

MARKET POWER: THE INEQUALITY CONNECTION



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I. INTRODUCTION

Recent research has emphasized the extent to which inequality within individual countries has been growing.² At the same time, some observers have questioned whether inequality between countries has also grown over time or even whether it may have decreased due to the movement of jobs from developed countries to developing countries. Careful analyses have suggested that the worldwide Gini coefficient, a common indicator of dispersion of income or wealth, has only changed slightly or shown a lessening of relative inequality.³ “Absolute” Gini measures, that compare the real value of differences between income or wealth, will automatically suggest that inequality has increased substantially, if income or wealth have increased proportionately across population groups.⁴

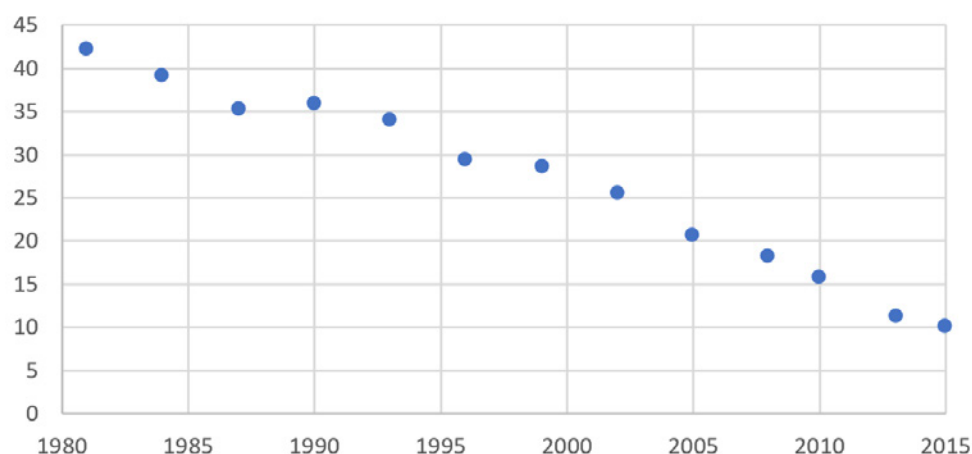
With the policy emphasis on inequality, a seemingly reduced emphasis has been placed on poverty. World Bank figures suggest that poverty has declined dramatically over the last four decades, which may seem intuitively at odds with some authors’ suggestion that global inequality is rising. Figure 1 shows World Bank estimates for the percentage of the worldwide population living in poverty based on one daily income figure.

² See, notably, work by Piketty & Saez.

³ Lakner, C. & B. Milanovic. 2013. “Global Income Distribution: From the Fall of the Berlin Wall to the Great Recession.” Policy Research Working Paper No. 6719. World Bank, Washington, DC.

⁴ See Wade, R. Undated blog. “Our misleading measure of income and wealth inequality: the standard Gini coefficient.” <http://triplecrisis.com/our-misleading-measure-of-income-and-wealth-inequality-the-standard-gini-coefficient/> or Anand, S. & P. Segal, 2015 “The Global Distribution of Income,” in Atkinson, A.B. & F. Bourguignon, *Handbook of Income Distribution, Volume 2A*, Elsevier, Amsterdam.

Figure 1. Poverty headcount ratio at \$1.90 per day (2011 PPP)(% of population)



Source: World Bank

<https://data.worldbank.org/indicator/SI.POV.DDAY?end=2017&start=1981&view=chart>

The observations that inequality is rising and poverty falling can be completely consistent; if the real income of the poor double and that of the wealthier triple, inequality increases while poverty would fall. One might reasonably argue that an increase in global inequality may be less of a concern when poverty levels are falling than when poverty levels are rising. The focus on inequality in the popular discourse has the perverse effect of reducing the policy focus on reducing poverty. Policies for addressing the two policy foci can differ, though addressing market power may be common to both.

