



## CEO to Worker Pay: A Broader Examination

by Jason Clemens, Ingrid Timmermans, and Joel Emes

### Summary

■ A 2017 CCPA report found that the average compensation for the 100 highest-paid CEOs in Canada was \$9.5 million, which was 193 times higher than the average industrial wage in Canada (\$49,510).

■ Extending the analysis to include all CEOs in the survey reduced average compensation by 78.4% to \$2.1 million; the ratio of CEO-to-worker pay fell to 42 to 1.

■ Quite telling, the average CEO compensation for the last grouping in the survey is \$125,755, a decline of 98.7% compared to the top 100 CEOs; the ratio of CEO-to-worker compensation falls to 3-to-1.

■ Data for the top paid global athletes, actors, and musicians shows that they follow the same

pattern as CEO compensation. The reality is that there is a global phenomenon regarding the compensation of top talent across sectors.

■ Research tends to agree that (1) expanding the size of the market and (2) non-substitutability of top talent are the key explanations.

■ Given this global and cross-sector phenomenon, it's not clear how the punitive taxes, governance reforms, or other recommendations would actually reverse, slow, or otherwise affect CEO compensation. It is more probable that such policies would simply encourage “superstars” to re-locate in other more hospitable jurisdictions, harming the Canadian economy and the organizations that employed such people.

## Introduction

The Canadian Centre for Policy Alternatives (CCPA) publishes an analysis at the beginning of each year comparing the compensation of the country's top 100 CEOs with the wages of average workers. [1] The enormous gap between the two regularly garners significant media interest. The analysis suggests that this gap is restricted to CEOs and offers a number of solutions including large tax increases, new regulations, and changes to corporate governance.

This Research Bulletin is intended to place the CCPA's analysis in a broader framework and raise important questions about the compensation of society's most successful people, not just in commerce but in society more broadly. It begins with

a brief overview of the past CCPA work as well as the expectations for their 2018 analysis. The section then expands the CCPA's analysis by examining all the CEOs available in the database of the *Globe and Mail* (G&M). [2] This is done to better understand the extent to which the compensation gap exists for all CEOs (or at least those in the G&M database) or whether it is restricted to only the very top CEOs. The second section of the essay provides a brief summary of the research on "superstar" compensation, the earnings of the very top talent across a wide range of sectors of the economy including not only commerce but also sports, culture, and entertainment. The Bulletin ends with a brief conclusion.

## 1. Summarizing and extending the CCPA's analysis

The CCPA's analysis relies on data provided by the *Globe and Mail's* annual survey of the top 1,000 publicly traded companies in Canada. Compensation is broadly defined to include salary, shares and options, pensions, other incentive plans, and other compensation such as director's fees. The CCPA analysis compares the average worker's compensation [3] to that of only the 100 top-paid CEOs in the G&M survey.

The CCPA's 2017 report, which was based on 2015 data, found that the average pay for the 100 highest-paid CEOs was \$9.5 million, 193 times higher than the average industrial wage in Canada (\$49,510). The 2017 report also noted that this ratio had increased from 175 to 1 in 2008, the first year of data presented in the 2017 report, to its current ratio of 193 to 1. [4]

Based on 2016 data from the G&M survey and using the same methodology outlined in the CCPA

report, the expectation for their upcoming analysis is that the ratio of CEO-to-worker pay will increase slightly to 194 to 1: \$9.6 million to \$49,738. The report makes a number of recommendations including, for instance, removing compensation from the discretion of the boards by making shareholder votes on pay mandatory and a host of tax changes.

It's worth delineating the tax changes suggested since they would affect all Canadians, not just CEOs. The tax reforms recommended in the CCPA essay include changing the tax rules for stock options such that they would be taxed at twice their current rate, higher top marginal personal income-tax rates for all earners, altering (that is, increasing) taxes on grants of stock, increasing capital gains taxes such that they would be taxed as regular income, and the introduction of a new tax penalty based on a ratio of executive compensation to average pay.

An interesting question, and one not directly answered by the CCPA analysis, is whether there is a general issue of the ratio of executive-to-worker pay or if this phenomenon is restricted to the upper echelons of executives, which the CCPA defines as the top 100 CEOs.

By extending the analysis to include all the firms and CEOs in the G&M survey, quite dramatic changes occur to the CCPA numbers. First, the average compensation of the CEO falls from \$9.6 million to \$2.1 million, a decline of 78.4%. Second, the ratio of CEO-to-worker pay falls from 194 to 1 when only the top 100 CEOs are examined to 42 to 1 when all CEOs from the G&M database are included.

