

Inflation and Health: Evidence from Turkey

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Work in Progress (active revision), October 2026

“Inflation kills”: metaphor in one country, meant literally in another



John Locke Foundation, 2022.7

**Inflation Just Roared Back Above 4%.
Consolation Prize: Cheap Eggs Are Back**

Yahoo Finance, 2026.6

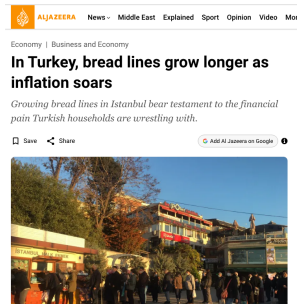
HEADLINE NATIONAL
Cancer drug shortage in Turkey raises treatment concerns

By Turkish Minute

April 30, 2026



Turkish Minute, 2026.4



Al Jazeera, 2021.12

By mid-2022, 45% of Istanbul households could no longer afford red meat (Istanbul survey, 2022.7) and ~650 drugs, from diabetes to cancer, were missing from pharmacies (Reuters, 2021.11)

This paper: does inflation *literally* kill, and how?

- **Q1:** does inflation raise mortality, and from which causes?
- **Q2:** how does healthcare utilization respond?
- **Q3:** how does the health system respond (physicians, nurses, hospital beds)?
- Trace **price instability** through healthcare use and mortality: 26 Turkish regions, 2009–2021, w/ the 2018 currency crisis and 2021 inflation take-off
- Macro-health literature equates downturns w/ **unemployment** (Ruhm 2000, 2015); BUT: inflation erodes real incomes and care affordability even w/ stable jobs
- Turkey lets us separate the two: regional inflation only weakly tied to unemployment, and no austerity-driven cuts to health spending

Background: very high inflation meets a stressed healthcare system

- **The price shock:** 36.1% (2021), peak 85.5% (2022.10; ENAG $\sim 2\times$) (very high, not hyperinflation) vs. 2% rich-country targets, 9.1% U.S. 2022 peak
- Public-dominant mixed system: universal coverage via General Health Insurance; Ministry of Health regulates (Atun et al. 2013)
- Tier 1 (family medicine): free at point of use
- Tiers 2–3 (hospitals): contribution fees + out-of-pocket costs
- Physician exodus: record 3,025 sought certificates to work abroad in 2023 (Turkish Medical Association)
- **Warning signs:** life expectancy 78.6 $\rightarrow$ 77.3 (2017–19 to 2021–23); infant mortality 9.2 $\rightarrow$ 10.0 per 1,000 births (2022–23) (TurkStat life tables, death statistics)

Literature and contribution

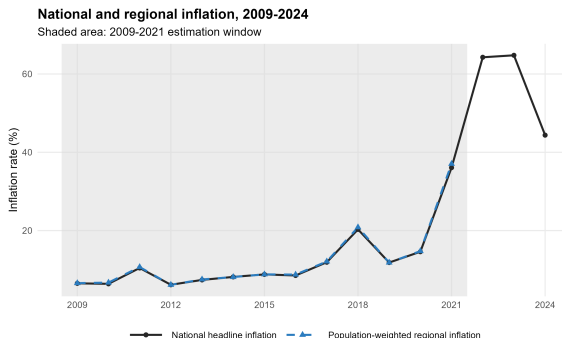
- **Business cycles and health:** mortality *falls* when unemployment rises; we ask what happens when the shock is prices, not jobs
(Ruhm 2000, 2003, 2015; Miller et al. 2009; Stevens et al. 2015)
- **Prices, cost-sharing, and healthcare demand:** higher out-of-pocket costs cut care use; we study an economy-wide price shock, not insurance-design variation
(Manning et al. 1987; Chandra, Gruber & McKnight 2010; Finkelstein et al. 2012)
- **Inflation, crises, and population health:** existing evidence is historical (1923 German hyperinflation) or austerity-driven; we look at current, non-austerity
(Galofré-Vilà 2024; Karanikolos et al. 2013; Stuckler & Basu 2013)

This paper: first evidence linking a modern sustained high-inflation episode to both healthcare use and mortality, isolating a price channel distinct from the business cycle

Data: 26 regions through the 2018 crisis and the 2021 take-off

Panel: 26 statistical regions
(NUTS2) × 2009–2021 (338
region-years, balanced)

- Exposure: regional Dec–Dec CPI inflation (alt. measures for robustness)
- Outcomes: deaths per 100k (total + causes); visits per 1,000 by tier; physicians, nurses, beds per 10k
- Shares: Household Budget Survey, 2007–08 baseline



December y/y CPI, all items; regional = population-weighted mean over 26 NUTS2 regions; the regional series ends 2022.4.

