

You Can Grow Your Own Way:
Rural Reforms and the Role of Agriculture in Chinese
Development

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Introduction

In 1978 China began agricultural reforms that:

- * Decommunalised Agriculture
- * Increased agricultural prices
- * Reduced grain quotas, and reduced emphasis on local self-sufficiency resulting in a large *de facto* increase in the freedom to plant economic crops

The reforms were very successful: between 1978 & 1985 agricultural output in China increased 61%.

人红谷满场 高产更高产



“Grain spreads over the ground. The more revolutionary are we, the higher is our grain production”

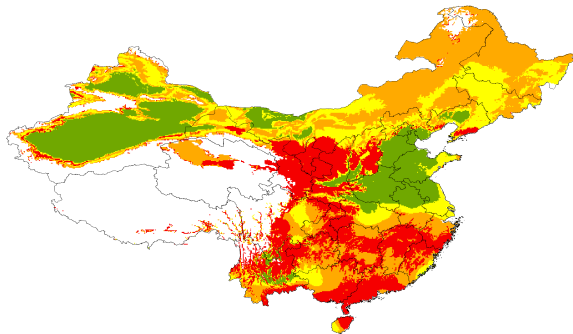


“Take grain production as the key link and promote agriculture in a big way”

Today

1. Did increased agricultural specialisation in line with comparative advantage contribute to the success of Chinese agricultural reforms?
2. Did the large increase in agricultural productivity due to rural reform contribute positively or negatively to China's subsequent non-agricultural growth?

Comparative Advantage



Comparative advantage in 'cash crops' (cotton or oilseeds) relative to grain (greener is more)

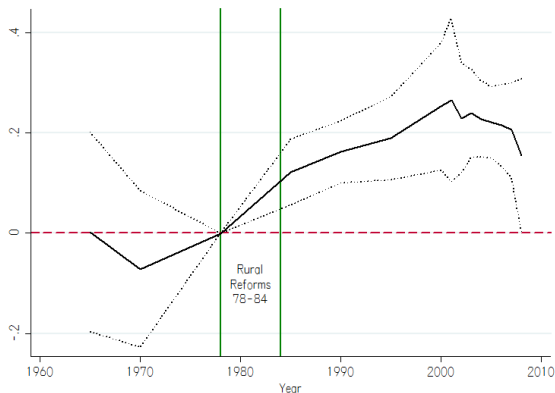
Empirical Strategy

$$Y_{jkt} = \alpha_j + \delta_{kt} + \sum_{s \neq 1978} \gamma_s (CA_j^N \times I_s) + \nu_{jkt} \quad (1)$$

Diff-in-diff with county FE α_j , province-time FE δ_{kt} and treatment CA_j^N

- * Newly digitised county level economic data for c. 560 mostly rural counties (200m people in 1978)
- * Covering 1965, 70, 78, 85 90, 2000-08

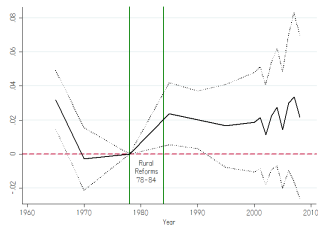
Agricultural Output - Aggregate



Effect of CA in cash crops on Primary GDP

▶ table

Agricultural Output - Physical Production



A. Cotton

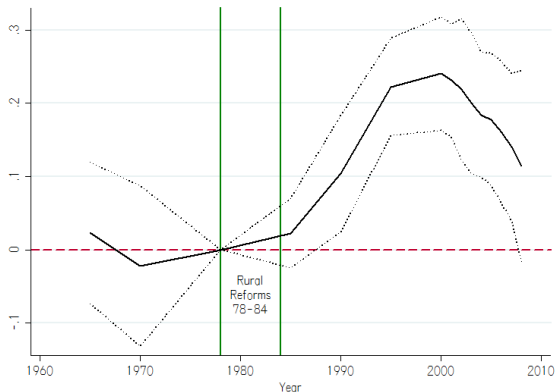


B. Oilseeds

Effect of CA on the Physical Share of Crops in Output

▶ table

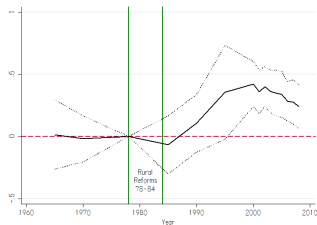
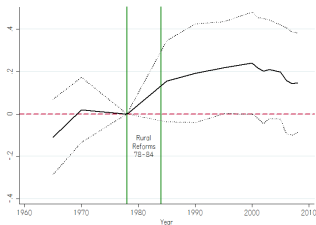
Non-Agricultural Output - Aggregate



Effect of CA in cash crops on non-Agricultural GDP

▶ table

Savings & Investment



A. Savings Deposits of HH's B. Investment in Fixed Assets

Effect of CA on Savings and Investment

▶ table

Summary

After reform, relative to areas with a CA in grain, areas with a comparative advantage in cash crops

- * increased the share of cash crops in their output;
- * increased the overall value of their agricultural output;
- * had higher savings; and,
- * eventually higher investment and non-agricultural output.

In the paper I present evidence that this was (primarily) due to the reinvestment of agricultural surpluses in the non-state sector and not to differential changes in labour supply or local demand.