This paper focuses on the inequality impacts of market power, while explicitly recognizing that poverty reduction is another fundamental and related topic. Reducing market power is another route to reducing poverty. One example of this is a case study of competition in mobile telephony services in Mexico in Ennis et al. (2017),⁵ which shows that improving competition and market operation in this industry was followed by price decreases that translate, just in one sector, into a 4 percent increase in disposable income for the poorest.

The suggestion that inequality is rising is sometimes taken as an indictment of the market mechanism or of trade. Such a view is overly simplistic. Substantial empirical and political choice evidence suggests that many aspects of production and productivity work better in market mechanisms than in fully-planned allocation mechanisms. Using tax mechanisms as redistributive schemes has income-reducing consequences that can be very substantial, and for which some interesting experiments are known that show rising marginal tax rates can reduce incentives to earn by substantial amounts, creating large deadweight losses.⁶

The point of this paper is that one of the best ways to improve equality without incentive-distorting tax remedies is through government policy to reduce exercise of illegitimate market power. This can have the further benefit of effectively raising the real income of the poor, when sectors experiencing increased competition provide goods and services to the poor, as can be the case for mobile phones and many other basic products.

⁵ See Ennis, S., P. Gonzaga & C. Pike (2017), "The effects of market power on inequality," *Competition Policy International*, October.

⁶ Feldstein, M. (1995) "The effect of marginal tax rates on taxable income: a panel study of the 1986 Tax Reform Act," *Journal of Political Economy* 103: 551-572 suggests that the impacts of marginal tax rates on income are at least one and as high as 3.5, and suggests that deadweight losses from increasing marginal tax rates can be very large.

II. MODEL

In recent research, Ennis et al (2019)⁷ provide indications of the change in wealth that would have occurred from moving to competitive margins in an economy that starts with excess or unexplained margins. The redistributive effects of market power on wealth and income depend on a few key variables: a market-power indicator (mark-up); the income share of labor; the ratio between the average saving rate and the marginal propensity to save; and the observed difference between income and wealth shares in the presence of market power. A reduction of market power will increase (decrease) the income and wealth of population groups whose income share exceeds (is less than) the corresponding wealth share. Moreover, to the extent the marginal propensity to save is greater than the average propensity, the wealth effects of market power for the wealthy are increased, as they will tend to save a higher percentage of their increased income than their average saving.

If the marginal propensity to save equals the average propensity, a relatively simple formula emerges that links differences in wealth shares between an economic steady state with market power and one with competition, for each wealth group as a function of mark-ups and labor share of income. Ennis et al. (2019) find that in a steady state, where f_i and y_i represent shares of wealth and income respectively for group i under competition (c) or market power (m), the wealth and income share under competition is given by equations (1) and (2) in which s' represents marginal savings rates, s represents average saving rates, μ represents the country's unexplained mark-up, and α_L represents the labor share of income.

$$f_i^c = f_i^m + \frac{\frac{s'}{s}(\mu - 1)}{1 - \frac{s'}{s}(1 - \mu\alpha_L)}(y_i^m - f_i^m) \quad (1)$$

$$y_i^c = y_i^m + \frac{\mu - 1}{1 - \frac{s'}{s}(1 - \mu\alpha_L)}(y_i^m - f_i^m). \quad (2)$$

They then find that the difference, for any income group i , between shares of wealth (f) in the competitive (c) and uncompetitive state (m) is the same as the difference in shares of income (y) in the competitive and uncompetitive state, and is a function of the Lerner index (l)⁸ and labor share of income (α_L), and the difference between income shares and wealth shares of that group i , as in equation 3:

$$f_i^c - f_i^m = y_i^c - y_i^m = \frac{l}{\alpha_L}(y_i^m - f_i^m). \quad (3)$$

Moreover, if the marginal productivity of labor is constant, this simplifies to a relationship (4) involving mark-ups (μ) and the relative income and wealth shares with market power.

$$f_i^c - f_i^m = y_i^c - y_i^m = (\mu - 1)(y_i^m - f_i^m). \quad (4)$$

The key point to observe in this model is that mark-ups, marginal propensity to save, average propensity to save, labor share of income and income and wealth shares for each group in the state with market power (i.e. the current state) are observable. This means that results for the differences between income and wealth shares for market power and competitive states can be calibrated from these observable variables, even though the wealth or income in the competitive state is not observable.

