicted that the greater involvement of historically poor nations in international trade would reduce inequality in these countries because their growing exports would increase the demand for low-skilled labour.

The past several hundred years of human history can shed some light on what's going on now.

In recent years, economic historians have been able to estimate historical income inequality using archival sources for a dozen countries, and for the periods for which we previously lacked information (see 'Why measuring income inequality is difficult'). For some of these countries (Spain, Italy and the 'Low Countries', including what is now the Netherlands), estimates stretch back to the early Middle Ages[1,2]; for others, including various Latin American countries and the United States[3], they go back to the end of the eighteenth century or to the beginning of the nineteenth.

Inequality has regularly waxed and waned over recent centuries, as indicated by modern economists' studies of archival tax records, surveys of population incomes motivated by military-mobilization needs, or even of people's private collections of historical family budgets. Moreover, although the forces driving inequality up or down vary, there are only a few of them.

The drivers of income inequality in pre-modern societies (that is, before industrialization) seem to have been mostly non-economic. Epidemics limited inequality; by killing part of the population, they made the remaining workers scarcer, which resulted in their wages rising. Wars either increased inequality as a result of conquerors enslaving and pillaging or, more commonly, reduced it by causing destruction that brought most of the population to levels of starvation. In fact, epidemics and wars alone can explain most of the swings in inequality in Spain between the early 1300s and the mid-1800s (see 'Waxing and waning').

In modern times, economic factors seem to have been the most important drivers of change. In the United Kingdom and the United States, an upswing of inequality, which lasted most of the nineteenth century, followed the introduction of inventions such as the steam engine and the cotton gin. With demand high and competition low, people who invested in the new products and services could enjoy large 'rents' (payments over and above what is needed to cover production costs). Inequality was also probably pushed up by the movement of people from the countryside into cities — to better paid, more diverse (and hence more unequally paid) jobs.

In the United Kingdom, the data suggest[4,5] that inequality peaked around 1870. Around this time, demand rose for labour (driven in part by people leaving the country) and legislation limited child labour, hours of work and so on. Thus workers' conditions began to improve. In the United States, inequality seems to have peaked in the 1920s to 1930s, its decline probably held back longer than in the United Kingdom by immigration from Europe[4].

"The period from the end of the First World War to the early 1980s saw a 'great levelling'."

Next came the great decline in inequality that many have associated with progressive modernization. For the many countries involved, the First World War destroyed assets (particularly in Germany, France and Russia), and brought large taxes on the rich to finance the conflict. These changes, along with the emergence of socialist movements and trade unions, the massive scale up of public education (fuelled in part by an increased need for skilled and educated labourers) and the greater participation of women in the workforce, ushered a period of more than half a century of growing equality in all developed countries. For the West, the period from the end of the First World War

TERMS OF ENGAGEMENT

Income and inequality

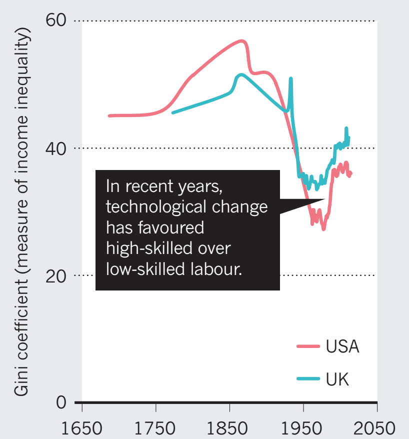
Income is defined by economists as the flow of revenues received over one year from self-employment, wages, dividends, interest, and government transfers such as pensions and unemployment benefits (minus taxes directly paid to the government). Income also includes the imputed value of owned housing (to take into account the fact that home owners and those earning the same wages but paying rent may in reality have different standards of living). Further, income includes the imputed value of home production (food produced and consumed by a family), which may be significant in poorer countries.

Household income per capita is calculated by dividing the sum of all such sources of income for each household by the number of household members. It reflects the ability of each group of people who share food, live under the same roof and have family or other relationships to satisfy their food and other consumer needs without reducing their wealth.

Income inequality is a measure of the dispersion of income among individuals where each person is assigned his or her household per capita income. The most common measure of inequality is the Gini coefficient (named after the Italian statistician Corrado Gini). This compares each person's income with that of every other person in the population. When the Gini coefficient is 0, everybody has the same household income per capita. When it is 1, the entire income of a group (say of everyone living in a country) is appropriated by one household. Currently, the Gini coefficient for countries ranges from 0.25 (Slovenia and Finland) to 0.65 (South Africa). (For simplicity, it is often expressed as a percentage.) **B.M.**

THE PRICE OF INVENTION

The current revolution in information technology is having a similar effect on inequality to that had by the industrial revolution.



SOURCE: B. MILANOVIC *GLOBAL INEQUALITY: A NEW APPROACH FOR THE AGE OF GLOBALIZATION* (HARVARD UNIV. PRESS, 2016).

