

Ricardo's Corn Model — You Drive

In-class worksheet · HL ch. 5, pp. 92–98 · Thursday, Oct 22 ·

Name _____

Example B

We did Example A together on the screen. This is Example B, same steps, new numbers. Work each part before I show the answer. Keep it: the quiz at the end of class has the same shape.

The farm. Five parcels. With one dose of capital and labor each, they yield this much corn (quarters). The subsistence wage of the labor on a parcel is **60 quarters**. Three parcels are in use, because that is how much corn the population needs.

Parcel	1	2	3	4	5
Total produce	130	120	100	90	75

Definitions. Net produce = produce – wages. It is the surplus, and it goes to rent or to farmer profit, nowhere else. Farmer profit = net produce – rent. Rate of profit r = farmer profit per parcel $\div$ wage.

B1. The static allocation: posted rents

A land agent has posted these rents: **35** on parcel 1, **15** on parcel 2, **10** on parcel 3. Fill in every cell, including the totals row.

Parcel	Produce	Wages	Net produce	Posted rent	Farmer profit
1	130	60	70	35	35
2	120	60	60	15	45
3	100	60	40	10	30
Total	350	180	170	60	110

Surplus = rent + farmer profit: $170 = 60 + 110$.

B2. The rounds

Is B1 an equilibrium? Nobody will take parcel 3 at any positive rent while a better deal exists, and anyone keeping less than a neighbor will move or bid. Log each round: the rents, the three profits, and who still has a reason to move.

	Rent 1	Rent 2	Rent 3	Profit 1	Profit 2	Profit 3	Who moves next?
Start	35	15	10	35	45	30	farmer 3
Round 1	35	15	0	35	45	40	farmer 1
Round 2	30	15	0	40	45	40	farmers 1, 3 bid for 2
Round 3	30	20	0	40	40	40	nobody

B2 (continued). The equilibrium

Fill in the equilibrium rents and profits, then the totals.

Parcel	Produce	Wages	Net produce	Equilibrium rent	Farmer profit
1	130	60	70	30	40
2	120	60	60	20	40
3	100	60	40	0	40
Total	350	180	170	50	120

The marginal parcel is 3; its rent is 0; so every farmer's profit is 40, and $r = 40/60 \approx 0.67$.

Compare with B1. What is the same, what changed, and who decided the split?

Same: wages 180, surplus 170. Changed: landlords 60 → 50, farmers 110 → 120, and every farmer keeps 40. The farmers' own competition decided it: the margin pays no rent, so 40 is what any farmer can get, and rent on the better parcels is whatever is left over.

B3. Population grows

Parcel 4 (90) comes in, then 5 (75). Fill both rows at equilibrium; the last four columns are totals.

In use	Margin produce	Profit / parcel	r	Rent	Farmer profit	Wages	Surplus
4	90	30	0.50	80	120	240	200
5	75	15	0.25	140	75	300	215

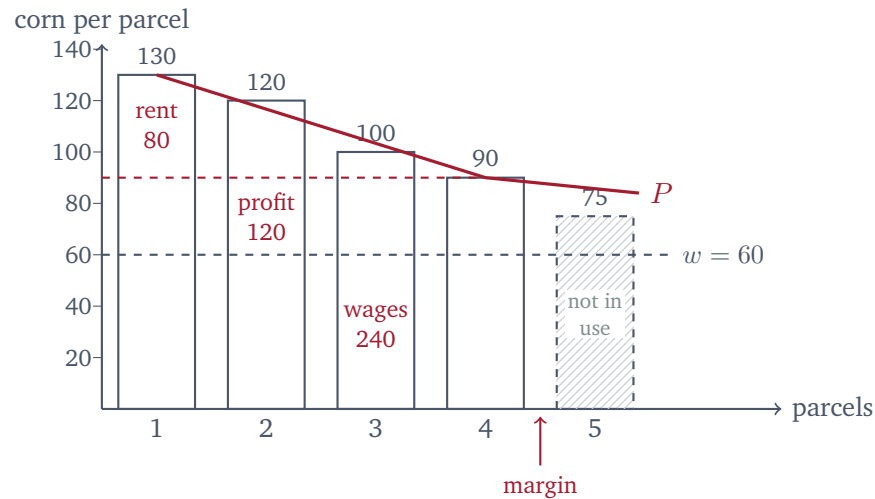
From three parcels to five, the surplus grew by 45. Rent grew by 90. Farmer profit changed by -45. Cultivation stops when the next parcel produces 60.

Who took the farmers' profit? The landlords did nothing. In Ricardo's terms, why did profit fall?

The margin moved out: marginal produce fell 100 → 75 while the wage held at 60, so profit at the margin fell and competition pulls every parcel down to it. Rent is the residual, "never a new creation of revenue" (HL p. 97). Landlords are passive.

B4. Draw it

The bars are the five parcels; **four are in use**. (a) Draw the line through the bar tops and label it P . (b) Mark the margin. (c) Shade and label **rent**, **profit**, and **wages**. (d) Write each total below.



Rent total: **80** Profit total: **120** Wages total: **240**

B5. The Corn Laws

Foreign corn can now be imported at a cost equal to a parcel that produces **100**. (Population still needs five parcels' worth of corn.)

Parcels still farmed: **1, 2, 3**. Rent on parcel 1: **30**. Total rent: **50**.

Profit per parcel: **40**. $r = 40/60 \approx 0.67$. Landlords lose, against the five-parcel world: **90**.

Who votes to keep the Corn Laws, and what did Ricardo say about that class's interest?

Landlords only: the ban pushes the margin to parcel 5, rent 50 → 140, r 0.67 → 0.25. "The interest of the landlord is always opposed to the interest of every other class in the community" (HL p. 96).

B6. Before the quiz

In one sentence each, no numbers.

(1) What sets the rate of profit?

The net produce of the marginal, no-rent parcel, divided by the wage.

(2) What sets rent on a good parcel?

Its produce minus the produce of the marginal parcel.

(3) Why does nobody "set" these numbers?

Farmers move toward higher profit until no move pays; rent is what is left after that.