⁷ See Ennis, S., P. Gonzaga & C. Pike. (2019) "Inequality: a hidden cost of market power," *Oxford Review of Economic Policy* 35(3):518-549. <https://doi.org/10.1093/oxrep/grz017>.

⁸ The Lerner index is defined as (P-C)/P where P is the price with market power, and C is the marginal cost, which in the model used, equals average cost.

These models do not directly consider effects of profit increases being shared with workers in firms with market power profits. It is worth noting that some research (e.g. in the financial sector) suggests that profit distributions to workers goes particularly towards the best paid workers, such as management and high performers, rather than being shared equally across all workers.

III. ESTIMATES

Ennis et al. (2019), Gan et al. (2019), Ennis & Kim (2015), Creedy & Dixon (1998), and Comanor & Smiley (1975)⁹ provide estimates of impacts. According to the calculations in Ennis et al. (2019), the labor share of income has relatively low impact on cross-country differences in wealth distribution, but mark-ups and the ratio of marginal to average savings rates can both have very substantial effects on wealth and income distributions. If anything, the marginal savings rate impact is likely underestimated, as one may hypothesize that marginal savings rates are higher for high income groups than low income groups.

Market power is estimated as unexplained mark-ups from a comparison of mark-ups across countries and industries. The unexplained mark-up is that extent to which mark-ups for an industry in one country exceed the lowest mark-up observed for that industry among the countries studied. This approach implicitly includes adjustments for capital needs that differ between industries and necessary rates of return. This technique involves estimating mark-ups for individual companies of each industry over the long-run and aggregating up to the industry level using the method of Hall (1988) and Roeger (1995).¹⁰

The money value of the change in wealth for the top 10 percent that could come from moving to a competitive mark-up in a country's industries is represented in Table 1 for three relationships between marginal savings rates and average savings rates, the first holding them equal, while the second and third assuming that marginal savings rates are, respectively, 50 percent and 100 percent higher than average saving rates.¹¹ The findings suggest that, of the eight countries studied, the largest impact of inequality in total USD value occurs in the United States. This is due to a combination of its much larger population, economic size and wealth levels than other countries. The impact of population size suggests that a per capita wealth impact might be more appropriate to perform a comparative cross-country analysis that is not driven by national economic size.

Table 1. Money Value of the Change in Wealth of the Top 10 Percent (billions USD PPP)

Country	$s' = \bar{s}$	$s' = 1.5\bar{s}$	$s' = 2\bar{s}$
Canada	119.8	234.0	447.4
France	274.3	512.8	907.3
Germany	603.0	1,152.5	2,117.3
Japan	439.2	861.4	1,658.6
Korea	195.2	364.6	644.0
Spain	211.5	411.4	780.0
UK	112.9	209.1	363.9
USA	2,526.2	4,883.9	9,156.8
TOTAL	4,482.1	8,629.6	16,075.2

9 See Ennis, S., P. Gonzaga, and C. Pike (2019) "Inequality: a hidden cost of market power," *Oxford Review of Economic Policy* 35(3):518-549 <https://doi.org/10.1093/oxrep/grz017>; Gans, J., A. Leigh, M. Schmalz & A. Triggs (2019) "Inequality and market concentration, when shareholding is more skewed than consumption," *Oxford Review of Economic Policy* 35(3): 550-563. Ennis, S. & Y. Kim "Market power and wealth distribution," in OECD/World Bank *A Step Ahead: Competition Policy for Shared Prosperity and Inclusive Growth*. World Bank Publishing: Washington, D.C.; Creedy, J. & R. Dixon "The relative burden of monopoly on households with different incomes," *Economica*, 65:258-93; Comanor, W. & R. Smiley (1975) "Monopoly and the distribution of wealth," *Quarterly Journal of Economics*, 89: 177-94.