Table 1 contains the average CEO compensation and the ratio of CEO-to-average worker compensation based on groupings of 100 firms within the G&M's database of the top 1,000 publicly traded companies in Canada. The CEOs and their firms from the G&M survey were divided into nine groupings, each with 100 firms. [5] Please note that the last group contains 119 firms; 81 of the 1,000 CEO records available were excluded because of data issues. [6]

Figure 1 illustrates the average CEO compensation by grouping and figure 2 depicts the ratios of average CEO compensation by groupings compared to the average wage in Canada for 2016. When the firms and CEOs are examined by different groupings, a different story emerges than that offered by the CCPA analysis. For instance, the pay of CEOs for those ranking 101–200 falls to \$3.4 million, a decline of 64.9% compared to the top 100 and the ratio of CEO-to-worker pay drops to 68 to 1 from 194 to 1 (table 1; figure 1 and figure 2). Put simply, there is marked difference in the ratio of CEO compensation to that of workers when the next 100 CEOs are observed rather than just the top 100 exclusively.

**Table 1: Ratio of average CEO compensation to average industrial wage**

Rank	Average CEO compensation (\$)	Ratio
Top 100	9,624,532	194
101–200	3,381,918	68
201–300	2,184,386	44
301–400	1,396,495	28
401–500	915,060	18
501–600	665,955	13
601–700	472,978	10
701–800	317,778	6
801–919	125,755	3

Sources: *Globe and Mail* (2017), Top 1000 and 350 Research data package; Statistics Canada (2017), CANSIM table 281-0027, *Survey of Employment, Payrolls and Hours (SEPH), average weekly earnings by type of employee, overtime status and detailed North American Industry Classification System (NAICS), annual (current dollars)*, <<http://www5.statcan.gc.ca/cansim/a26?lang=eng&retrLang=eng&id=2810027&pattern=average+weekly+earnings&csid=>>>.

Not surprisingly, this decline in average CEO compensation and thus the ratio of CEO compensation to average worker compensation continues as one broadens the group of CEOs included. For instance, the average compensation of CEOs ranked from 201–300 is \$2.2 million, a decline of 77.3% compared to the top 100 CEOs, and the ratio of CEO-to-average worker compensation falls to 44 to 1 from 194 to 1.

Perhaps most telling, the average compensation of CEOs for the last grouping in the G&M database is \$125,755, a decline of 98.7% compared to the top 100 CEOs. The ratio of CEO-to-worker compensation falls to 3 to 1 from 194 to 1. Put differently, the average compensation for the top 801 to 919 CEOs in Canada is less than many professionals, senior bureaucrats, and even union officials. [7]

