The 14th Biennial Conference of ACFEA

5A-3

# Has "Targeted Poverty Alleviation" Improved Rural Residents' Consumption?

## —— Empirical Evidence Based on CFPS

**Yang Yang**

PHD candidate,Heilongjiang University (Economics Dep)

**Nan Li**

Professor, School of Economics FuDan University

## Procedure

- Research Background
- Research Design
- Empirical Evidence
- Several Tests
- Conclusion
- Discussion

# Research Background

## ➢ 1. Policy Background

- The 18th National Congress of the CPC took Targeted Poverty Alleviation (TPA) as the basic strategy
- In 2013, the important instructions of "seeking truth from facts, adjusting measures to local conditions, classifying guidance and Targeted Poverty Alleviation" were made
- In 2015, the Targeted Poverty Alleviation policy was officially implemented
- In 2020, 832 national level poverty-stricken counties were all lifted out of poverty
- The No. 1 central document of 2021 emphasizes the importance of consolidating and expanding poverty alleviation achievements

# Research Background

## ➢ 2. Existing Research

- Problems found in TPA policy
- Implementation effect of TPA policy
- Related poverty research after eliminating absolute poverty

# Research Background

## ➢ 3. Consumption Topic in TPA Policy Research

- ➢ Massive study in recent years
- ➢ Some issue:
- Lack of analysis on consumption structure of poor households
- Lack of new empirical method and robustness test strategy
- No agreement on policy effect conclusion

# Research Design

## • 1. Data

- 2010-2018 CFPS 5 waves -- > panel data(22 provinces 226 counties 2647 households)
- ps: delete urban data

# Research Design

- 2. Model

- Difference-in-Difference (DID)

$$Y_{it} = \alpha_0 + \alpha_1 \text{treatment}_{it} + \alpha_2 \text{shock}_t + \alpha_3 (\text{treatment}_{it} * \text{shock}_t) + \beta X'_{it} + \varepsilon_{it}$$

# Research Design

- 3. Variable

- **Dependent variable - consumption**

- **Control variable - household□ region□ province traits**

✓ householder age□ gender□ employment□ education
✓ family size
✓ location
✓ province GDP per person
✓ etc

# Research Design

- 4. Statistics Description

| | Treatment group | | | Control group | | |
|---|---|---|---|---|---|---|
| | Obs | Mean | SD | Obs | Mean | SD |
| Household | | | | | | |
| age | 3190 | 51.16 | 13.00 | 10045 | 50.07 | 11.93 |
| gender | 3190 | 0.69 | 0.46 | 10045 | 0.66 | 0.47 |
| employed | 3190 | 0.79 | 0.40 | 10045 | 0.81 | 0.39 |
| educated | 3190 | 0.40 | 0.49 | 10045 | 0.31 | 0.46 |
| Family | | | | | | |
| family size | 3190 | 4.39 | 2.06 | 10045 | 4.38 | 1.79 |
| number of non-adult | 3190 | 1.52 | 1.05 | 10045 | 1.60 | 0.93 |
| has business income | 3190 | 0.67 | 0.47 | 10045 | 0.72 | 0.45 |
| Region | | | | | | |
| east | 3190 | 0.38 | 0.48 | 10045 | 0.37 | 0.48 |
| central | 3190 | 0.26 | 0.44 | 10045 | 0.32 | 0.47 |
| west | 3190 | 0.37 | 0.48 | 10045 | 0.31 | 0.46 |
| village vacancy rate | 3190 | 0.04 | 0.19 | 10045 | 0.02 | 0.15 |
| Province | | | | | | |
| province GDP per person | 3190 | 10.44 | 0.45 | 10045 | 10.46 | 0.44 |