10 See Hall, R. (1988) "The relation between price and marginal costs in U.S. industry," *Journal of Political Economy* 96: 921-947 and Roeger, W. (1995) "Can imperfect competition explain the difference between primal and dual productivity measures? Estimates for U.S. manufacturing," *Journal of Political Economy* 103:316-331.

11 The ratio of 2:1 of marginal to average savings rates may be closest to estimates in the literature, according to Ennis et al. (2019).

Table 2 calculates the money value in change in per capita wealth of the top 10 percent that would come about from a change to the competitive mark-up. The wealth attributed to market power is thus averaged over the entire population; no suggestion is here made that the average individual wealth levels would actually move up by these amounts, as many other factors may be at play in determining the distribution of wealth levels. Nonetheless, the results are suggestive.

Table 2. Money Value Per Capita of the entire population from Change in Wealth of top 10 Percent (USD PPP)

Country	$s' = \bar{s}$	$s' = 1.5\bar{s}$	$s' = 2\bar{s}$
Canada	3,371	6,584	12,589
France	4,282	8,005	14,163
Germany	7,454	14,247	26,173
Japan	3,450	6,767	13,029
Korea	3,871	7,231	12,772
Spain	4,552	8,854	16,787
UK	1,774	3,285	5,717
USA	7,923	15,317	28,718
TOTAL	4,585	8,786	16,243

In particular, Table 2 suggests that the two countries with the largest per capita effects on wealth are Germany and the U.S. The country with the lowest impact from market power on a per capita basis is the UK, with an effect that is only 23 percent of the size of that in Germany and the U.S. It is worth noting that the overall levels of inequality in the countries are not the focus here; an economy may have low market power (associated with relatively low mark-ups) while still having substantial economic inequality for other reasons.

IV. CONCLUSION

Overall, this analysis tends to confirm the possibility of substantial wealth and income effects from market power. Using the model of Ennis et al. (2019), it can be shown that, out of eight major OECD countries reviewed, the per capita effects of market power are highest in Germany and the U.S., while lowest in the UK. The size of effects in Germany and the U.S. is about 4.5 times larger than in the UK. There is thus significant variation between countries in the size of these effects according to the model used.

A number of caveats are needed for these results. In particular, the data used for calculating mark-ups is long-run, starting from more than 40 years ago, and not including the most recent data that may show an increase in mark-ups in many countries. This approach is one that is very much based on long-run equilibriums, which is appropriate for the type of model that is calibrated, in which the focus is on steady states that would theoretically only be achieved in the long run. But to the extent that there have been recent changes,¹² or improvements in competitive conditions in some of the studied countries compared to others, these changes are not reflected in these analyses. Thus these results should not be taken as a comment on current or recent competition law enforcement and policy.

The approach described has not explored the relative degree of legitimate and illegitimate market power in the 8 countries. Market power can arise from generally positively viewed developments such as innovation (leading to patents) or investment in brand differentiation (which also creates an incentive to maintain quality). On the other hand, some market power arises from what may be considered illegal, illegitimate or less appropriate sources, such as cartels, abuses of market position, mergers that create market power or government regulation that creates market power through entry barriers or other constraints on competitive action. In the future, it may be worth joining the analysis of this paper with a measure of the extent of illegitimate market power compared to positively-viewed market power, in order to gain a sense of their relative impact. The more market power that flows from illegitimate sources, the more value arises from successful government competition policy. As an illustration, supposing that illegitimate market power accounts for one half of the total mark-up from market power and that marginal savings rates are twice the average saving rates, then for the lower 90 percent of the wealth distribution, the average per capita wealth benefit from effective competition could amount to USD 8,121.

¹² See De Loecker, J., J. Eechout & G. Unger (2019) "The rise of market power and the macroeconomic implications," mimeo of November 15, 2019 which shows that average markups have risen substantially between 1980 and 2016, doubling or more, driven by the upper tail, while medians have remained relatively constant, or Hall, R. (2018) "New evidence on the markup of prices over marginal costs and the role of mega-firms in the US economy," discussion paper, NBER.

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