

Evaluation of Public Policies and Social Programs

Session 9: Incidence Analysis — Who Pays, Who Benefits?

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Today

1. Incidence in competitive markets
2. Case study: EITC incidence
3. Exercise: does a tuition subsidy get captured?
4. Incidence and the MVPF/CBA framework

No paper presentation today.

Learning Objectives

By the end of today's session, you will be able to:

- Distinguish statutory incidence (who writes the check) from economic incidence (who bears the burden)
- Derive incidence shares from supply and demand elasticities, and state the “inelastic side bears more” rule precisely
- Apply incidence reasoning to a subsidy, not just a tax — the same logic tells you who *captures* a benefit
- Explain why WTP for the Astoreca school must be adjusted for incidence before it enters an MVPF or CBA calculation

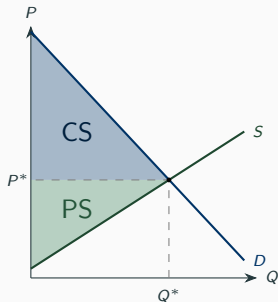
Incidence in Competitive Markets

Who writes the check is a legal fact. Who is actually worse (or better) off is an economic question — and they are often different people.

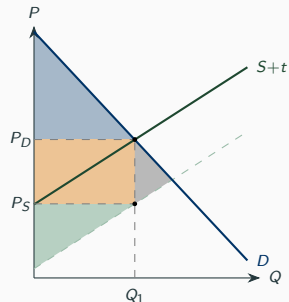
Tax incidence when demand is inelastic

Steep demand, flatter supply — same per-unit tax t in both panels

Before: competitive equilibrium



After: per-unit tax t



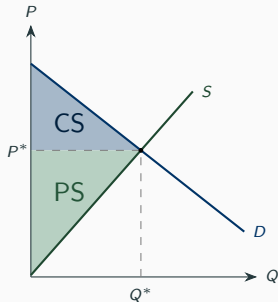
■ Consumer surplus ■ Producer surplus ■ Tax revenue ■ Deadweight loss

$\Delta P_D = 1.56 > \Delta P_S = 0.94$: consumers absorb most of the wedge — quantity demanded can't adjust much

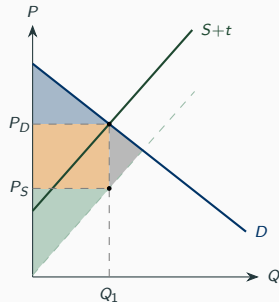
Tax incidence when supply is inelastic

Steep supply, flatter demand — same per-unit tax t as before

Before: competitive equilibrium



After: per-unit tax t



■ Consumer surplus ■ Producer surplus ■ Tax revenue ■ Deadweight loss

$\Delta P_S = 1.48 > \Delta P_D = 1.02$: producers absorb most of the wedge — quantity supplied can't adjust much

The incidence formulas

These are the algebra behind the two figures you just saw.

$$\frac{dP_D}{dt} = \frac{\varepsilon_S}{\varepsilon_S - \varepsilon_D}, \quad \frac{dP_S}{dt} = \frac{\varepsilon_D}{\varepsilon_S - \varepsilon_D}$$

- Consumer share of burden: $\varepsilon_S / (\varepsilon_S + |\varepsilon_D|)$
- Producer share of burden: $|\varepsilon_D| / (\varepsilon_S + |\varepsilon_D|)$
- The inelastic side of the market bears more of the burden — it has fewer ways to escape the tax (or, for a subsidy, more ways to capture the benefit)

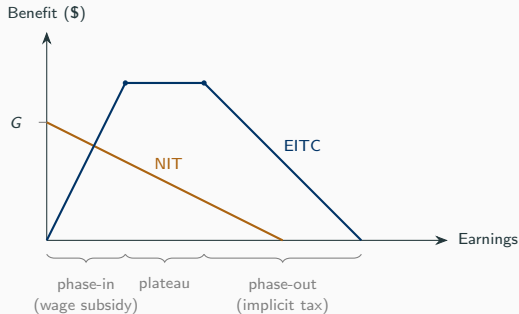
Case Study: EITC Incidence

EITC vs. NIT: what do you actually get paid?

