Uninsured Risk, Stagnation and Fiscal Policy

R. Anton Braun\textsuperscript{1} Tomoyuki Nakajima\textsuperscript{2}

\textsuperscript{1}Federal Reserve Bank of Atlanta
\textsuperscript{2}Kyoto University

Canon Institute for Global Studies
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These are our personal views and not those of the Federal Reserve System.
Stagnation, earnings and wealth inequality in Japan

Motivation for my research project with Nakajima

Our model

Our results

Concluding Remarks
Motivation: some facts about stagnation: GDP

- Japan is in the midst of a protracted episode of depressed economic activity
- Per Capita GDP is depressed relative to Japan’s peers.

*Thanks to Masaaki Shirakawa.*
Labor productivity growth is low but has been gradually increasing since 2010.

Japan is loosing 1 million workers a year due to retirement.

Figure 4. Japan’s potential GDP growth rate has fallen sharply since 1990

*N*OECD Japan Survey 2015.
Average Wages

- Nominal wages are flat.
- Real wages are falling.
- Recent gains in labor productivity have not been passed through to real wages.

*B. Nominal wage increases have not kept pace with inflation*

*OECD Japan Survey 2015.*
Income Inequality in Japan

- Income equality is increasing.
- Share of total income by those in high income groups has risen between 1999 and 2011.

Figure 15 Share (percentage) of income by income group

(Source) Adopted from table 1 (overview) of Shinsho income survey by the NTA

Income Inequality in Japan

- Fraction of taxpayers in low income groups increased between 1999 and 2011.

Figure 14 Share (percentage) of taxpayers by income groups

(Source) Adopted from table 1 (overview) of Shinsho income survey by the NTA

Declining Middle Class

The percentage of households with an annual income over five million yen has dropped. The distribution of household annual income has shifted to lower income groups below the five million yen mark.

Disposable income (median) per person has fallen since the 2000s, with the real value in 2012 at 2.21 million yen, equal to levels in the 1980s.

Middle class income levels are decreasing, raising the risk of slipping into poverty.

*Mizuho Research Institute: Japan’s Inequality Today and Policy Issues (2015)
Polarization in Japan

- Wages of high earners (90 percentile) is increasing relative to median (50 percentile) wages.

Lise et al. (2013).
Polarization in Japan

- Variance of earnings is increasing.

Lise et al. (2013).
Some factors underlying these changes

- Aging: Income drops as people move into retirement
- Earnings polarization
  - Regular versus non-regular wages.
  - Decline in lifetime employment guarantees.
  - Decline in routine middle skilled jobs.
Aging is resulting in higher firm dissolutions

*2014 White Paper on Small and Medium Enterprises in Japan

- Higher firm dissolutions imply less job security.
Earnings gap between regular and non-regular workers

There is a wide gap in wage distribution between full-time regular employees and full-time non-regular workers. The increase in non-regular workers has been a major factor in widening wage disparities in the working-age population since the late 1990s.

The Gini coefficient of working-age household income does not indicate growing inequality since the beginning of Abenomics.

[ Income distribution of full-time regular employees and full-time non-regular workers ]

Note: Income shown here is annual income (including taxes) from regular work. Full-time work refers to working over 35 hours in a week and over 200 days in a year.

Source: Made by MHRI based upon Ministry of Internal Affairs and Communications, Basic Survey on Employment Structure (2012)

*Mizuho Research Institute: Japan’s Inequality Today and Policy Issues (2015)
Labor market polarization is also occurring in U.S.

Lee and Shin (2016).
U.S. Polarization is particularly pronounced in manufacturing

Lee and Shin (2016).
Wealth Inequality in Japan

Higher earnings inequality has been associated with an increase in wealth inequality.

Figure 2.4: Gini coefficient for financial asset holdings

Source: Authors’ calculations using microdata of the NSFIE.

Note: For the calculation, total household asset holdings is divided by the square root of the number of household members.

