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Final Project Report

Assessing Japan’s Economic Policies

Tutorial 2 Group 1

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# Introduction

This is a report for our project, in which we implemented a simulation of the Japanese economy, and applied the effects of tax and redistributive policies on the simulated economy. The purpose of conducting this study is to assess and analyse, among other things, the impact of the tax and redistributive policies on the economy. We conducted the simulation using the R programming language.

## Background of Japan

Japan is a country located in East Asia, and boasts a population size of approximately 125 million people. With a population this large, Japan is currently the third largest economy in the world. In terms of economic growth, Japan’s economy has grown by a lot since the 1960s, with its GDP per capita growing from a mere **¥475** per capita in 1960 to about **¥39,000** per capita in 2020. Due to its large population size, private consumption is a key driver to Japan’s growth, with consumption making up roughly **60%** of Japan’s annual GDP.

## Income Inequality in Japan

As is with the other developed economies, income inequality is a problem in Japan. Lower wages, high unemployment, and an ageing population—for which there are elderly individuals who cannot afford to live a comfortable life in their retirement—are some of the biggest contributing factors to Japan’s **15.7%** poverty rate.

Hence, in our project, we used the following metrics to assess the income inequality: the Gini coefficient and the poverty line income. Poverty line refers to the minimum level of income required to maintain a subsistence living standard, while the Gini coefficient is a measure of income inequality. The following are some recent statistics on income inequality in Japan:

1. Gini Coefficient was **0.334** at 2016
2. Poverty line was **¥2,000,000** at 2015
3. Food Poverty Line, which is the monetary threshold representing a minimum cost of living based solely on the energy intake of local foodstuffs, was **¥1,200,000** at 2020

# About the Policies

In this project we considered one tax and one redistribution policy to simulate the economy and implement the policies in order to assess the impact of the latter on the former. The policies are further elaborated in this section.

## Policy Definitions

A **tax policy** refers to the compulsory transfer of money from individuals or entities to the government. A tax can be in the form of direct or indirect taxes, where direct taxes are imposed directly on individuals and corporations while indirect taxes are imposed on goods and services.

A **redistribution policy**, on the other hand, is the transfer of income and wealth from the government to individuals and entities. The government’s purpose of intervening via a redistribution policy is to correct an inequitable market outcome, in order to expand the coverage of the social safety net for the less privileged segments of society.

## Japan’s Tax Policy

| In October 2019, Japan instituted a rise in consumption tax from 8% to 10%. This consumption tax, which is a form of indirect tax, is imposed on consumers for their consumption of regular goods and services, which includes most goods like electronics, books and cars. The tax hike, however, does not apply to food, hence the tax for food remains at 8%. Figure 1 on the right illustrates some examples of goods covered by the tax rate of 8% and 10% | Figure 1: Illustration of goods and services under the 8% and 10% consumption tax rates |
| --- | --- |

## Japan’s Redistribution Policy

In response to the consumption tax hike, the government implemented—also in late 2019—a redistributive policy by distributing vouchers to lower income families. The vouchers were distributed monthly to each individual, where each voucher is worth ¥25,000 and can be bought at ¥20,000. The vouchers are distributed once every month for the span of 6 months. Hence, each individual received a voucher with a net value of ¥5,000 per month; and for 6 months, each person received ¥30,000 in total. These vouchers can be used for individual consumption of goods and services.

# State of the Simulated Economy

This section provides details on the implementation of the simulated economy in R programming language, which includes information on the conditions of the simulated economy before considering the tax and redistribution policies.

## Assumptions

To begin, we made the following assumptions in our simulation:

1. The income threshold of households is obtained for each quintile, before it is divided by the average number of members per household (assuming that each household has four members).
2. The population was simulated at a size of 10 million people, and assume that there is no change to the population during the period before, and after, the implementation of both the tax and redistributive policies.
3. There is only one set of tax and redistributive policies that was implemented in the economy.

| 1. The average propensity to consume (APC) for each quintile was calculated by dividing the average consumption expenditure of the quintile over the average income of the quintile. Figure 2 on the right shows the formula for deriving APC. | Figure 2: Formula of obtaining the APC |
| --- | --- |