Data source: CFPS 2010-2018

# Research Design

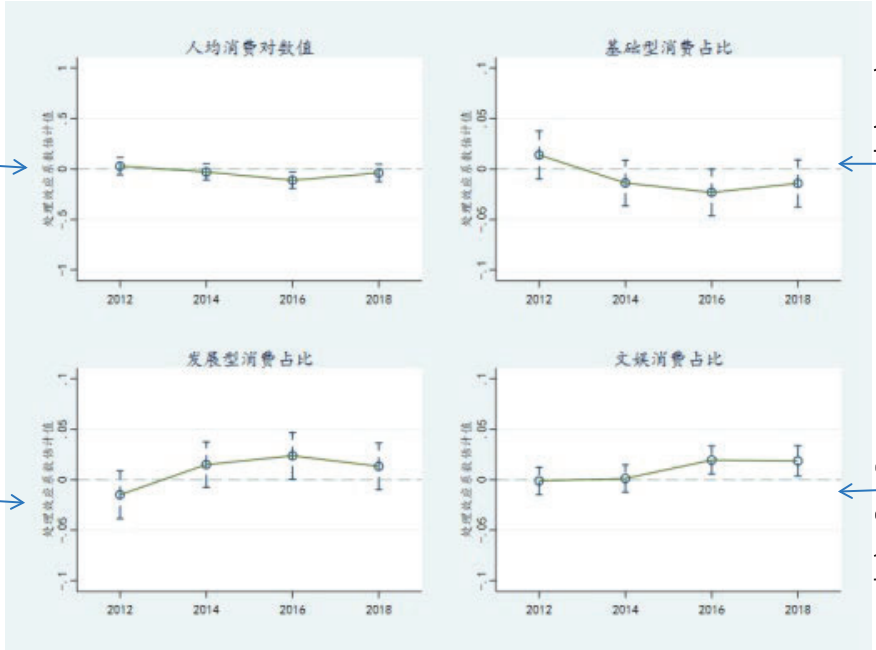
- 5. Common trend test

average consumption

basic consump proportion

developmental consumption proportion

entertainment consumption proportion



# Empirical Evidence

➢ 1. Per capita consumption

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| DID | -0.06 | -0.06 | -0.07* | -0.07* | -0.06* |
| | (-1.58) | (-1.56) | (-1.90) | (-1.91) | (-1.81) |
| age | | 0.03*** | 0.02*** | 0.02*** | 0.02*** |
| | | (6.44) | (4.51) | (4.15) | (4.79) |
| age$^2$ | | -0.00*** | -0.00*** | -0.00*** | -0.00*** |
| | | (-8.70) | (-6.64) | (-6.38) | (-7.15) |
| gender | | -0.04*** | -0.04** | -0.03* | 0.00 |
| | | (-2.81) | (-2.32) | (-1.68) | (0.22) |
| employed | | -0.03 | 0.00 | 0.01 | -0.04* |
| | | (-1.29) | (0.16) | (0.33) | (-1.83) |
| educated | | -0.20*** | -0.20*** | -0.19*** | -0.19*** |
| | | (-12.31) | (-12.39) | (-11.44) | (-11.60) |
| family size | | | -0.03*** | -0.03*** | -0.03*** |
| | | | (-6.57) | (-5.95) | (-6.54) |
| has business income | | | -0.16*** | -0.16*** | -0.12*** |
| | | | (-9.57) | (-9.46) | (-7.32) |
| number of non-adult | | | 0.05*** | 0.05*** | 0.06*** |
| | | | (5.28) | (5.59) | (7.09) |
| central area | | | | 0.03* | -0.08*** |
| | | | | (1.77) | (-3.59) |
| east area | | | | 0.08*** | -0.18*** |
| | | | | (4.42) | (-6.44) |
| village vacancy rate | | | | -0.18*** | -0.22*** |
| | | | | (-3.86) | (-4.62) |
| province GDP per person | | | | | 0.37*** |
| | | | | | (11.84) |
| Shock | 0.28*** | 0.32*** | 0.30*** | 0.30*** | 0.17*** |
| | (16.60) | (18.64) | (17.20) | (17.40) | (8.72) |
| Treatment | -0.19*** | -0.15*** | -0.15*** | -0.15*** | -0.14*** |
| | (-7.71) | (-6.27) | (-6.26) | (-6.16) | (-5.98) |
| _cons | 9.10*** | 8.85*** | 9.16*** | 9.14*** | 5.42*** |
| | (824.66) | (94.84) | (91.56) | (91.39) | (16.56) |
| *N* | 13235 | 13235 | 13235 | 13235 | 13235 |
| $R^2$ | 0.03 | 0.07 | 0.08 | 0.08 | 0.10 |
| adj. $R^2$ | 0.03 | 0.07 | 0.08 | 0.08 | 0.09 |

