

Trade Reform and Poverty in China

1. Trade and poverty
2. Accession to the WTO
3. Lagging poor areas

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1. Trade and poverty: Why do we need a micro perspective?

County aggregates and cross-country regressions can be deceptive

- No correlation between inequality and openness across countries
- But this can hide large gains and losses amongst certain types of households (urban/rural; regions; sectors of activity; stage of life cycle etc)

“No correlation” \neq “no impact”

1. Data problems galore; changes in inequality are not measured well.
2. Churning and transient poverty. Zero impact on average is consistent with large welfare gains and losses e.g., Russia 1998.
3. Starting conditions vary greatly between reforming countries.
 - Differences in mean income
 - Differences in inequality

Differences in mean income

- Regressing inequality on openness across 50 countries (100 observations), with controls.
- No effect at mean points.
- But strong negative interaction effect with GDP.
- Openness is associated with higher inequality in poor countries, but lower poverty.

Differences in initial inequality

- Virtually zero correlation between changes in inequality and growth in mean consumption.
- But there is a significant negative interaction effect between growth and initial inequality

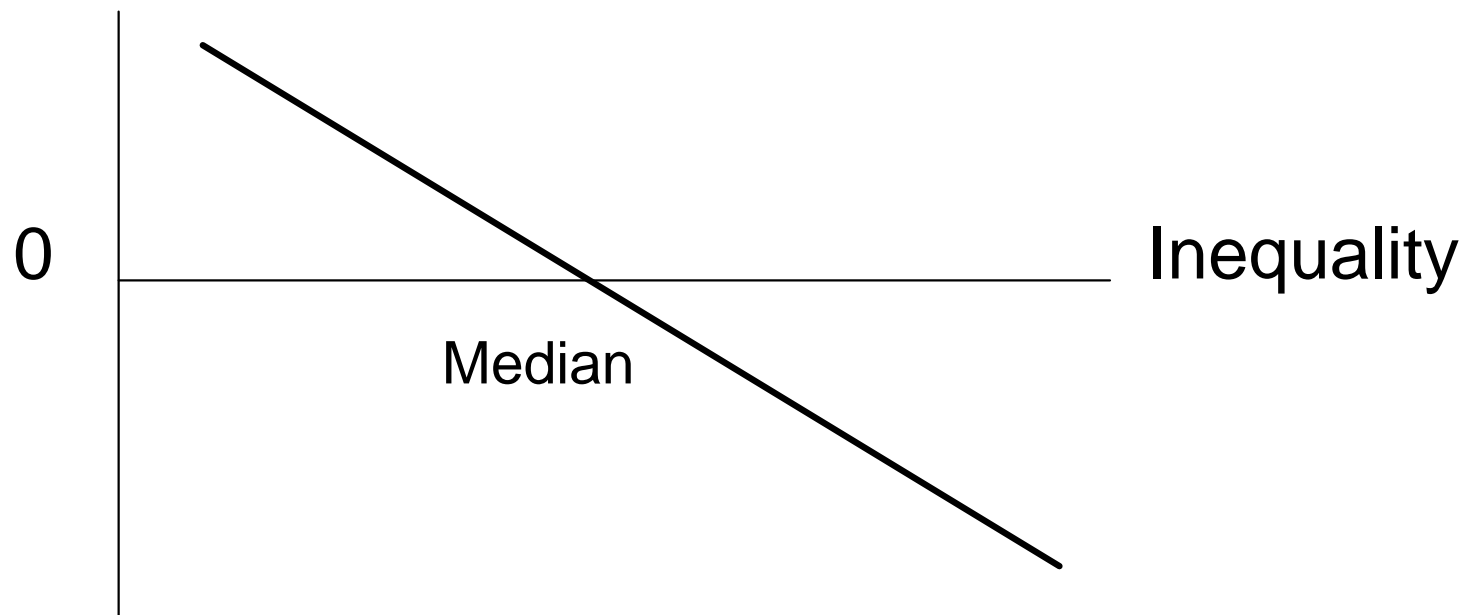
$$\Delta \ln G_{it} = (\mathbf{b}_0 + \mathbf{b}_1 \ln G_{it-t}) \Delta \ln Y_{it} + \mathbf{e}_{it}$$

$$\mathbf{b}_0 = 6.03 \text{ (t=2.8; n=115); } \quad \mathbf{b}_1 = -1.60 \text{ (t=2.8)}$$

- Robust to measurement error in initial inequality (lagged inequality as instrument).