### Calculation of APC

| With an understanding of calculating the APC, the APC is derived for each quintile as seen from the table on the right. The higher APC value denotes the higher proportion of income spent on consumption—for which the table shows that the income quintile Q1 has the highest APC. This is because Q1 has the lowest income bracket, hence the individuals in Q1 spend a significantly higher proportion of their income on consumption as compared to individuals in the other quintiles. | | Income Quintile | APC (%) | | --- | --- | | Quintile 1 (Q1) | 114 | | Quintile 2 (Q2) | 79.8 | | Quintile 3 (Q3) | 68.2 | | Quintile 4 (Q4) | 57.4 | | Quintile 5 (Q5) | 51.7 | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |

## Economic Conditions

In addition to the assumptions that are made in the project, there are also conditions that have been kept constant to assess the impact of the policy implementations on the economy. First, it is assumed that the average annual income per capita of the population was kept constant at **¥2,849,000**.

| Quintile Incomes Next, the population is broken down into **five quintiles**, taken based on the annual income range, from the lowest to the highest income. The income quintiles were obtained from official government statistics. The table on the right details the range of total annual income per capita for each quintile. | | Income Quintile | Income (¥) | | --- | --- | | Q1 | ≤ 2,156,133 | | Q2 | ≤ 3,289,962 | | Q3 | ≤ 4,637,546 | | Q4 | ≤ 6,858,736 | | Q5 | > 6,858,736 | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |

# Impact of the Tax Policy

With the simulated economy in place, we then implemented the tax policy by first implementing a tax rate of 8% on the population, and thereafter a tax rate of 10%, to compare and assess how the economic conditions have changed after the implementation of the tax hike.

## Calculate Individual Tax Amount

With an 8% tax rate on each individual, we first calculate the tax amount for each person, where tax is calculated based on consumption expenditure and the tax rate. The consumption expenditure is derived from the annual income with APC.

| Figure 3 on the right shows the formulas for deriving consumption expenditure and the tax amount. | Figure 3: Formulas to derive consumption expenditure and consumption tax amount per individual |
| --- | --- |

## Metrics for Assessment

To assess the impact of the tax hike, we used the following metrics:

1. Gini coefficient
2. Collected tax revenue
3. Average burden of tax
4. Proportion of population living below the poverty line.

### Gini Coefficient

| First, it is noted that the tax hike had led to a slight increase in Japan’s Gini Coefficient from **0.334** to **0.345**, which suggests that Japan had become slightly less equitable as a society. This is expected as the tax hike leads to the population paying a higher tax amount, without any increase in their income.   | Pre-Policy Change Gini Coefficient | Post-Policy Change Gini Coefficient | | --- | --- | | 0.333976 | 0.345117 | | Figure 4: Changes in Gini coefficient before and after-tax hike |
| --- | --- | --- | --- | --- | --- |

### Government Revenue

| Figure 5: Changes in government revenue before and after-tax hike | | Income Quintile | Tax Collected Pre-Tax Change (¥) | Tax Collected Post-Tax Change (¥) | | --- | --- | --- | | Q1 | 5.097263 ×1011 | 6.371579 ×1011 | | Q2 | 4.407107 ×1011 | 5.508884 ×1011 | | Q3 | 3.875428 ×1011 | 4.844285 ×1011 | | Q4 | 2.872128 ×1011 | 3.590160 ×1011 | | Q5 | 1.099892 ×1011 | 1.374865 ×1011 | | Total | 1.735182 ×1012 | 2.168977 ×1012 | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |

Next, on the government revenue. The collected tax goes to the government as revenue for future government expenditures, which can be used for various purposes like funding public goods and infrastructures. With a tax hike, government revenue has increased, and this can be observed by the increase in tax revenue for all 5 quintiles as seen from the above figures. This is expected as the tax hike has led to higher tax amounts being paid by individuals to the government, resulting in an increase in the total tax revenue for the government.

### Average Burden of Tax

| Figure 6: Changes in average tax burden before and after tax hike | | Income Quintile | Average Burden of Tax  Pre-Tax Change(%) | Average Burden of Tax  Post-Tax Change(%) | | --- | --- | --- | | Q1 | 9.147325 | 11.434156 | | Q2 | 6.386057 | 7.982571 | | Q3 | 5.454400 | 6.817999 | | Q4 | 4.589314 | 5.736642 | | Q5 | 4.139610 | 5.174512 | | Total | 6.089644 | 7.612055 | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |

Next, the average tax burden was analysed for each quintile—where the tax burden refers to the proportion of income spent on the tax over the income—for which it was found that the burden had increased for all 5 quintiles after the tax hike. Another observation is that the tax burden decreases as income increases, with Q1 having a much higher burden of proportion than Q5, thereby suggesting that this tax is regressive in nature.