Figure 1: Average CEO compensation (CA\$ millions) in Canada, 2016

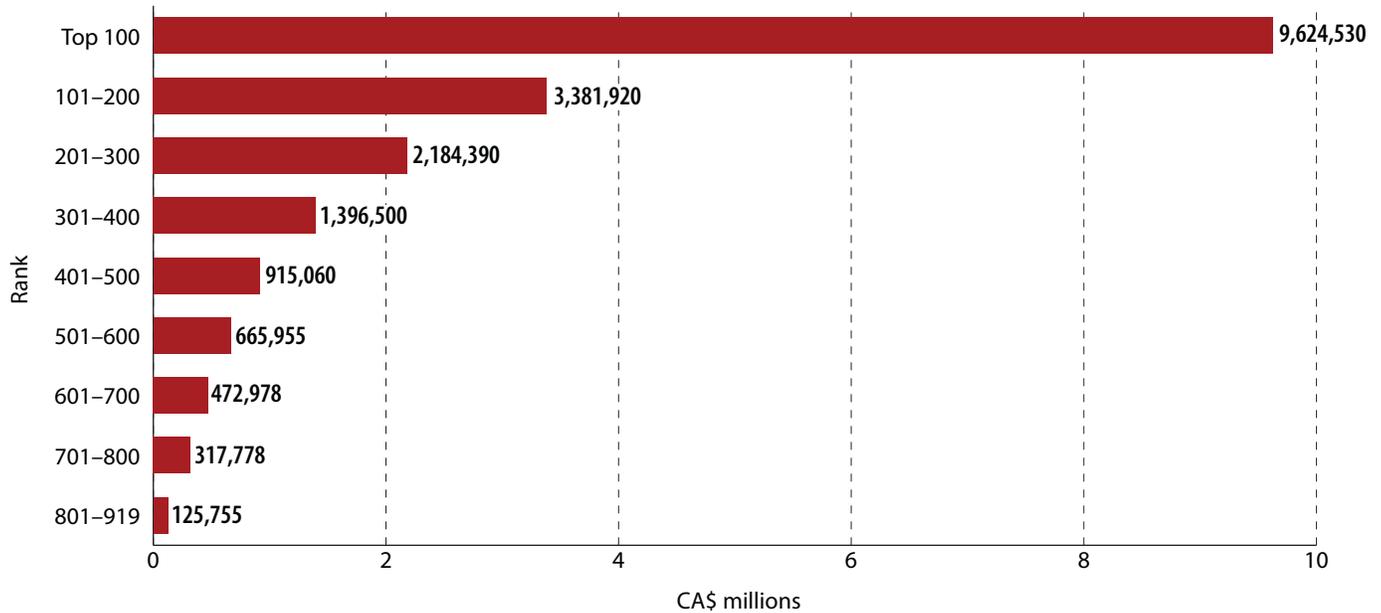
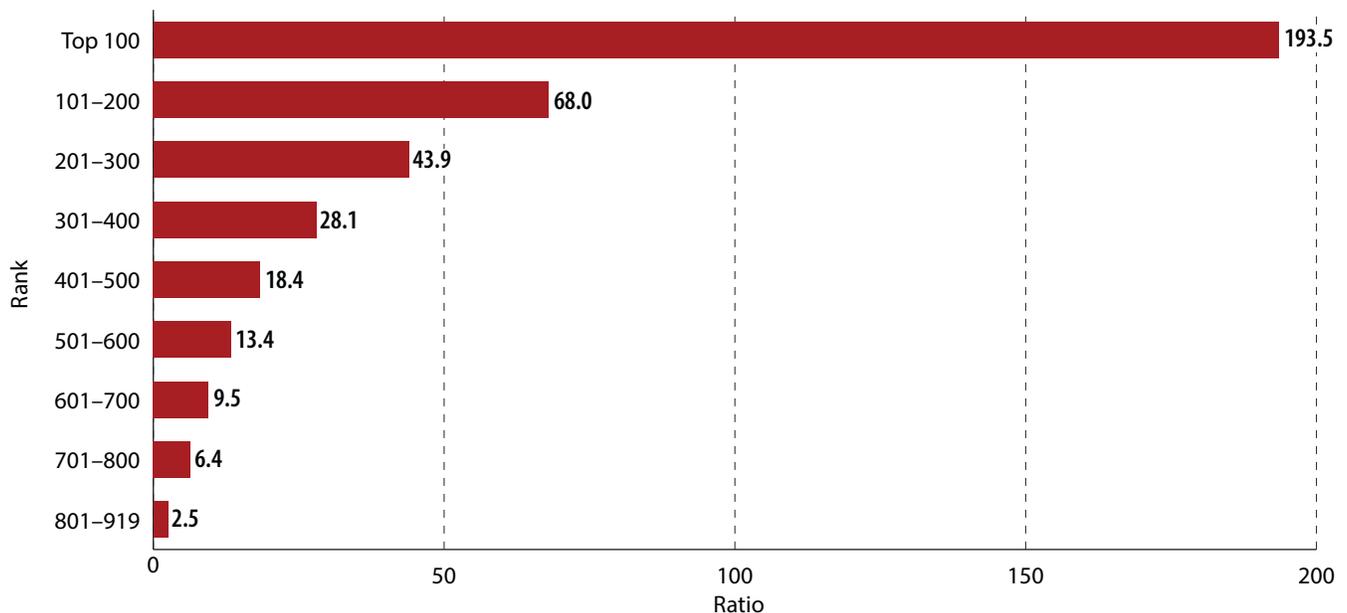


Figure 2: Ratio of average CEO compensation to the average wage in Canada, 2016



Sources: *Globe and Mail* (2017), Top 1000 and 350 Research data package; Statistics Canada (2017), CANSIM table 281-0027, *Survey of Employment, Payrolls and Hours (SEPH)*, average weekly earnings by type of employee, overtime status and detailed North American Industry Classification System (NAICS), annual (current dollars), <<http://www5.statcan.gc.ca/cansim/a26?lang=eng&retrLang=eng&id=2810027&pattern=average+weekly+earnings&csid=>>>.