# Empirical Evidence

- 2. Sub consumption

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
|---|---|---|---|---|---|---|---|---|---|---|
| Y | food | dress | house | daily | medcare | transport | entertainment | other | basic pp | developmental pp |
| DID | -0.15** | -0.17** | 0.10 | -0.10 | -0.21** | 0.00 | 0.11 | -0.39*** | -0.12*** | 0.01 |
| | (-2.11) | (-2.23) | (1.30) | (-1.28) | (-2.18) | (0.04) | (0.82) | (-3.89) | (-2.80) | (0.21) |
| Shock | 0.16*** | 0.22*** | 0.42*** | 0.24*** | 0.33*** | 0.29*** | 0.33*** | 0.73*** | 0.16*** | 0.23*** |
| | (4.33) | (5.21) | (10.53) | (5.64) | (6.01) | (8.26) | (4.01) | (12.69) | (6.84) | (8.94) |
| Treatment | -0.08 | -0.21*** | -0.26*** | -0.18*** | 0.01 | -0.18*** | -0.35*** | -0.19*** | -0.14*** | -0.16*** |
| | (-1.30) | (-4.22) | (-4.42) | (-3.66) | (0.20) | (-4.18) | (-4.19) | (-2.67) | (-5.00) | (-4.93) |
| _cons | -2.97*** | -3.13*** | -12.10*** | 4.75*** | 3.84*** | -6.53*** | -1.59 | -12.11*** | 4.52*** | 1.72*** |
| | (-3.55) | (-4.55) | (-15.30) | (7.17) | (4.50) | (-11.55) | (-1.30) | (-12.36) | (11.70) | (3.86) |
| *N* | 13235 | 13235 | 13235 | 13235 | 13235 | 13235 | 13235 | 13235 | 13235 | 13235 |
| $R^2$ | 0.05 | 0.11 | 0.16 | 0.04 | 0.02 | 0.15 | 0.15 | 0.11 | 0.07 | 0.09 |
| adj. $R^2$ | 0.05 | 0.11 | 0.16 | 0.04 | 0.02 | 0.15 | 0.15 | 0.11 | 0.07 | 0.09 |