This tax hike also worsens the regressive effects on the lower income individuals. Given that the APC for individuals in income Q1 has the highest of all income quintiles—almost double of the APC of income Q5—individuals in lower income Q1 have to pay a higher proportion of tax compared to their counterparts in other income quintiles. Thus, individuals in income Q1 are likely to see a more than proportionate reduction in their savings following after the tax hike.

### Proportion of Population Below Poverty Line

| Finally, the proportion of the population living below the poverty line is also assessed in view of the tax hike. It is noted that the proportion had also increased with the hike, from **41.4%** to **41.9%** as seen from the figures.   | Pre-Policy Proportion of Population below Poverty Line (%) | Post-Policy Proportion of Population below Poverty Line (%) | | --- | --- | | 41.44312 | 41.89912 | | Figure 7: Changes in proportion of population below poverty line, before and after tax hike |
| --- | --- | --- | --- | --- | --- |

This translates to more individuals falling below the relative poverty line threshold.

## Assessment on the Overall Economy

Lastly, we assessed the impact of this tax hike on a macroeconomic perspective. As Japan is a consumption dependent economy for growth—unlike Singapore which is more dependent on trade as a result of its small local market—the tax hike can negatively impact economic growth, since it has reduced consumption expenditure.

# Impact of Redistributive Policy

The redistributive policy entailed distributing vouchers to the lower income individuals in society, totaling to **¥30,000** per year, per individual.

## Metrics for Assessment

The impact of the redistributive policy is measured with the following metrics:

1. Gini coefficient
2. Overall income of the population before and after policy
3. Government expenditure
4. Average benefit of the policy
5. Proportion of the population living above the poverty line.

### Gini Coefficient

| First, it is observed that the Gini coefficient was **0.334** before the implementation of the redistributive policy, which subsequently fell to **0.330** post-policy. This suggests that the policy was able to reduce income inequality, which is in line with the theoretical understanding of redistributive policies to distribute wealth to the poor.   | Pre-Policy Change Gini Coefficient | Post-Policy Change Gini Coefficient | | --- | --- | | 0.333976 | 0.329555 | | Figure 8: Changes in Gini coefficient before and after redistribution policy |
| --- | --- | --- | --- | --- | --- |

### Distribution of Population Income

| Figure 9: Changes in population income before and after redistribution policy | | Income Quintile | Income Pre-Redistributive Policy (¥) | Income Post-Redistributive Policy (¥) | | --- | --- | --- | | Q1 | 5.572409 ×1012 | 5.696738 ×1012 | | Q2 | 6.901141 ×1012 | 6.931683 ×1012 | | Q3 | 7.105142 ×1012 | 7.105142 ×1012 | | Q4 | 6.258295 ×1012 | 6.258295 ×1012 | | Q5 | 2.656995 ×1012 | 2.656995 ×1012 | | Total | 2.849398 ×1013 | 2.864885 ×1013 | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |

Secondly, the distribution of population income pre- and post-policy is assessed. For the first two quintiles, there is a slight increase in their income post-redistribution, as compared to pre-redistribution. This is expected as the policy is capped on the upper limit of Q2, hence the redistributive policy only managed to concentrate its redistribution on the poorest quintiles.

### Government Expenditure

| Figure 10: Changes in government expenditure before and after redistribution policy | | Income Quintile | Government Expenditure (¥) | | --- | --- | | Q1 | 124,329,360,000 | | Q2 | 30,542,040,000 | | Q3 | 0 | | Q4 | 0 | | Q5 | 0 | | Total | 154,871,400,000 | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |

Next, on the government expenditure in implementing the redistributive policy. It is observed the government expenditure allocated to income Q1 was approximately 4 times greater than that allocated to income Q2. The rest of the quintiles did not receive any transfers from government expenditure.