Turning point at median Gini

Effect of growth on inequality



“No correlation” \neq “no impact”

- Aggregate neutrality is consistent with strong distributional effects in diverse directions.
- An average is just that, and it is deceptive when one averages over large differences across countries in their starting points.
- Micro data (qualitative and quantitative) also tell us that “macro” welfare data can be deceptive.
- It is little consolation to those suffering to be told that poverty is falling on average

2. Household-level welfare impacts of China's WTO accession

- Official date of China's WTO accession is 2001
- However, the Chinese economy had already started to adapt to this expected change.
- Stage 1: a lead-up period in which tariffs started to fall in anticipation of WTO accession
- Stage 2: the period 2001 onwards.
- Ianchovichina and Martin identify 1995 as a plausible beginning of the lead-up period to WTO accession.

Linking CGE model results to household surveys

- We use the lanchovichina and Martin GTAP model for China
- Estimates of the price and wage changes due to WTO for 1995-2001 and 2001-07.
- The counter-factual is not joining WTO.
- Price and wage changes are passed on fully; weak internal market integration would lead one to question this assumption.

Measuring household welfare impacts

Model of consumption and production choices for a household that owns production processes as well as supplying labor.

Household chooses quantities consumed and labor supplies to maximize utility given wages and prices.

Welfare impacts of price and wage changes induced by trade reform are estimated at the household level in a neighborhood of the household's optimum.

Money metric of change in utility

Indirect utility function of household i :

$$v_i[p_i^d, w_i, \mathbf{p}_i] = \max_{(q_i^d, L_i)} [u_i(q_i^d, L_i) \mid p_i^d q_i^d = w_i L_i + \mathbf{p}_i]$$

where

$$\mathbf{p}_i(p_i^s, p_i^d, w_i) = \max_{(z_i, L_i^o)} [p_i^s q_i^s - p_i^d z_i - w_i L_i^o \mid q_i^s = f_i(z_i, L_i^o)]$$

q^d, q^s : quantities consumed and supplied

z : quantities used as production inputs

p^d, p^s : prices (demand and supply)

w : wage rate vector;

L : labor supply vector

Money metric of change in utility cont.,

Money metric of change in utility induced by changes in prices and labor earnings:

$$g_i \equiv \frac{du_i}{v_{pi}} = \sum_{j=1}^m [p_{ij}^s q_{ij}^s \frac{dp_{ij}^s}{p_{ij}^s} - p_{ij}^d (q_{ij}^d + z_{ij}) \frac{dp_{ij}^d}{p_{ij}^d}] + \sum_{k=1}^n (w_k L_{ik}^s \frac{dw_k}{w_k})$$

Note: This assumes

- small prices changes around optimum (envelope theorem)
- no rationing in goods or labor markets

Choice of baseline year

- Welfare impacts calibrated to survey data for 1999, two years prior to official WTO accession, and a few years after the likely beginning of the lead-up period.
- Choice of 1999 was partly made for data reasons (notably that this was the most recent year for which we could obtain access to the micro data).
- However, it is also hoped that by choosing a year near the middle of the lead-up period (rather than a survey at the beginning or end) we might diminish biases due to nonlinearity in the impacts of price and wage changes.

Urban and Rural Household Surveys

The survey data used in this study are from the 1999 Urban Household Survey (UHS) and the 1999 Rural Household Survey (RHS).

- Both done by China's National Bureau of Statistics.
- RHS sample size is 67,900 households and 16,900 for the UHS.
- GTAP categories mapped into survey categories.

