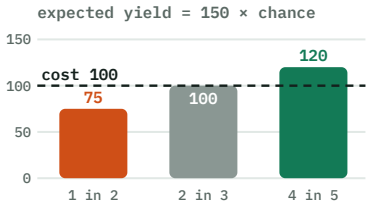
Geography, history or institutions?

Why a well that pays may not be dug (expected value and the chance of keeping the harvest), what institutions are, the three big explanations of why countries differ, and two real natural experiments: the two Nogales and the two Koreas.

1 The well

does it pay?

- Amara's well · costs **100 pesos** · gives **150** extra harvest next year · **if** she keeps it (raid, tax collector)
- **Expected value** = each outcome × its chance, added up → `expected yield = 150 × chance`
- **Break-even chance** `= cost ÷ gain` = 100 ÷ 150 = **2 in 3** · above → digs · below → stops
- 1 in 2 → 150 × ½ = **75** < 100 → no · 4 in 5 → 150 × 0.8 = **120** > 100 → digs
- Practice · Juma's pump 120 for 200 → ½: 100 × · break-even **3 in 5** · ⅘: 160 ✓ · Tano's net 70 for 100 → break-even **7 in 10** · ½: 50 × · 9 in 10: 90 ✓



2 Institutions

rules of the game

- **Institutions** = the rules, courts and habits that decide **who keeps what** they build · property rights, contracts, a vote
- Same woman, same well → different rules → different **chance** → different choice · **constraints, not character**
- Courts protect a harvest → chance high → wells dug · an official can seize it → chance low → no wells
- Practice · Lina's goat pen, cost 60, milk 100 · known 20% tax → keeps **80** → builds · raids half the time → **50** → no ⇒ what counts = what she **expects to keep**
- **Rule of law** = same rules for everyone, courts that cannot be bought

3 Three answers

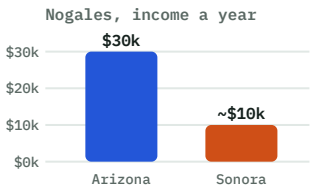
why countries differ

	Points at	Who	Clues
Geography	land, climate, germs	Jared Diamond, American geographer, *Guns, Germs, and Steel* (1997) · Jeffrey Sachs, American economist	malaria (mosquito fever) · no coast (landlocked) · floods · tsetse flies (kill cattle)
History	what happened before	Acemoglu, Johnson, Robinson (2002): **"reversal of fortune"**, places rich around 1500 often poorer today	colonies (ruled from abroad) to **extract** (mines, gold, labor) or to **settle** · land given to a few
Institutions	the rules today	Daron Acemoglu, Turkish-American economist, and James Robinson, British economist, *Why Nations Fail* (2012) · Nobel 2024 with Simon Johnson, British-American economist	courts enforce contracts · a seized harvest · a judge for sale

4 Natural experiments

same people, different rules

- **Natural experiment** = history splits similar people into groups under different rules → compare them like a fair test: groups differ in one thing only
- **Two Nogales** · two towns, one border fence · Arizona (USA) ≈ **$30,000** a household a year · Sonora (Mexico) ≈ a third → **≈ 3×** · same desert ⇒ weakens **geography**
- **Two Koreas** · one country until 1945 · Bank of Korea estimate, 2015: North ≈ **1 for every 22** in the South → **≈ 20×** (North publishes little: an estimate)
- Practice · Palmera split by a river · West 90 pesos a day, East 30 → **3×** · spoiled if a **second difference** (a port only the West has)



5 One chain

a popular view

- Land and climate → crops, animals, germs → how outsiders ruled (**settle** or **extract**) → colonial rules carry over after independence → today's courts and property rules → who keeps what → how much people build
- Not rivals but **links** · the debate = **which link matters most** · scholars still argue every link → **no verdict**

Watch out: 150 > 100 ≠ it pays → weight the gain by the **chance** of keeping it · not digging ≠ lazy or foolish: the numbers say stop · a gap between two places ≠ proof → the groups must differ in **one** thing only · geography, history and institutions are **linked**, not a contest with a winner