EITC: a refundable tax credit on *earned* income — \$0 if you don't work, then it rises, plateaus, and phases out as earnings grow.

NIT: a guaranteed income — a fixed transfer G even at zero earnings, phased out at a constant rate as earnings rise.

Same average transfer to a poor household can hide very different schedules.



Incentives to work: EITC vs. NIT

- **Extensive margin (work at all?)**
 - EITC: going from \$0 to \$1 of earnings jumps you onto the phase-in segment — a strong incentive to *start* working
 - NIT: you already collect G at zero earnings — the first dollar earned is taxed away at the phase-out rate, so the incentive to start working is weak (or negative, via the income effect of G itself)
- **Intensive margin (work more?)**
 - EITC phase-in: more hours $\rightarrow$ more credit — reinforces work
 - EITC phase-out *and* NIT: more hours $\rightarrow$ less benefit — both discourage additional hours here

The EITC is designed to pull people *into* the labor force — that is exactly the labor-supply shift Rothstein exploits.

Rothstein (2010): who really gets the EITC?

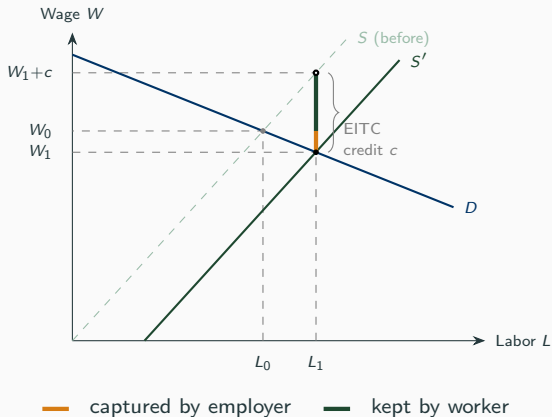
Rothstein, J. (2010), “Is the EITC as Good as an NIT?” AEJ: EP

The EITC subsidizes work for low-income families, expanding labor supply. But labor demand doesn't shift — so the expanded supply pushes the equilibrium wage *down*.

- Workers receive the EITC credit, but earn a lower gross wage than they would without it
- Employers enjoy higher profits (lower wage, same output)
- Rothstein's estimate: employers capture ≈ 27 cents of every \$1 of EITC

The logic, step by step

1. EITC raises the after-tax return to work $\rightarrow$ labor supply shifts out
2. Labor demand is unchanged $\rightarrow$ equilibrium wage falls
3. Workers keep the EITC credit, but their gross wage is lower than it would have been
4. Some of the “worker benefit” has silently become employer profit



A policy's statutory target and its economic beneficiary can differ substantially — here, $\approx 27\%$ of every EITC dollar shows up as lower wages, not extra take-home pay.

Exercise: Does a Tuition Subsidy Get Captured?

A per-student tuition subsidy

A government or donor offers a \$X/student subsidy to reduce private-school tuition.

Before you see any numbers: as a group, predict who captures more of the subsidy — families or schools — and justify it in one sentence each:

- How many comparable schools could a family switch to instead?
- How quickly could a school add classroom seats or hire teachers?

Write your prediction down — you'll check it against the numbers next.

Task (groups, 15 minutes)

Now the numbers

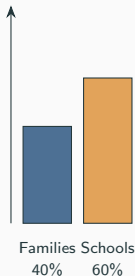
$\varepsilon_D = -0.3$ (school enrollment demand) $\varepsilon_S = 0.2$ (school capacity supply, short run)

1. Compute each side's share of the subsidy. Did it match your prediction? If not, what did you get wrong about substitutability or capacity?
2. Short-run capacity is often close to fixed ($\varepsilon_S \rightarrow 0$). Name one concrete reason that could be true for a real school — then recompute the shares under that limit.
3. A colleague says: “We’re paying the subsidy directly to families, so 100% of it reaches them.” Using statutory vs. economic incidence, what’s wrong with this?
4. What does this imply for how you should measure WTP for the Astoreca school?

