

Econ 274 September 25, 2018

Sum: the future of agriculture is that agriculture has no future. Read Naughton for details.

**Core: S&D**

= demand for food is (i) inelastic in price and (ii) inelastic in income.

As a first cut at the problem, the exceptions are at the micro level of the composition of diet, cf. Figure 12.7.

= supply of food grew via technology. HYVs were selected for their responsiveness to fertilizer. depending on the crop, other inputs are important complements, including irrigation for rice.

irrigation: chart from the book. note the timing: much of the gains in irrigation occurred *prior to* reforms in the countryside, and improved little between 1975 and 1990.

fertilizers: growth more or less paralleled the diffusion of HYVs – no point in planting without chemical fertilizer.

= if (rather when!) supply shifted right, the impact is (was!) to push down prices. absent offsetting changes, farm incomes don't rise even as the rest of the economy grows.

⇒ what gives?

**Core: D for labor**

= output as a function of labor inputs → curve gets flatter due to diminishing returns

= income is a function of the [marginal] productivity of labor. if adding labor doesn't improve output much, then (inevitably) agricultural wages remain low.

[farmers also earn "rent" from controlling land, even if they don't own the land. but that doesn't change when labor inputs change]

= if farmers leave agriculture, then

(i) the input of L moves left where the curve becomes steeper ←→ productivity / wages rise.

(ii) that is at the cost of some loss in output.

**Institutional Challenge:**

= total labor inputs per land decline. so even if wages are higher, total income can't rise if you can't work fulltime.

= so raising rural incomes requires not just removing workers from agriculture but also allowing one farmer to work more land. that will require institutional adaptation because all land in China remains the property of the State. there is no private land. now the formal institutions for leasing land from the government in urban areas are well-developed. in the countryside land is controlled by local governments. is renting land to a neighbor legal? or will the government reassign land if you aren't farming it?

the outcome is that in many areas of China grandparents remain on the farm, not necessarily because they prefer the countryside to the city, but because they may lose all rights to land if they move away.

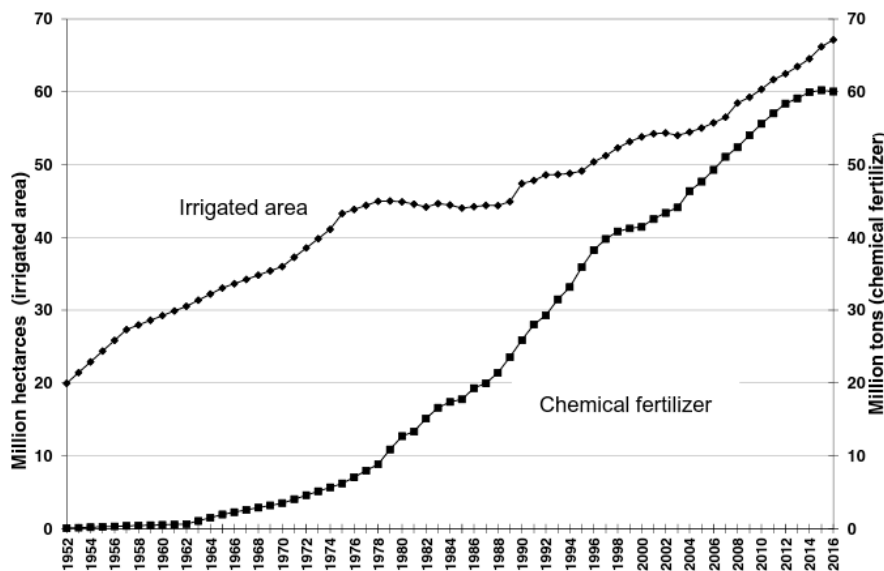
the reality varies greatly – some local governments permit leasing, some don't, and (worse) some do until they don't.

we'll read more about land later in the term.

FYI: in the US the dream was once "20 acres" and then "40 acres and a mule" for ex-slaves during Reconstruction, and 160 acres under the Homestead Act of 1862, later expanded to 640 acres. there was variation over time and by region – the reality on the ground was not always what legislation seemed to envisage.

**Content:** for the details, see the book. Barry Naughton and I were in the same development economics seminar in grad school so the sorts of things I would look at are exactly the sorts of things he looks at. The only exception is the institutional choice between sharecropping-renting-labor. It's neat microeconomics but not so central to Chinese agriculture today.

He does address the political economy, cf. Figure 12.8. Read!! – that's the sort of additional detail I might look for on the midterm.



Note: Labor was a complement for HYVs, post-reform labor inputs remained higher 30% higher in 1985 than in 1953:

**Table 11.2**  
Labor days per hectare.

	1953	1978	1985	2004	2015
Rice	250	421	328	178	93
Cotton	300	908	643	n.a.	256
Wheat	120	461	218	122	70