The expanded data for CEO compensation presented in table 1 indicates two important findings. First, as the CCPA essay concluded, there is a large gap between CEO compensation and average workers for the very top echelon of CEOs. But second, this gap quickly declines as a broader

group of CEOs are examined. The emphasis on the compensation gap for the very top talent is important because there is a body of research examining the compensation of what have been termed “superstars”, which is not included in the CCPA analysis. This research is examined in the next section.

## 2. The economics of “superstars”

For whatever reason, the CCPA work ignores the large and growing body of research on the compensation of “superstars”. Economist Sherwin Rosen’s seminal piece in the *American Economic Review* [8] in 1981 started a long line of research [9] focused on trying to understand the observation that is at the heart of the CCPA analysis: high compensation for the very top of the business world.

Of course as Rosen and others note, this observation holds true for popular entertainment, culture, writing, sports, and even the philanthropic world. [10] Table 2 presents the total compensation of top

paid athletes, actors, and musicians for 2015 in order to illustrate the global phenomenon of top-talent earning markedly high compensation.

According to data from table 2, [11] Dwayne Johnson (a.k.a. The Rock) would have ranked second in Canada in terms of compensation with US\$64.5 million when compared to the CEOs from the G&M survey. Indeed, the top 19 actors including Jackie Chan, Matt Damon, Tom Cruise, Johnny Depp, and Jennifer Lawrence, would have been ranked second to 20<sup>th</sup> in Canada compared to top-ranked CEOs. In other words, the top

**Table 2: Top paid (\$US millions) talent in other sectors, 2016**

Athletes		Actors		Musicians	
Cristiano Ronaldo	\$88.0	Dwayne Johnson	\$64.5	Taylor Swift	\$179.0
Lionel Messi	\$81.4	Jackie Chan	\$61.0	One Direction	\$110.0
LeBron James	\$77.2	Matt Damon	\$55.0	Adele	\$80.5
Roger Federer	\$67.8	Tom Cruise	\$53.0	Madonna	\$76.5
Kevin Durant	\$56.2	Johnny Depp	\$48.0	Rihanna	\$75.0
Novak Djokovic	\$55.8	Jennifer Lawrence	\$46.0	Garth Brooks	\$70.0
Cam Newton	\$53.1	Ben Affleck	\$43.0	AC/DC	\$67.5
Phil Mickelson	\$52.9	Vin Diesel	\$35.0	Rolling Stones	\$66.5
Jordan Spieth	\$52.8	Melissa McCarthy	\$33.0	Calvin Harris	\$63.0
Kobe Bryant	\$50.0	Shah Rukh Khan	\$33.0	Diddy	\$62.0

Sources: *Forbes Magazine* (2017a), *The World’s Highest-Paid Actors, 2016*, <<https://www.forbes.com/actors/#7a18ee4440fe>>; (2017b), *The World’s Highest-Paid Musicians for 2016*, <<https://www.forbes.com/pictures/geeg45ekidk/the-worlds-highest-paid/#643b80d96a13>>; (2017c), *The World’s Highest-Paid Athletes for 2016*, <<https://www.forbes.com/pictures/mli45ffmil/1-cristiano-ronaldo/#775fd1167039>>.

actors in the world would have dominated the ranking of earnings in Canada compared to the top paid CEOs.

The results for musicians are even more dramatic. According to *Forbes Magazine's* list of the top paid musicians in 2016, Taylor Swift would have topped any CEO in Canada for compensation earning a total of US\$170 million. [12] Similar to the results for actors, the top paid musicians would have dominated the list of top earners in Canada compared to the top CEOs.

Finally, top athletes are also enjoying incredibly high compensation. In 2015, according to *Forbes Magazine's* list of top-paid athletes, [13] Cristiano Ronaldo earned US\$88 million, ranking him second amongst Canadian CEOs included in the G&M survey. Again, the top athletes, like actors and musicians would have dominated the top-ranked CEOs in Canada with respect to compensation. Simply put, the best of the best across a host of sectors are earning incredibly high compensation relative to average workers.

Rosen's work, which others have extended, offers two explanations for this phenomenon: (1) size of the market and (2) non-substitutability of talent. The first is to some extent rooted in technology. The advance of technology has meant it is much easier to reach larger audiences and more consumers. This scale effect—that is, the ability to extend the reach of a product or service at very little additional cost (if any)—means there is an enormous opportunity for profitable expansion as markets expand. The implication of larger markets is that the “superstars” can demand significantly greater compensation.