# Empirical Evidence

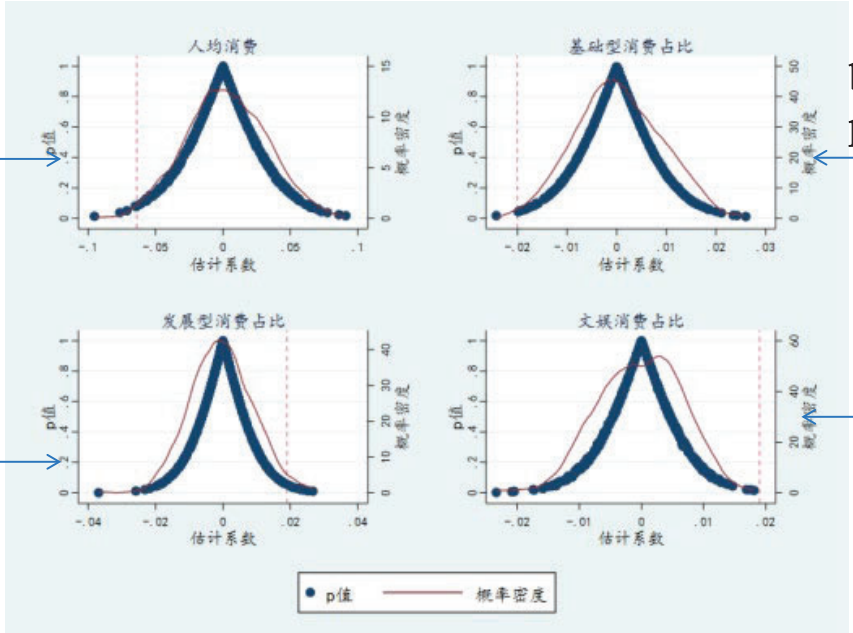
- 3. Consumption structure

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
|---|---|---|---|---|---|---|---|---|---|---|
| Y(proportion) | food | dress | house | daily | medcare | transport | entertainment | other | basic pp | developmental pp |
| DID | -0.01 | -0.00 | 0.00 | -0.01** | -0.00 | 0.00 | 0.02*** | -0.00 | -0.02** | 0.02** |
| | (-1.33) | (-0.48) | (0.78) | (-1.98) | (-0.17) | (0.69) | (2.94) | (-0.28) | (-2.12) | (2.10) |
| Shock | -0.04*** | -0.00 | 0.02*** | 0.01*** | 0.02*** | 0.01*** | 0.00 | -0.01*** | -0.01*** | 0.01*** |
| | (-7.45) | (-1.42) | (4.92) | (2.86) | (3.72) | (2.60) | (0.21) | (-5.93) | (-2.76) | (2.83) |
| Treatment | 0.00 | -0.00 | -0.00 | 0.00 | 0.02*** | 0.00 | -0.02*** | -0.00 | -0.00 | 0.00 |
| | (0.46) | (-0.79) | (-1.10) | (0.01) | (4.30) | (1.21) | (-5.41) | (-0.58) | (-0.25) | (0.15) |
| _cons | 0.71*** | -0.05** | -0.27*** | 0.36*** | 0.46*** | -0.49*** | 0.05 | 0.21*** | 0.76*** | 0.23*** |
| | (7.68) | (-2.21) | (-5.22) | (7.39) | (6.85) | (-14.52) | (0.84) | (7.48) | (8.80) | (2.67) |
| *N* | 13235 | 13235 | 13235 | 13235 | 13235 | 13235 | 13235 | 13235 | 13235 | 13235 |
| $R^2$ | 0.03 | 0.03 | 0.03 | 0.01 | 0.05 | 0.07 | 0.04 | 0.02 | 0.01 | 0.01 |
| adj. $R^2$ | 0.03 | 0.03 | 0.03 | 0.01 | 0.05 | 0.07 | 0.04 | 0.02 | 0.01 | 0.01 |

# Placebo Test

➢ 1. Construct a random treatment group

average consumption




basic consumption proportion

developmental consumption proportion

entertainment consumption proportion

# Placebo Test

## ➢ 2. Change policy to Rural subsistence allowance policy

| y | (1) ave_C | (2) basic_C PP | (3) basic_C proportion | (4) developmental_C PP | (5) developmental_C proportion |
|---|---|---|---|---|---|
| Placebo_DID | 0.01 | -0.01 | -0.01 | 0.06 | 0.01 |
| | (0.18) | (-0.23) | (-1.02) | (0.84) | (0.94) |
| Shock | 0.16*** | 0.13*** | -0.02*** | 0.23*** | 0.02*** |
| | (8.34) | (6.00) | (-3.64) | (9.29) | (3.73) |
| Placebo_Treatment | -0.13*** | -0.09** | 0.02** | -0.21*** | -0.02** |
| | (-3.91) | (-2.34) | (2.06) | (-4.22) | (-2.15) |
| _cons | 5.32*** | 4.38*** | 0.74*** | 1.67*** | 0.25*** |
| | (16.25) | (11.34) | (8.61) | (3.75) | (2.87) |
| *N* | 13235 | 13235 | 13235 | 13235 | 13235 |
| $R^2$ | 0.09 | 0.07 | 0.01 | 0.09 | 0.01 |
| adj. $R^2$ | 0.09 | 0.07 | 0.01 | 0.09 | 0.01 |