Table: Agricultural Output

	<i>Ln Primary GDP</i>							<i>Ln Gross Ag. Y</i>	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Comp. Adv in Cash Crops × 1985	0.142*** (0.048)		0.207** (0.083)	0.121** (0.048)	0.142* (0.080)	0.152*** (0.038)	0.192** (0.085)	0.130** (0.064)	0.170*** (0.043)
Comp. Adv in Cash Crops × Post 85	0.235*** (0.062)		0.300*** (0.093)	0.204*** (0.071)	0.247** (0.102)	0.245*** (0.051)	0.297*** (0.098)	0.216* (0.121)	0.237*** (0.086)
Comp. Adv in Cash Crops × Post 78		0.227*** (0.060)							
Comp. Adv in Cash Crops rest of Prefecture × 1985					0.022 (0.218)				
Comp. Adv in Cash Crops rest of Prefecture × Post 85					-0.062 (0.266)				
Observations	8000	8000	6105	8000	7974	7583	4199	4199	4778
Number of Groups	561	561	407	561	559	561	382	382	446
County FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Province x Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
County Trends				Yes					
Data Restrictions			Balanced			No 1965	As (8)	As (7)	

Robust standard errors clustered at the prefecture and province × time levels to allow for autocorrelation over time and space. *** p<0.01, ** p<0.05, * p<0.1. Comparative advantage in cash crops is the (standardised, county average) ratio of the value of output of the best economic crop to the value of output of the best grain crop. Interaction terms are dummies for 1985, years after 1985 or 1978. All specifications use data from 1965, 1970, 1978, 1985, 1990, 1995, 2000 & 2000-2008.

◀ return

Table: Physical Production

	<i>Share of Cotton</i>			<i>Share of Oilseeds</i>		
	(1)	(2)	(3)	(4)	(5)	(6)
Comp. Adv in Cotton × 1985	0.013* (0.007)	0.015* (0.008)	0.026*** (0.009)		-0.005* (0.003)	
Comp. Adv in Cotton × Post85	0.011 (0.014)	0.014 (0.014)	0.024* (0.013)		-0.001 (0.004)	
Comp. Adv in Oilseeds × 1985		-0.004 (0.010)		0.019** (0.008)	0.017** (0.008)	0.020** (0.008)
Comp. Adv in Oilseeds × Post		-0.032 (0.020)		0.021* (0.011)	0.021* (0.012)	0.023* (0.012)
Observations	3505	3505	3277	5266	5266	4919
Number of Groups	281	281	280	366	366	366
County FE	Yes	Yes	Yes	Yes	Yes	Yes
State x Time FE	Yes	Yes	Yes	Yes	Yes	Yes
Data			No 65			No 65

Robust standard errors clustered at county level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Optimal share is predicted share of either Cotton (cols 1-3) or Oilseeds (cols 4-6) if farmers are revenue maximising and face the GAEZ productivities. Post85 is a dummy taking a value of 1 for all years after 1985, 1985 and 1970 are dummies for their respective years. All columns use data from 1965, 70, 78, 85, 90, 95 and 2000-08. Panel A uses data from counties in Hebei, Jiangxi, Xinjiang which ever produce cotton. Panel B also uses data from Zhejiang and part of Sichuan.

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Table: Non-Agricultural Output

	<i>Ln Non-Agricultural GDP</i>					
	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) IV	(6) IV
Comp. Adv in Cash Crops × 1985	0.022 (0.040)	0.150 (0.098)	0.022 (0.039)			
Comp. Adv in Cash Crops × Post 85	0.181** (0.076)	0.333*** (0.122)	0.195*** (0.068)			
Ln Primary GDP				0.346*** (0.046)	0.806*** (0.289)	0.737*** (0.283)
Observations	7993	6060	7993	8023	7993	7993
Number of Groups	561	404	561	563	561	561
First Stage as First Stage F					S13 (1) 7.83	S13 (2) 15.6
County FE	Yes	Yes	Yes	Yes	Yes	Yes
State x Time FE	Yes	Yes	Yes	Yes	Yes	Yes
County Trends Data			Yes			
		Balanced				

Robust standard errors clustered at the prefecture and province × time levels to allow for autocorrelation over time and space (except for column 5, clustered at the prefecture level). *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Comparative advantage in cash crops is the (standardised, county average) ratio of the value of output of the best economic crop to the value of output of the best grain crop. Post85 is a dummy taking a value of 1 for all years after 1985. 1985 and 1970 are dummies for their respective years. All columns other use data from 1965, 70, 78, 85, 90, 95, & 2000-08 and from counties in Gansu, Guizhou, Hebei, Jiangxi, Xinjiang, Zhejiang and parts of Shanxi and Sichuan.

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Table: Savings and Investment

	(1)	(2)	(3)	(4)
<i>A. Ln Savings Deposits by Households:</i>				
Comp. Adv in Cash Crops × 1985	0.185* (0.099)	0.183 (0.162)	0.180* (0.107)	0.161 (0.104)
Comp. Adv in Cash Crops × Post 85	0.224* (0.119)	0.302** (0.136)	0.270** (0.127)	0.225* (0.122)
Observations	5859	5012	4148	5859
Counties	420	359	405	420
<i>B. Ln Investment in Fixed Assets:</i>				
Comp. Adv in Cash Crops × 1985	-0.065 (0.115)	-0.072 (0.138)	-0.076 (0.146)	-0.047 (0.110)
Comp. Adv in Cash Crops × Post 85	0.318*** (0.095)	0.282** (0.119)	0.378*** (0.112)	0.302*** (0.116)
Observations	6639	6286	4148	6639
Number of Groups	572	511	405	572
County FE	Yes	Yes	Yes	Yes
State x Time FE	Yes	Yes	Yes	Yes
County Trends Data		No Jiangsu	(A)=(B)	Yes

Robust standard errors clustered at the prefecture and province × time levels to allow for autocorrelation over time and space. *** p<0.01, ** p<0.05, * p<0.1.

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