This phenomenon may be most readily observed in the escalation in compensation for professional athletes. The internet and proliferation of

internet-based media platforms means that people around the globe can now readily consume sports programming. European football, for instance, has significantly expanded its global reach and, not surprising, marked increases in the compensation for professional footballers have been observed.

These advances are not restricted to entertainment and related markets. Technology coupled with more open trade has created larger, even global markets for products and services, which means the markets for many companies has expanded markedly. [14] The opportunities for expanded profits from these larger markets are similar in type to those described above for sports and entertainment. Simply put, as markets have broadened for goods and services, the returns or rewards for the very top talent have increased substantially relative to most other workers.

The second explanation relates to what economists refer to as imperfect substitutes. The traditional model of analysis is that the services and skills of the CEOs can be readily substituted by others. However, as Rosen and many others have noted, the talent of elite business leaders, like that of highly skilled musicians, athletes and other top performers is not easily substituted by lesser talent. [15] Indeed, as Rosen concluded, the lesser talent of substitutes means that they are not good substitutes at all for “superstars”. As Rosen stated in his 1981 paper:

... imperfect substitution among different sellers, which is one of the hallmarks of the types of activities where Superstars are encountered. Lesser talent often is a poor substitute for greater talent. The worse it is the larger the sustainable rent accruing to higher quality sellers because demand for the better sellers increases more than proportionately. [16]

The wonderful example Rosen used to illustrate this concept is a surgeon who is 10% more effective in saving lives than his peer group. People are willing to pay much more than a 10% premium to secure the doctor's services. This

talent-driven effect combined with much larger markets through technological advances seems to explain much of the marked increases in the compensation of the "superstars" across a host of industries. [17]

## Conclusion

While the CCPA analysis focuses on the compensation of the top 100 CEOs, the phenomenon of top talent receiving large compensation relative to average workers exists across sectors of the economy including the arts, entertainment, culture, sports, and commerce. The reality, as shown by the work of Rosen and many others is that there is a global phenomenon underway that is seeing larger compensation for the "superstars" across many sectors of society. Given these underlying trends that explain the rise of elite compensation, it is not entirely clear how the punitive taxes, governance reforms, or

other recommendations offered in the CCPA's analysis would actually reverse, slow, or otherwise affect CEO compensation. Indeed, it is more probable that such policies would simply encourage "superstars" to relocate to other more hospitable jurisdictions. It is not clear how such migration of talent would ultimately benefit the Canadian economy, society more broadly, or the organizations where such people exercised their abilities. Put differently, the CCPA analysis offers a solution to an issue that is much broader and more complicated than their analysis suggests.

## Notes

- 1 Hugh Mackenzie (2017), *Throwing Money at the Problem: 10 Years of Executive Compensation*. Canadian Centre for Policy Alternatives. <[https://www.policyalternatives.ca/sites/default/files/uploads/publications/National%20Office/2017/01/Throwing\\_Money\\_at\\_the\\_Problem\\_CEO\\_Pay.pdf](https://www.policyalternatives.ca/sites/default/files/uploads/publications/National%20Office/2017/01/Throwing_Money_at_the_Problem_CEO_Pay.pdf)>.
- 2 *Globe and Mail* (2017), Top 1000 and 350 Research data package, from 2017 Top 1000 Canadian companies CEO compensation, <<https://datastore.theglobeandmail.com/collections/top-1000-and-350-research-and-sales-prospecting-packages/products/2017-top-1000-and-350-research-package>>.
- 3 Average worker compensation is defined as average weekly earnings (including or excluding overtime) for all employees. Weekly payrolls are defined as the portion of gross monthly payrolls that reflect work performed during the reference week. It represents the gross dollar value before deductions for income taxes, employment insurance contributions, and so on, including regular pay, overtime, and a portion of bonuses, commissions, and other type of special payments. The payroll concept excludes dollar amounts that are taxable allowances and benefits, certain types of non-wage compensation as well as employer contributions to employment insurance, Canada/Quebec pension plans, provincial medical plans, workers compensation and other welfare plans. Some annual special payments are excluded while other lump-sum special payments are adjusted to coincide with the reference week period.
- 4 It's worth noting, however, that the results for the top 100 CEOs are influenced by the highest compensated CEO in Canada, Michael Pearson of Valeant Pharmaceuticals International, who in 2015 recorded compensation of \$182.9 million, of which \$179.4 million was in the form of shares. This was substantially above the second-ranked CEO, Donald Walker of Magna International, who received \$26.5 million in total compensation in 2015.
- 5 There were a number of companies (109) that reported multiple CEOs in 2016. In these cases, the compensation of the CEOs was averaged over the entire year.
- 6 Specifically, a company was left out of the analysis if it had no or incomplete compensation information, excluded compensation securities, had no CEO for the year of analysis, or did not pay compensation directly.
- 7 Data from the Ontario government's sunshine list indicates that a number of union officials in that province received comparable compensation to that of the CEOs in the G&M database for those ranked 801–919. See <<http://www.cbc.ca/news/canada/tories-release-union-leaders-100-000-salaries-1.285801#links>>.
- 8 Sherwin Rosen (1981), *The Economics of Superstars*, *American Economic Review* 71, 5 (Dec: 845–858). Available at <<http://home.uchicago.edu/~vlima/courses/econ201/Superstars.pdf>>.