### Average Benefit of Policy

| Figure 11: Changes in average benefit from the policy, before and after redistribution policy | | Income Quintile | Average Benefit of Policy (%) | | --- | --- | | Q1 | 2.2311600 | | Q2 | 0.4425651 | | Q3 | 0 | | Q4 | 0 | | Q5 | 0 | | Total | 0.5435232 | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |

Next, the effectiveness of the redistributive policy is measured by its average redistributive benefit, which is calculated by dividing government expenditure by the total income of the quintile. Evidently, from the figures above, income Q1 had an average benefit of **2.23%**, while income Q2 only had an average benefit of **0.443%**. Since the other income quintiles did not benefit from the policy, their redistributive benefit was thus **0%**. The progressiveness of the redistributive policy is—from our humble perspective—normatively good as it has benefited the country’s poorest, and because its benefits decrease as we move up the income quintile.

### Population of Income Above Poverty Line

| It is also observed that the proportion of the population living above the poverty line had also increased from **62.7%** to **63.5%** after the implementation of the redistributive policy, which shows that the policy has lifted some individuals (about 1% of the population) above the poverty line.   | Pre-Policy Proportion of Population below Poverty Line (%) | Post-Policy Proportion of Population below Poverty Line (%) | | --- | --- | | 62.71688 | 63.5253 | | Figure 12: Changes in proportion of population above the poverty line, before and after redistribution policy |
| --- | --- | --- | --- | --- | --- |

## Assessment on the Overall Economy

Finally, some additional possible impacts of the redistributive policy were also considered on the simulated Japanese economy. First, the redistributive policy had helped to promote economic growth for Japan. By providing vouchers to be spent on local goods and services in a largely consumption driven economy, the expenditure incurred by the government to implement this redistributive policy could lead to a multiplier effect on national output—with the economy growing more than proportionately to the initial expenditure spent. Secondly, as the overall income post-policy has increased for the lower-income group, it is thus fair to argue that the policy had led to a potential increase in savings.

However, a downside to this redistributive policy is that a perverse incentive may be created for individuals whose annual income is right above the threshold set by the government to be eligible for the redistributive vouchers, but who could easily reap the benefits of this redistributive policy if they were to work less and earn less income. Thus, the policy may potentially disincentivise individuals from working as hard, thus creating a perverse incentive in which none had existed prior to the redistributive policy.

# Integrated Analysis of Tax and Redistributive Policies

Having looked at the effects of the tax and redistributive policies *in isolation*, we then decided to take a step further to assess the overall net effect of implementing both the tax and redistributive policies through *integrated* analysis.

## Metrics of Assessment

To this end, we used the following four key metrics of assessment:

1. Gini Coefficient
2. Net Government Revenue
3. Average Tax Burden & Average Redistributive Benefit
4. Proportion of Population Living Above the Poverty Line

### Gini Coefficient

| First, the Gini Coefficient. Recall that the initial Gini Coefficient of Japan *pre-tax* was **0.334**. This increased to **0.345** *post-tax* and *pre-redistribution*. After factoring in the redistributive policy, the Gini Coefficient fell slightly to **0.341**. Overall, the net effect on Japan’s Gini Coefficient is that it has increased slightly compared to before the consumption tax hike was introduced.   | Pre-Policies  Gini Coefficient | Just Tax Change  Gini Coefficient | Post-Policies Gini Coefficient | | --- | --- | --- | | 0.333976 | 0.345117 | 0.340805 | | Figure 13: Changes in Gini coefficient before and after both tax and redistribution policies |
| --- | --- | --- | --- | --- | --- | --- | --- |

### Net Government Revenue

| The second metric of assessment is the overall effect on the Japanese government’s net revenue. Comparing the revenue that the government collected from the tax hike against the expenditure that the government incurred from its implementation of its redistributive policy, it is clear that the Japanese government had collected more tax revenue than it had spent on redistributive expenditure. Therefore, the Japanese government had benefited from a *positive net revenue* post-tax and post-redistribution. | Figure 14: Changes in government revenue and expenditure before and after both tax and redistribution policies |
| --- | --- |

The following table shows the results from Figure 14 above, which describes the government revenue and expenditure, before and after the implementation of tax and redistributive policies.