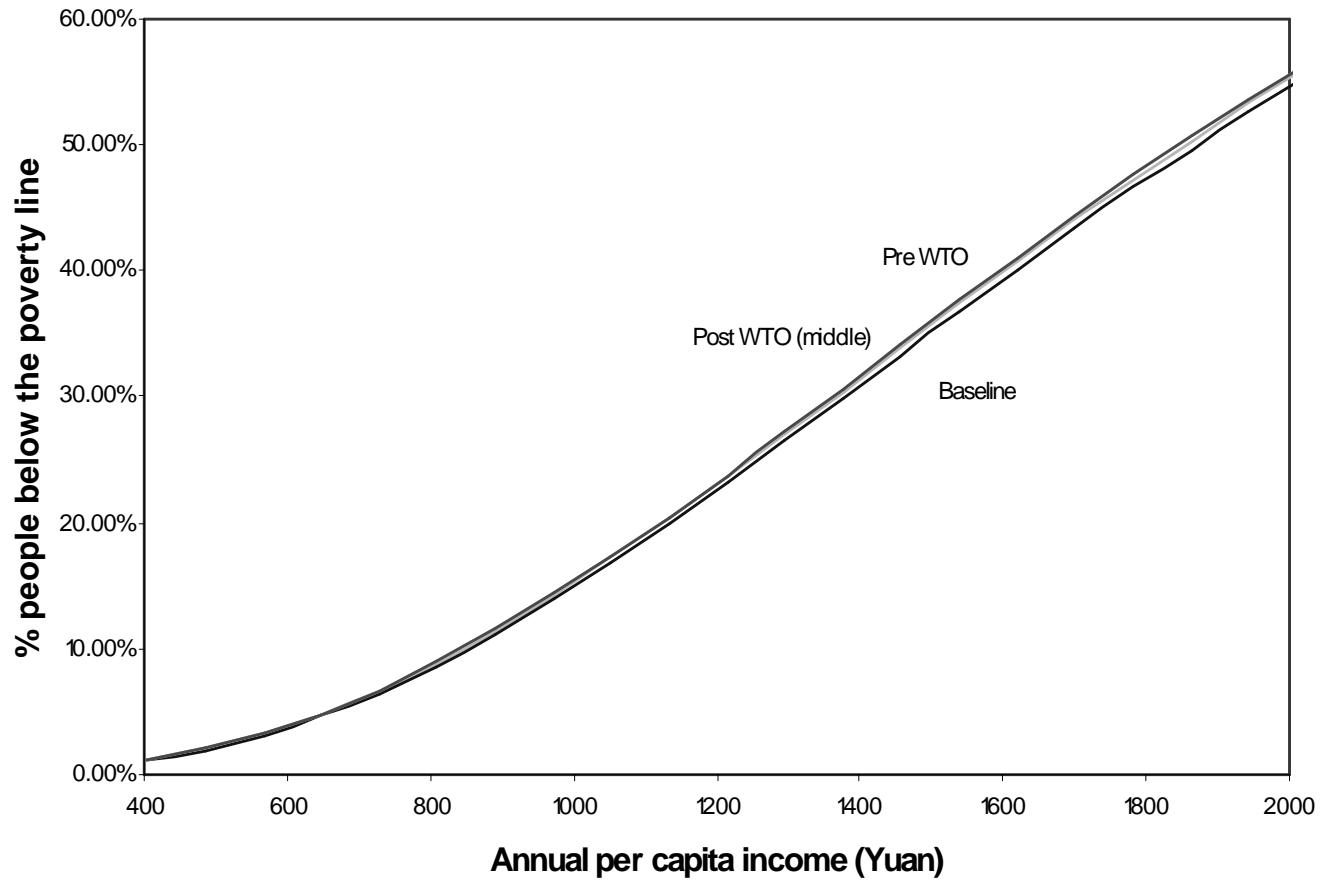
Summary statistics on aggregate welfare impacts

	Mean gains (Yuan/capita)		Inequality (Gini index as %)		
	1995- 2001	2001- 07	1999	1995 (simulated)	2007 (simulated)
Rural	34.47	-18.07	33.95	33.90	34.06
Urban	94.94	29.45	29.72	29.68	29.65
Total	55.49 (1.5%)*	-1.54 (-.04%)*	39.31	39.27	39.53