Ohtake et al. (2013).
Summary

- **Secular stagnation**: Japan’s economy is depressed (per capita GDP is low relative Japan’s peers.)
- This is occurring against a background of
  - **Earnings polarization** (Lise, Sudo, Suzuki, Yamada and Yamada, 2014) that is concentrated in periods of recession (Furukawa and Toyoda, 2013).
  - Earnings of higher skilled workers are increasing while earnings of middle-skilled workers are growing more slowly or even falling.
  - **Wealth inequality is rising** (Ohtake et. al., 2013 and Lise et. al., 2014).
- These same patterns can be observed in other advanced economies too.
Motivation for my research project with Nakajima

1. Stagnation, earnings and wealth inequality in Japan

2. Motivation for my research project with Nakajima

3. Our model

4. Our results

5. Concluding Remarks
These observations are related.

- Autor (2010) argues that earnings polarization is due to a bias in technological change.
- Automation is destroying medium skilled routine occupations.
- International integration of labor markets is another contributing factor.
- Our first objective: show that automation and international integration act to:
  - depress aggregate economic activity
  - increase wealth inequality.
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Our second objective: consider how should fiscal policy respond.

- Three criteria:
  1. Bring an end to stagnation by boosting output.
  2. Reduce wealth inequality
  3. Raise welfare.
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Conventional prescriptions for fiscal policy

- Premise of current policy in Japan is that stagnation can be reversed by:
  - Easy monetary policy.
  - Fiscal stimulus (higher deficit spending).
  - Structural reforms.
- Piketty’s recommendations for responding to wealth and earnings inequality:
  - Increase the tax rate on capital.
  - He is silent about the effects of his recommendation on aggregate economic activity.
- Piketty’s recommendation is a bad policy in our model.
How we make these points.

- Develop a model that relates stagnation and increasing wealth inequality to uninsured earnings risk.
- Show that the model can account for the observations from Japan.
- An increase in earnings risk for high skilled jobs lowers output and increases wealth inequality.
- Use the model to analyze alternative fiscal policies in terms of their ability to boost output, reduce wealth inequality, improve welfare.
1 Stagnation, earnings and wealth inequality in Japan

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An overview of our model: households

- Blanchard-Yaari perpetual youth model. New households are born at every moment of time and other households pass away. Life-expectancy is uncertain.

- Households are endowed with two types of labor
  1. unskilled labor (non-accumulable) but safe.
  2. human capital that can be augmented via investment but is risky.

- Households can save by accumulating physical capital or acquiring government debt. Both are risk free.

- Households value consumption but supply both types of labor inelastically.
Model overview: firms

1. Perfectly competitive firms use physical capital, skilled labor and unskilled labor to produce a single good with a constant returns to scale technology.

2. Output is used for consumption, investment in physical capital and investment in human capital.
Model overview: government and equilibrium

- Government
  - Raises revenue using taxes in consumption, capital and wages.
  - Uses proceeds to finance transfers (lumpsum) and government purchases.
  - Government also issues debt.

- Equilibrium
  - Closed economy: interest rate and wage rates are determined endogenously.
  - Results based on a comparison across steady-states.
Our model

Solving the model.

- Our model has a rich set of implications but does not admit a closed form solution.
- We solve it on a computer instead. This requires us to specify the precise values for the model’s parameters.
- We choose model parameters to capture Japan’s situation.
Parameterization of the model

- Model period is one year.
- Individuals live on average 83.7 years.
- Cobb-Douglas production technology (capital share is 0.3, skilled labor share is 0.45, unskilled labor share is 0.25).
- Earnings risk in 1991: 0.246 log basis points.
- Overall tax rate on capital ($\tau_r$): 0.63 (corporate and household).
- Overall labor tax rate ($\tau_w$): 0.32.
- Consumption tax rate ($\tau_c$): 0.08
- Government purchases: 21% of GDP.
- Debt-GDP ratio (net) 1.5.
Our results

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Our results

An increase in earnings inequality

- We estimate that the standard deviation of earnings has increased from 0.246 log basis points in 1991 to 0.3 in 2015.
- An increase of earnings inequality of this magnitude has the following effects:
  - Output ($Y$) declines by 2.5%
  - Public transfers ($\tau$) decline by 3.33% (Lower tax revenues).
  - The standard deviation of log wealth ($\sigma_a$) increases by 0.255.
  - Household welfare falls.
- From this we see that an increase in earnings inequality reproduces the observations about stagnation and rising wealth inequality that we discussed in the introduction.
Assessing Piketty’s proposal in our model

- Higher earnings inequality translates into higher wealth inequality. According to Piketty the way to deal with higher wealth inequality is to tax capital.