# Robustness Check

## ➢ 1. PSM-DID

## ➢ consumption

| y | | (1) food | (2) dress | (3) house | (4) daily | (5) medcare | (6) transport | (7) entertainment | (8) other | (9) basic | (10) developmental |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | PSM-DID | -0.13* | -0.17** | 0.14* | -0.09 | -0.22** | 0.01 | 0.12 | -0.42*** | -0.11*** | -0.01 |
| | | (-1.76) | (-2.10) | (1.80) | (-1.14) | (-2.22) | (0.10) | (0.89) | (-4.05) | (-2.62) | (-0.12) |
| nearest- | Shock | 0.15*** | 0.23*** | 0.41*** | 0.23*** | 0.35*** | 0.27*** | 0.36*** | 0.74*** | 0.16*** | 0.25*** |
| neighbor | | (3.46) | (4.65) | (8.70) | (4.74) | (5.56) | (6.66) | (3.79) | (10.97) | (5.83) | (8.28) |
| matching | Treatment | -0.10 | -0.23*** | -0.28*** | -0.19*** | 0.03 | -0.18*** | -0.45*** | -0.17** | -0.14*** | -0.15*** |
| | | (-1.54) | (-4.38) | (-4.72) | (-3.87) | (0.55) | (-4.05) | (-5.10) | (-2.26) | (-4.80) | (-4.52) |
| | obs | 10363 | 10363 | 10363 | 10363 | 10363 | 10363 | 10363 | 10363 | 10363 | 10363 |
| kernel | PSM-DID | -0.15** | -0.17** | 0.10 | -0.09 | -0.21** | 0.00 | 0.11 | -0.39*** | -0.11*** | 0.01 |
| matching | | (-2.07) | (-2.20) | (1.32) | (-1.27) | (-2.19) | (0.06) | (0.82) | (-3.88) | (-2.77) | (0.20) |
| | Shock | 0.16*** | 0.22*** | 0.42*** | 0.24*** | 0.32*** | 0.29*** | 0.33*** | 0.73*** | 0.15*** | 0.23*** |
| | | (4.26) | (5.15) | (10.48) | (5.61) | (6.01) | (8.25) | (4.01) | (12.70) | (6.78) | (8.95) |
| | Treatment | -0.08 | -0.21*** | -0.26*** | -0.18*** | 0.01 | -0.18*** | -0.35*** | -0.19*** | -0.14*** | -0.16*** |
| | | (-1.33) | (-4.28) | (-4.43) | (-3.71) | (0.20) | (-4.16) | (-4.21) | (-2.68) | (-5.03) | (-4.93) |
| | obs | 13226 | 13226 | 13226 | 13226 | 13226 | 13226 | 13226 | 13226 | 13226 | 13226 |

# Robustness Check

- PSM-DID
- consumption structure

| y | | (1) food | (2) dress | (3) house | (4) daily | (5) medcare | (6) transport | (7) entertainment | (8) other | (9) basic | (10) developmental |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | PSM-DID | -0.01 | -0.00 | 0.01 | -0.01* | -0.00 | 0.00 | 0.02*** | -0.00 | -0.02* | 0.02* |
| | | (-1.17) | (-0.37) | (0.99) | (-1.90) | (-0.50) | (1.01) | (2.66) | (-0.49) | (-1.77) | (1.73) |
| nearest- | Shock | -0.04*** | -0.00 | 0.02*** | 0.01** | 0.02*** | 0.00 | 0.00 | -0.01*** | -0.02*** | 0.02*** |
| neighbor | | (-6.56) | (-1.19) | (3.86) | (2.40) | (3.91) | (0.98) | (0.87) | (-5.27) | (-2.87) | (2.96) |
| matching | Treatment | 0.00 | -0.00 | -0.00 | -0.00 | 0.02*** | 0.00 | -0.02*** | -0.00 | -0.00 | 0.00 |
| | | (0.37) | (-0.73) | (-0.84) | (-0.25) | (4.63) | (0.95) | (-5.46) | (-0.35) | (-0.34) | (0.28) |
| | obs | 10363 | 10363 | 10363 | 10363 | 10363 | 10363 | 10363 | 10363 | 10363 | 10363 |
| kernel | PSM-DID | -0.01 | -0.00 | 0.00 | -0.01** | -0.00 | 0.00 | 0.02*** | -0.00 | -0.02** | 0.02** |
| matching | | (-1.31) | (-0.46) | (0.77) | (-1.97) | (-0.17) | (0.70) | (2.89) | (-0.28) | (-2.10) | (2.08) |
| | Shock | -0.04*** | -0.00 | 0.02*** | 0.01*** | 0.02*** | 0.01*** | 0.00 | -0.01*** | -0.01*** | 0.02*** |
| | | (-7.46) | (-1.45) | (4.92) | (2.84) | (3.69) | (2.60) | (0.28) | (-5.92) | (-2.80) | (2.87) |
| | Treatment | 0.00 | -0.00 | -0.00 | -0.00 | 0.02*** | 0.00 | -0.02*** | -0.00 | -0.00 | 0.00 |
| | | (0.45) | (-0.82) | (-1.09) | (-0.01) | (4.30) | (1.23) | (-5.38) | (-0.59) | (-0.27) | (0.18) |
| | obs | 13226 | 13226 | 13226 | 13226 | 13226 | 13226 | 13226 | 13226 | 13226 | 13226 |