| Income Quintile | Government Expenditure Pre-Policies (¥) | Government Expenditure Post-Policies (¥) | Government Revenue Pre-Policies (¥) | Government Revenue Post-Policies (¥) |
| --- | --- | --- | --- | --- |
| Q1 | 0 | 124,329,360,000 | 5.097263 ×1011 | 6.513739 ×1011 |
| Q2 | 0 | 30,542,040,000 | 4.407107 ×1011 | 5.533265 ×1011 |
| Q3 | 0 | 0 | 3.875428 ×1011 | 4.844285 ×1011 |
| Q4 | 0 | 0 | 2.872128 ×1011 | 3.590160 ×1011 |
| Q5 | 0 | 0 | 1.099892 ×1011 | 1.374865 ×1011 |
| Total | 0 | 154,871,400,000 | 1.735182 ×1012 | 2.185631 ×1012 |

The following figure 15 and table below show the government net revenue before and after implementing both the tax and redistributive policies.

| Figure 15: Changes in government net revenue and expenditure before and after both tax and redistribution policies | | Income Quintile | Net Government Revenue  Pre-Policies (¥) | Net Government Revenue  Post-Policies (¥) | | --- | --- | --- | | Q1 | 5.097263 ×1011 | 5.270446 ×1011 | | Q2 | 4.407107 ×1011 | 5.227844 ×1011 | | Q3 | 3.875428 ×1011 | 4.844285 ×1011 | | Q4 | 2.872128 ×1011 | 3.590160 ×1011 | | Q5 | 1.099892 ×1011 | 1.374865 ×1011 | | Total | 1.735182 ×1012 | 2.030760 ×1012 | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |

This could potentially be good because it allows the Japanese government—who may have better information than private individuals on how best to provide aid (directly or otherwise) most effectively—greater economic leeway to implement a wider range of policy options, some of which may not have been feasible before the implementation of the tax policy.

And it would be especially good if the Japanese government could achieve this without making those in the lowest income quintile worse off; and therein lies the question—has the Japanese government been able to raise their revenue through their tax policy without making their lowest citizens worse off? In the next subsection, we analyse how the tax burden and redistributive benefit are shared across Japanese society.

### Average Tax Burden and Average Redistributive Benefit

| Figure 16: Changes in average benefit/ burden of policies, before and after both tax and redistribution policies | | Income Quintile | Average Benefit of Policies (%) | Average Burden of Policies (%) | | --- | --- | --- | | Q1 | 2.2311600 | 11.434156 | | Q2 | 0.4425651 | 7.982571 | | Q3 | 0 | 6.817999 | | Q4 | 0 | 5.736642 | | Q5 | 0 | 5.174512 | | Total | 0.5435232 | 7.629037 | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |

From the bar graph above—which shows the distribution of Tax Burden and Redistributive Benefit across all 5 income quintiles—we note two trends. First, as we move the income bracket from income quintile 1 to income quintile 5, the Average Tax Burden *decreases* from about 11% to about 5%. *Prima facie*, the regressiveness of the tax policy may strike one as surprising, as it seems to harm the lowest income quintile the most and the highest income quintile the least. But we hypothesise that because the lower income households are likely to spend (rather than save) a larger proportion of their income compared to higher income households—the Average Propensity to Consume (APC) for households in income quintile 1 is about twice that of households in income quintile 5—and because the former’s consumption is likely to be concentrated on necessities (rather than luxury goods), it is likely that the the price elasticity of demand of necessities is higher for lower income households than higher income households. As a result, the lower income households are likely to bear more of the tax burden compared to the higher income households.

By contrast, the Average Redistributive Benefit is found only in income quintiles 1 and 2 because the vouchers are only given to households that do not exceed the annual income of 2.56 million yen. Unsurprisingly, the Average Redistributive Benefit is also concentrated mostly in income quintile 1—rather than income quintile 2—as it was perhaps intended to benefit the poorest Japanese households the most; leading us to our final question: has the Japanese government lifted more or fewer Japanese from poverty? We discuss this in our penultimate section below.