MARGARET BOURKE-WHITE/TIME & LIFE PICTURES/GETTY

African American flood victims lining up at a relief station in the late 1930s.

to the early 1980s saw a 'great levelling'.

Ultimately, this levelling occurred worldwide. Policies such as the distribution of land to landless people, the introduction of widespread education and the creation of state-owned enterprises — such as those running the railways, or producing coal or sugar — boosted equality in developing nations (particularly in Turkey, Iran, South Korea and Egypt). The nationalization of factories, narrowing of wage distribution, and the elimination of almost all capital income (which tends to be more unequally distributed than are wages) accomplished the same in Communist economies such as the Soviet Union and Czechoslovakia.

LOOKING FORWARD

So what does this tell us about what's happening now?

One key message is that the forces that drive inequality up or down are economic, demographic and political. They can also be divided into 'malign' or 'benign'.

Malign forces include epidemics, civil conflict, state breakdown and war[6] — practically the only ones that mattered in pre-modern times. Benign forces include technological change, globalization, education and demographics — drivers that although not harmless for everybody, don't involve the physical destruction of assets or people.

Both types of forces are present in modern times. The two world wars of the twentieth century were probably the most malign, yet equalizing, forces in human history. And many of the benign forces unleashed by the revolution in information technology are similar to those resulting from the industrial revolution more than two centuries ago (see 'The price of invention').

Today, those inventing new products or investing in them are reaping huge rewards; labour is transitioning from relatively homogeneous large-scale factory work ('Fordism', after the carmaker) to the heterogeneous service sector that covers everybody from hedge-fund managers and software engineers to personal trainers and food-delivery couriers.

Inequality has been further widened by three things. Technological change favours high-skilled over low-skilled labour. Economic policies have lowered tax contributions from the highest earners. And unionization has slumped (it is harder to organize when service providers are diverse, geographically dispersed and each individual unit involves few people)[7].

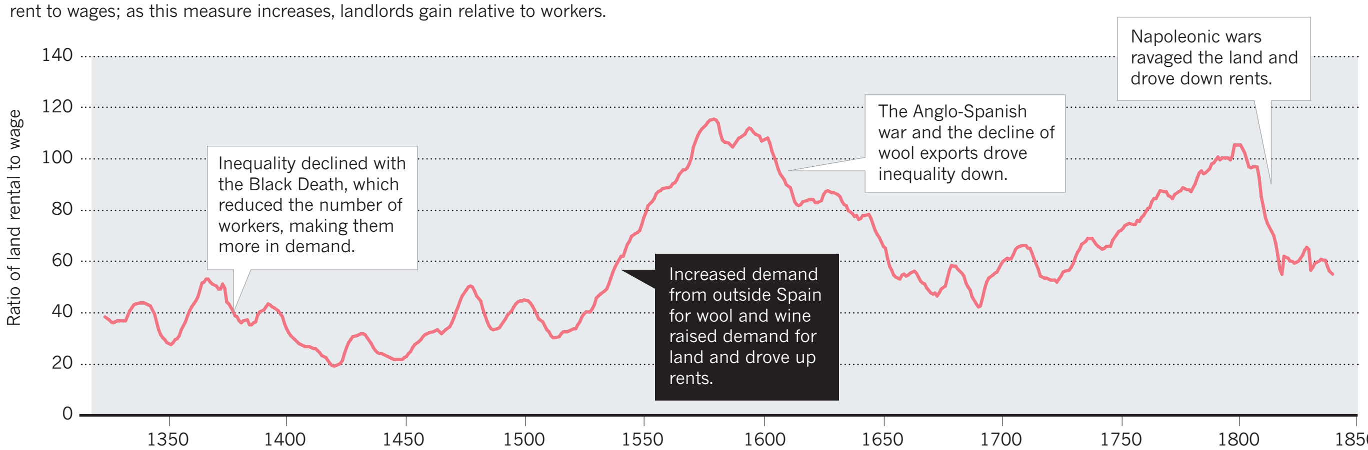
A second implication of the historical data is that at some point, forces — malign, benign or both — will halt and reverse the current increase in inequality. This runs counter to the idea — sparked in part by economist Thomas Piketty's 2013 book *Capital in the Twenty-first Century* (Harvard Univ. Press) — that the concentration of capital in the hands of the top 1% and a steady rate of return on that capital will lead to ever rising income inequality.

In my view, even in a capitalist world, four benign forces could decrease inequality. The first is a reduction in how much corporations charge for their products over and above what's needed to cover their costs. This happens as competitors catch up — as for personal computers, for instance. The second is technological change that undermines the coveted positions enjoyed by the highly skilled, guild-like workers in rich countries, such as doctors, lawyers and teachers. For example, with advances in communication now often allowing medical diagnoses to be made more cheaply in India, say, than in rich countries, patients are travelling for treatment and reducing the demand for physicians' services in rich countries.