# Robustness Check

- 2. Test 2300yuan baseline

| | (1) -200 | (2) -100 | (4) +100 | (5) +200 |
|---|---|---|---|---|
| DID | -0.05 | -0.06 | -0.07* | -0.06* |
| | (-1.27) | (-1.54) | (-1.90) | (-1.85) |
| shock | 0.17*** | 0.17*** | 0.17*** | 0.17*** |
| | (8.54) | (8.62) | (8.76) | (8.70) |
| treatment1 | -0.14*** | | | |
| | (-5.87) | | | |
| treatment2 | | -0.14*** | | |
| | | (-6.04) | | |
| treatment3 | | | | |
| treatment4 | | | -0.14*** | |
| | | | (-6.06) | |
| treatment5 | | | | -0.14*** |
| | | | | (-6.18) |
| _cons | 5.40*** | 5.41*** | 5.44*** | 5.43*** |
| | (16.49) | (16.53) | (16.61) | (16.61) |
| *N* | 13235 | 13235 | 13235 | 13235 |

# Test Family Heterogeneity

- Use Engel's coefficient

| | a well-to-do family | | Subsistence family | | Absolute impoverished family | |
|---|---|---|---|---|---|---|
| | (1) Basic consumption proportion | (2) Developmental consumption proportion | (3) Basic consumption proportion | (4) Developmental consumption proportion | (5) Basic consumption proportion | (6) Developmental consumption proportion |
| DID | -0.09* | 0.09* | -0.03 | 0.03 | -0.04** | 0.04** |
| | (-1.90) | (1.90) | (-0.67) | (0.67) | (-2.53) | (2.56) |
| shock | 0.01 | -0.01 | -0.02 | 0.02 | 0.01 | -0.01 |
| | (0.32) | (-0.32) | (-0.85) | (0.85) | (1.23) | (-1.27) |
| treatment | -0.04 | 0.04 | -0.02 | 0.02 | -0.02** | 0.02* |
| | (-1.47) | (1.47) | (-0.54) | (0.54) | (-2.00) | (1.86) |
| _cons | 1.11*** | -0.11 | 0.42 | 0.58 | 0.73*** | 0.24 |
| | (3.78) | (-0.36) | (1.02) | (1.44) | (4.57) | (1.50) |
| *N* | 1005 | 1005 | 635 | 635 | 3880 | 3880 |

# Conclusion

- The study passed the placebo test and robustness test, and found that the Targeted Poverty Alleviation policy lowered the per capita consumption level of rural poor households, reduced the proportion of basic consumption, increased the proportion of development consumption, and improved the consumption structure of rural poor households;

- The research has also verified the scientific nature of poverty standard formulation;

- The effect of upgrading consumption structure has been found to be heterogeneous among households.

- The internal impact mechanism of the Targeted Poverty Alleviation policy on the upgrading of the consumption structure of poor families needs further exploration.

# Conclusion

- In the post poverty alleviation era

- we need to assess the specific impact of policies on consumption, pay attention to the changes in consumption needs of impoverished households, and further implement precise policies.

- we need to continue exploring the long-term mechanism of the impact of Targeted Poverty Alleviation policies on the consumption of poor families, ensure stable income and improve income distribution policies.

- It is necessary to further analyze households with different consumption tendencies and accurately identify families that still need assistance.

# Discussion Session

# Thank you !