### Proportion of Population Above Poverty Line

| Comparing the proportion of the Japanese population living above the poverty line before the VAT hike was introduced against that after the VAT and the redistributive voucher policies were implemented, we find that there is **no net effect** in terms of the proportion of population living above the poverty line.   | Pre-Policy Proportion of Population below Poverty Line (%) | Post-Policy Proportion of Population below Poverty Line (%) | | --- | --- | | 58.55688 | 58.55688 | | Figure 17: Changes in proportion of population above poverty line, before and after both tax and redistribution policies |
| --- | --- | --- | --- | --- | --- |

One reason that we hypothesised why this may be the case is because of the offset effect that the redistributive policy was designed to do, in order to counteract the effects of the tax policy on the country’s poorest. We reason—with plausible confidence—that the Japanese government had probably arrived at the 5000 yen voucher value by commissioning a study group to calculate the increase in consumption on goods and services for the poorest segment of Japanese society, and likely found that that such an increase necessitated a voucher offset at least equal in value to the 2% increase in consumption for the lowest income households.

# Conclusion

In retrospect, we began by analysing Japan’s tax and redistributive policies in isolated pieces before bringing them together to analyse the net effects of implementing both the tax and redistributive policies on Japan. We found that though raising the consumption tax from 8% to 10% had brought about greater tax revenue for the Japanese government (by about 25%), it nevertheless made Japan more unequal, as its Gini Coefficient had increased from 0.334 to 0.345 after implementing the consumption tax hike. Two effects of the tax policy may explain this rise in Japan’s Gini Coefficient. First, the regressive nature of a VAT tax hike would lead to a regressive distribution of the Average Tax Burden; that is, that the Average Tax Burden decreases as income increases. Second, the poverty perspective illustrates that there is a 0.46% increase in the proportion of Japanese living below the poverty line after the implementation of the consumption tax hike. While that might seem like a small number, in a country with a population of about 126 million people, that translates to about 569,600 more Japanese falling below the poverty line, or 569,600 more lived realities of poverty in Japan.

Appreciating the scale of the issue, fortunately, the Japanese government was quick to simultaneously implement a redistributive voucher policy targeted at the lowest two income quintiles to mitigate the regressive effects of the consumption tax hike. Analysing the redistributive policy in isolation, however, we measured the effects of the redistributive policy without factoring in the consumption tax hike (i.e., consumption tax remains at 8%) and we found that though it would have incurred an expenditure of ¥154,871,400,000 on the part of the government, it would have nevertheless made Japan slightly less unequal: not only would Japan’s Gini Coefficient have fallen from 0.334 to 0.330, but the proportion of Japanese living above the poverty line would also increase by 0.81%—translating to about 1,002,991 more Japanese being lifted from relative poverty.

Moving beyond hypotheticals, in the penultimate section, we analysed both Japan’s tax and redistributive policies simultaneously as an integrated whole and we conclude with the following key findings: first, Average Tax Burden remains regressive as it continues to decrease as income increases; second, Average Redistributive Benefit remains concentrated in the poorest income quintile, albeit some spillovers into income quintile 2; third, despite the rather large expenditure bill incurred by implementing the redistributive policy, the Japanese government nevertheless managed to not only balance their budget but also gain positive net revenue; fourth, and perhaps most importantly, there is no significant change in the proportion of Japanese living above and below the poverty line, despite the slight rise in Japan’s Gini Coefficient from 0.334 to 0.341—quite tellingly, this suggests that while Japan may have had more inequality, it did not, however, have more poverty. By implication, we infer that Japan’s increase in inequality must necessarily be driven only by wealthy Japanese raising the income gap from above, and therefore, that the Japanese government has done a rather impressive job of mitigating the effects of its tax policy on its poorest citizens by way of their redistributive policy.

Nevertheless, we acknowledge that our analysis has been limited by the lack of long term data availability. Since the consumption tax hike and its corresponding redistributive voucher policy were implemented only in October 2019, there has been little over 2 years to study the long term effects of both policies—either in isolation from each other, or in conjunction with each other—which has thus limited our analytical horizon to a short-term one. Future research can thus take a longer term view to retrospectively study the effects of both tax and redistributive policies analysed here. In addition to intertemporal comparisons, an interspatial cross-comparative study of the effects of tax and redistributive policies across different economies could also help further our understanding of the effects that tax and redistributive policies have on their societies. Singapore, for instance, is a potentially good candidate for interspatial comparison, not least because of similar developmental economic models, Asian cultures and work ethic, but also because Singapore is slated to increase its VAT by 2% from 7% to 9% between 2022 to 2025. From these methodological limitations, therefore, we suggest that future research can take on intertemporal and interspatial cross-comparative methods of studying the interplay between an economy’s tax policies and its corresponding redistributive policies.

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