Solution

$$\text{Family share} = \frac{\varepsilon_S}{\varepsilon_S + |\varepsilon_D|} = \frac{0.2}{0.5} = 40\%, \quad \text{School share} = \frac{|\varepsilon_D|}{\varepsilon_S + |\varepsilon_D|} = \frac{0.3}{0.5} = 60\%$$

Share of subsidy



If capacity is fixed short-run ($\varepsilon_S \rightarrow 0$): schools capture essentially *all* of it.

The colleague is right about *statutory* incidence (100% is paid to families) and wrong about *economic* incidence (only 40% stays with them) — fees rise, and the rest is competed away.

Incidence and the MVPF/CBA Framework

The policy we're evaluating

Fundación Astoreca is not asking us to price an existing good differently — it is proposing to **open a new, tuition-free school**. A donor or government agency must decide whether to fund it.

- No tuition $\Rightarrow$ no price margin: the formulas and wedge diagrams from today all assumed a market price that adjusts. Here there isn't one.
- But the same economic logic still runs through two *other* margins of this exact policy:
 1. **Who fills the new seats** — the enrollment margin, no price
 2. **Who Astoreca hires to teach them** — the input margin, and this one *does* have a price: the teacher wage

We work through both, then come back to what this means for measuring WTP.

Incidence without a price: who fills the new seats?

Scenario A: additionality

The new seats go to children who would otherwise be unschooled or in a much worse school. Full marginal WTP accrues to these families — nothing is displaced.

Scenario B: displacement

The new seats mostly draw students away from an already-decent nearby subsidized school. Families gain only the (small) quality difference between Astoreca and their counterfactual school — most of the “benefit” is really just a reshuffling of who sits where.

The donor's dollar is “captured” by whoever ends up in the seat — and how much real value that creates depends entirely on their counterfactual, exactly like an incidence share depended on the counterfactual price.

Incidence with a price: hiring teachers

Opening a new school means hiring qualified teachers — and here there *is* a price: the teacher wage.

- If qualified teachers are scarce locally (inelastic supply), Astoreca's hiring is a demand shock into that labor market
- Same wedge logic as the EITC slide: part of the donor's funding shows up as **higher wages for incumbent qualified teachers** (often poached from other schools), not as new teaching capacity
- The more inelastic the local supply of qualified teachers, the more of the donation is captured this way — and the smaller the true expansion in effective schooling resources

Same dP_S/dt formula, different market: swap “employer” for “incumbent teacher” and “EITC credit” for “donor funding.”

So what does this mean for WTP?

- WTP for Astoreca must be the *marginal* family's incremental value — their outcome at Astoreca minus their counterfactual outcome — not some average valuation of “a good education”
- Scenario B (displacement) $\Rightarrow$ marginal WTP is small, even though the accounting cost of the seat is large
- Scenario A (additionality) $\Rightarrow$ marginal WTP, and the true social benefit, is large
- Net cost to the donor must also net out any funding that just bid up teacher wages, rather than genuinely expanding teaching capacity

None of this is visible in Astoreca's budget — it only shows up once you ask “compared to what?” on both sides of the ledger.

Bringing it back to your project

- Both margins above are live, open questions about the real Astoreca proposal — you'll hear Astoreca's own take in Session 4, but you will likely still need to make explicit assumptions about counterfactual enrollment and counterfactual teacher supply
- Whatever you assume, say so explicitly and defend it — this is exactly the kind of assumption Astoreca's own grading rubric will be checking for

With no presentation today, use the rest of class for team project work — instructor circulates for feedback.

What We Learned Today

- Statutory and economic incidence are different questions — who writes the check is not who bears the cost or captures the benefit
- The inelastic side of a market absorbs more of a tax wedge, and captures more of a subsidy — the same formula, either direction
- Rothstein's EITC finding is a cautionary tale: a policy's target population and its economic beneficiary can diverge substantially
- WTP entering an MVPF or CBA calculation must already be incidence-adjusted — the sticker price of a subsidy is not the same as its economic benefit

- Problem Set 3 (self-study checkpoint: by Session 15)