The third benign force is more equal access to good education, as well as the equalization of the quality of state and private education. The last is political change that results in

WAXING AND WANING

Measures of inequality in Spain stretching back to the early 1300s indicate that inequality periodically rose and fell in the pre-modern era, largely because of disease epidemics and wars. Inequality is approximated by the ratio of land rent to wages; as this measure increases, landlords gain relative to workers.



SOURCE: REF. 1; C. ALVAREZ-NOGAL & L. PRADOS DE LA ESCOSURA *EUR. REV. ECON. HIST.* **11,** 319–366 (2007)

some of the highest incomes being limited, minimum wages and tax on capital being increased, and tax incentives being provided to make current plutocratic capitalism more a 'people's capitalism'. (This proposal was floated by economists and politicians in the early 1980s when the current neo-liberal wave began, but was then quietly forgotten.)

Of these four benign forces, governments can take steps to implement the last two: education and tax reforms (including minimum-wage legislation). Governments could also crack down on tax havens and use the proceeds to fund socially useful programmes. It is estimated that up to 1% of global gross domestic product is hidden in off-shore accounts[8]. Better collaboration between national authorities or the establishment of a truly international income- and wealth-information gathering system could help to curb such off-shoring. At the very least, members of the Organisation for Economic Co-operation and Development should work together on this.

In fact, as the cost of dodged taxes rises, governments' incentive to curb such practices should be getting stronger. A step in this direction was the 2010 US Foreign Account Tax Compliance Act, which obliges foreign banks to report to US tax authorities anyone with a US address who has more than US$10,000 in their overseas account.

Of course, there is a distinct possibility, however, that it will be malign forces that reverse current trends. In the rich West and in Russia, Turkey and China, politicians are turning to nationalist populist policies to placate the disaffected — an easier option than putting a break on globalization or changing the political system. Such policies, which scapegoat foreigners (whether migrants or people in other countries), distract the attention of the electorate from true domestic issues, and could ultimately lead to international conflicts.

If there is one lesson to take from the First World War, it is that domestic discontent can be deflected into the international arena. And such deflection can lead to catastrophe. ■

DODGY DATA

Why measuring income inequality is difficult

Most of the information available to economists on income distribution in the past 50 years comes from national household surveys. Introduced in rich countries in the 1950s and 1960s, they are now conducted almost everywhere. But they have become less reliable, particularly when it comes to capturing the highest incomes. Rich people are hard to locate because they may be moving between cities such as Singapore, New York and São Paulo. And they often refuse to be interviewed or grossly underestimate their incomes[9].

An alternative is to rely on tax data[10]. Studies have shown that these data do give, paradoxically, a more accurate picture of income distribution at the top. Although people have more of an incentive to underreport to tax authorities than to those conducting anonymous surveys, they seem to be more responsive to the authorities.

But tax data are plagued by other problems. A fiscal definition of income is a political one, not an economic one, as what is taxable changes from year to year by government fiat, and from country to country. Tax units (usually a household) are also not stable: people can often decide whether they want to file taxes jointly or separately. Most importantly, such data cover only rich countries. In the rest of the world they are either non-existent or scant because most of the population doesn't pay self-filed direct taxes. (Income hidden in off-shore accounts is not covered by either household surveys or fiscal data.)

A major goal for scholars of inequality is to combine the strong points of the two instruments available — namely, the comprehensive picture of income distribution provided by household surveys and the more precise estimates of top incomes provided by fiscal data. Currently, differences in how 'recipient units' (households or individuals) are categorized, the definition of income, and the coverage of populations make such a 'marriage' a patchwork at best. **B.M.**

Branko Milanovic *is professor at the Graduate Center, City University of New York, New York City, and senior scholar at the Stone Center for Socio-Economic Inequality, New York City. His latest book is* Global Inequality: A New Approach for the Age of Globalization.
e-mail: bmilanovic@gc.cuny.edu

1. Alvarez-Nogal, C. & Prados de la Escosura, L. *Econ. Hist. Rev.* **66,** 1–37 (2013).
2. Alfani, G. & Ryckbosch, W. *Explor. Econ. Hist* (in the press).
3. Lindert, P. H. & Williamson, J. G. *Unequal Gains: American Growth and Inequality since 1700* (Princeton Univ. Press, 2016).
4. Lindert, P. H. & Williamson, J. G. *Explor. Econ. Hist.* **20,** 94–109 (1983).
5. Allen, R. C. *Revising England's Social Tables Once Again* University of Oxford, Working Papers in Economic and Social History, No. 146 (2016).
6. Scheidel, W. *The Great Leveler* (Princeton Univ. Press, in the press).
7. Jaumotte, F. & Osorio Buitron, C. *Inequality and Labor Market Institutions* IMF Staff Discussion Note (2015).
8. Zucman, G. *The Hidden Wealth of Nations* (Chicago Univ. Press, 2015).
9. Korinek, A., Mistiaen, J. & Ravallion, M. *J. Econ. Inequality* **4,** 33–55 (2006).
10. Alvaredo, F., Atkinson, A. B., Piketty, T. & Saez, E. *J. Econ. Perspect.* **27,** 3–20 (2013).