Note: * gives % of mean income

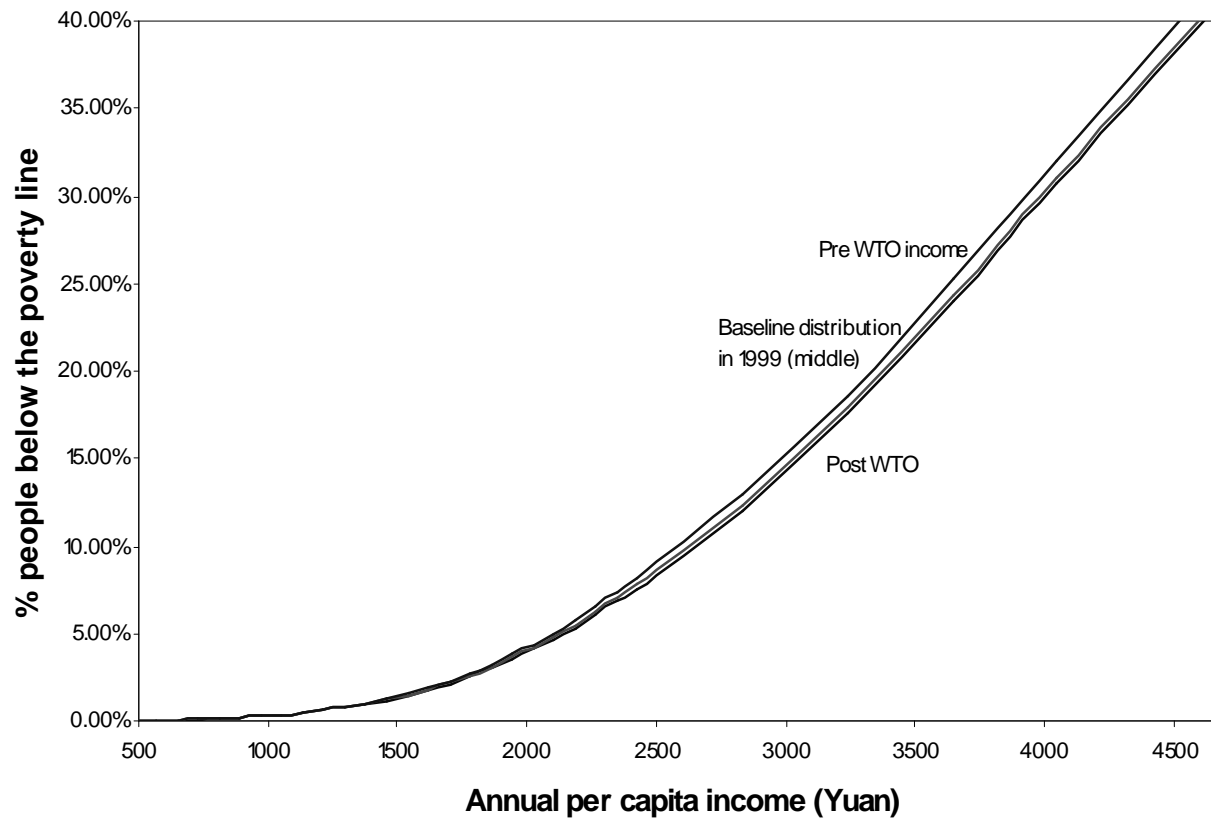
Impact on rural poverty

Figure 1a: Poverty incidence curves: rural



Impact on urban poverty

Figure 1b: Poverty incidence curves: urban



Gainers and losers 2001-07

- Rural families tend to lose, urban families tend to gain
- Larger impacts in some provinces than others
- Highest negative impacts in north-east (Heilongjiang, Jilan, Liaoning and Inner Mongolia)
- Agricultural households dependent on feed grain production incur largest losses
- Strong local geographic concentrations
- Agricultural households in certain communes incur losses of 3-5% of their incomes

3. China's lagging poor areas

Impacts of WTO in rural areas of Southwest China

	Original income	Change (%)	% losers
Guangxi	2048	-1.10	87
Guizhou	1363	-0.66	81
Yunnan	1438	-1.18	83
Rural China	2257	-0.80	76
Urban China	6046	0.49	11

Why are some areas left behind?

- Trade reform alone is not going to have much impact on China's poor areas
- Why have they not participated as much as other areas in China's growth?
- Need to understand the economic geography of poverty in China

Stylized facts about Chinese inland rural economy

1. Thin factor markets (labor, land and credit)
2. Highly restricted labor mobility
3. Poverty correlated with remoteness
4. Geographic divergence

County growth rates in China suggest geographic divergence

Geographic poverty traps?

- Living in a well endowed area means that a poor household can eventually escape poverty.
- Yet an otherwise identical household living in a poor area sees stagnation.

Micro model of consumption growth

- Intertemporal model with production by the farm-household and geographic externalities.
- Borrowing constraints: marginal products of private capital are not equalized across all farm-households.
- Poverty traps can then arise from any adverse effects of poor geographic capital on returns to private investment.