- 9 See, for instance, Edward P. Lazear and Sherwin Rosen (1981), Rank-Order Tournaments as Optimum Labor Contracts, *Journal of Political Economy* 89, 5 (Oct): 841–864, <<http://www.jstor.org/stable/1830810>>; and Ulrike Malmendier and Geoffrey Tate (2009), Superstar CEOs, *Quarterly Journal of Economics* 124, 4 (Nov): 1593–1638, <<http://www.jstor.org/stable/pdf/40506267>>.
- 10 See, for instance, Alan B. Krueger (2005), The Economics of Real Superstars: The Market for Rock Concerts in the Material World, *Journal of Labor Economics* 23, 1 (Jan.): 1–30, <<http://www.jstor.org/stable/10.1086/425431>>; and Felix Koenig (2017), *Superstar Earners and Market Size: Evidence from the Entertainment Industry*, IZA Conference Paper, <[http://conference.iza.org/conference\\_files/SUM\\_2017/koenig\\_f10098.pdf](http://conference.iza.org/conference_files/SUM_2017/koenig_f10098.pdf)>.
- 11 *Forbes Magazine* (2017a), *The World’s Highest-Paid Actors, 2016*, <<https://www.forbes.com/actors/#7a18ee4440fe>>; (2017b), *The World’s Highest-Paid Musicians for 2016*, <<https://www.forbes.com/pictures/geeg45ekidk/the-worlds-highest-paid/#643b80d96a13>>; (2017c), *The World’s Highest-Paid Athletes for 2016*, <<https://www.forbes.com/pictures/mli45ffmil/1-cristiano-ronaldo/#775fd1167039>>.
- 12 *Forbes Magazine* (2017b), *The World’s Highest-Paid Musicians for 2016*, <<https://www.forbes.com/pictures/geeg45ekidk/the-worlds-highest-paid/#643b80d96a13>>.
- 13 *Forbes Magazine* (2017c), *The World’s Highest-Paid Athletes for 2016*, <<https://www.forbes.com/pictures/mli45ffmil/1-cristiano-ronaldo/#775fd1167039>>.
- 14 See Xavier Gabaix and Augustin Landier (2008), Why Has CEO Pay Increased So Much?, *Quarterly Journal of Economics* 123, 1 (Feb.): 49–100, <<http://www.jstor.org/stable/25098894>>. They conclude that “... the six–old increase of U.S. CEO pay between 1980 and 2003 can be fully attributable to the six–fold increase in market capitalization of large companies during that period” (p. 49).
- 15 Gabaix and Landier (2008), Why Has CEO Pay Increased So Much?
- 16 Rosen (1981), The Economics of Superstars: 846.
- 17 Felix Koenig (2017), *Superstar Earners and Market Size: Evidence from the Entertainment Industry*, IZA Conference Paper, <[http://conference.iza.org/conference\\_files/SUM\\_2017/koenig\\_f10098.pdf](http://conference.iza.org/conference_files/SUM_2017/koenig_f10098.pdf)> examined the roll-out of television in the mid-1950s to assess its effect on market size and the compensation of entertainers. He found that “[t]he number of entertainers in the top 1% of the income distribution doubles, while the market size increases more than four-fold. The causal effect of market size on top earners is economically large and significant” (Abstract).

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