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*All changes are relative to the baseline specification.*
Our results

Assessing Piketty’s proposal in our model

- Higher earnings inequality translates into higher wealth inequality. According to Piketty the way to deal with higher wealth inequality is to tax capital.

- We use the proceeds from this tax to increase transfers by 2% above their baseline value.

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Assessing Piketty’s proposal in our model

• Higher earnings inequality translates into higher wealth inequality. According to Piketty the way to deal with higher wealth inequality is to tax capital.
• We use the proceeds from this tax to increase transfers by 2%.
• Wealth inequality increases.

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Assessing Piketty’s proposal in our model

- Higher earnings inequality translates into higher wealth inequality. According to Piketty the way to deal with higher wealth inequality is to tax capital.
- We use the proceeds from this tax to increase transfers by 2%.
- Wealth inequality increases.
- Larger output declines

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Assessing Piketty’s proposal in our model

- Higher earnings inequality translates into higher wealth inequality. According to Piketty the way to deal with higher wealth inequality is to tax capital.
- Wealth inequality increases.
- Larger output declines.
- Households are worse off.

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*All changes are relative to the baseline specification.
How should fiscal policy respond? **Lower the tax rate on capital instead!**

- Let’s now consider a reduction in the capital tax rate instead. Size of the reduction is chosen to restore output to its baseline level.

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*All changes are relative to the baseline specification.*
Our results

How should fiscal policy respond? Lower the tax rate on capital instead!

- Let’s now consider a reduction in the capital tax rate instead. Size of the reduction is chosen to restore output to its baseline level.
- Public transfers to the poor fall by more.
- But wealth inequality improves.

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Our results

How should fiscal policy respond? **Lower the tax rate on capital instead!**

- Let’s now consider a reduction in the capital tax rate instead. Size of the reduction is chosen to restore output to its baseline level.
- Lower public transfers to the poor and yet lower wealth inequality.
- Households welfare improves.

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How much can the tax rate on capital be reduced?

- Given that a lower tax rate on capital has all of these attractive properties the question arises as to how much it can be reduced?
- It can be reduced enough to reduce wealth-inequality to its baseline (1991) level ($\tau_r = 0.435$).
- However, it cannot be reduced enough to restore utility to its baseline level.
- Utility increases when $\tau_r$ is reduced from 0.63 to 0.45. However, it falls if $\tau_r$ is reduced below this level.
- Households value public transfers. But, they would prefer for them to be reduced well below their current levels.
Lowering the labor tax is also an even better policy

- Public transfers to the poor fall and yet wealth inequality is reduced.
- Larger improvement in welfare.

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Our results

The consumption tax

- Japan increased the consumption tax rate in 2014 from 5 to 8 percent and there is a plan to increase it again in 2017 to 10 percent.
- How does this policy affect output, wealth inequality and transfers?
- In our model an increase in the consumption tax has the following effects.
  - It depresses output.
  - It lowers welfare.
  - However, it reduces wealth-inequality.

- The consumption tax is a tax on the present value of lifetime income or simply wealth. Increasing this tax reduces the incentive for households to accumulate wealth over their lifetime.
Stagnation, earnings and wealth inequality in Japan

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Our results

Concluding Remarks
The goal of my presentation has been to provide you with a nontechnical overview of our model and our main results.

According to our model the recent decision to lower the corporate tax rate in Japan from 37% to 29.74% is good public policy and there is an opportunity to reduce it even further.

Reducing the labor tax rate would be even better.

The premise in both cases is that social insurance expenditures are reduced at the same time.

A complete description of our model and results can be found in our paper: Braun and Nakajima (2016) “Uninsured Risk, Stagnation and Fiscal Policy”.
Thank You!