Econometric model

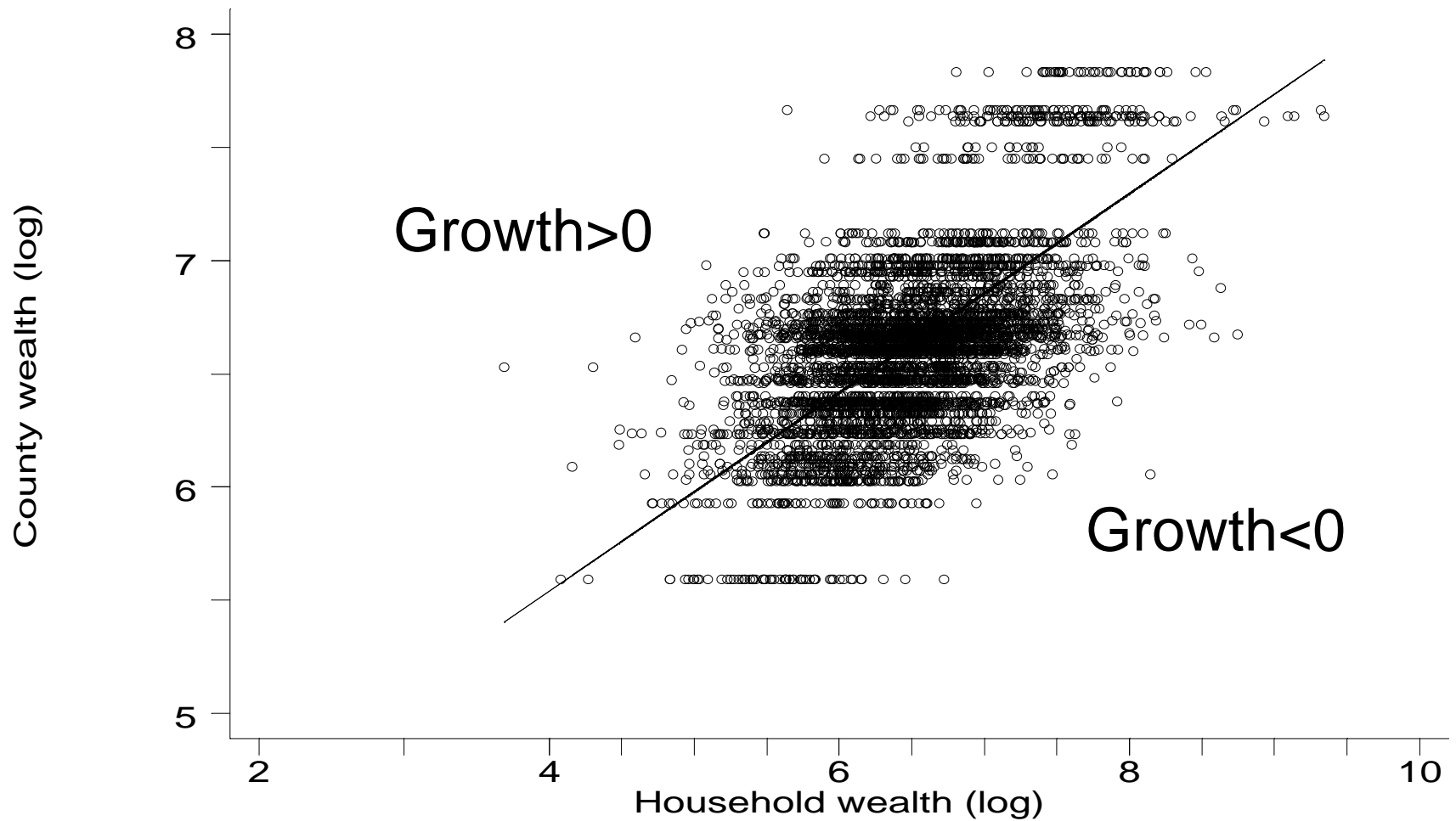
- Thin labor markets, so family education and demographics influence marginal product of capital (and other parameters).
- Latent heterogeneity in micro growth rates. And omitted variables are probably correlated with geographic variables.

Growth rates in consumption at h'hold level are determined jointly by household wealth and community wealth

Results for rural China

- ! 5,000 farm-households in SW China over six years 1985-90
- ! Geographic poverty traps exist within the bounds of these data.
- ! For example, positive growth in consumption requires that the density of roads exceeds 8.9 square kilometers per 10,000 people.
- ! In all cases, the critical value for a poverty trap is within one standard deviation of the sample mean for that characteristic.

Geographic poverty traps in rural China



Lessons for China's poor areas

- **Externalities:** Local infrastructure and the composition of local economic activity have large impacts on consumption growth at the farm-household level.
- **Within sector and cross-sector effects:** The sector that is found to matter most quantitatively is agriculture.
- **Rural under-development** can stem from under-investment in externality generating activities, esp., agriculture and (less so) nonfarm activities.

Lessons cont.,

- **Virtuous cycles:** a well-targeted external growth stimulus in a poor area can generate positive and more widely diffused income gains over time.
- **Poor-area programs:** Government's emphasis on agriculture makes sense, but human and physical infrastructure also comes out as a pre-condition for growth in poor areas.
- **Investments in physical and human infrastructure in lagging poor areas will be complementary to economy-wide trade and other reforms.**