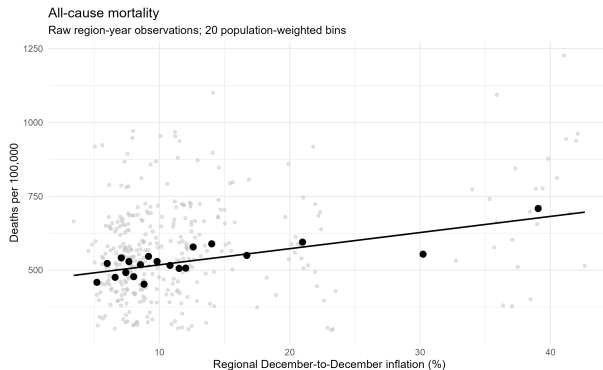
Measuring inflation is political in Turkey

- TurkStat stopped publishing regional inflation after the April 2022 release (no December 2022 print) $\Rightarrow$ our panel ends in 2021 by necessity
- Item-level average prices, published for 19 years, discontinued 2022.4 (Nordic Monitor, 2025.3)
- Jan 2022: statistics chief sacked after the 36.1% print; three central bank governors fired since 2019
- Independent estimates (ENAG) run $\sim 2\times$ the official rate (2022.10: 185.3% vs. 85.5%) $\Rightarrow$ attenuation concern



Al Jazeera, 2022.1

Raw data: higher-inflation region-years show more deaths



Pooled region-years, no controls: the slope mixes cross-region and cross-year differences; the regressions keep only within-region variation (region + year FEs)

Starting point: two-way fixed effects, and why it is not enough

Two-way fixed effects (TWFE):

$$y_{rt} = \beta \pi_{rt} + \alpha_r + \lambda_t + \varepsilon_{rt}$$

region + year FEs; population weights; SEs clustered by region (26)

- With year effects, β uses only **regional deviations** from the national inflation path, which are small and partly measurement noise
- Regional deviations can also reflect local demand conditions $\Rightarrow$ endogeneity
- This motivates instrumenting regional inflation with predetermined regional exposure to **national** price shocks: the shift-share instrument

Shift-share instrument (SSIV): a predetermined inflation *dose*

Intuition: regions that spend more of their baseline budget on categories whose national prices surge receive a larger inflation *dose*

$$\hat{\pi}_{rt} = \sum_j \underbrace{s_{rj}^0}_{\text{baseline expenditure share (region } r, \text{ category } j)} \times \underbrace{\pi_{jt}^{\text{nat}}}_{\text{national category-}j \text{ inflation in year } t}$$

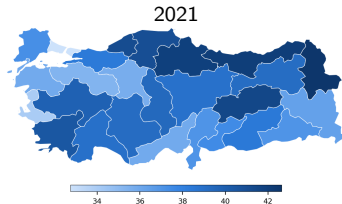
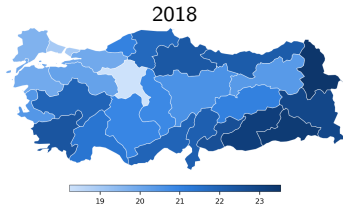
(sources: Household Budget Survey, fixed pre-period; TurkStat category CPI, same annual conventions)

- Built only from decade-old shares and national price moves $\Rightarrow$ immune to local reverse causality and regional CPI noise
- Used as an instrument for measured regional inflation (2SLS); first-stage $F = 11.6$
- **Diagnostics:** Rotemberg weights show which categories drive the instrument; shock-robust SEs (GPSS 2020; BHJ 2022; AKM 2019)

Identifying variation: regional inflation and baseline shares

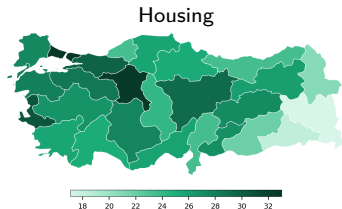
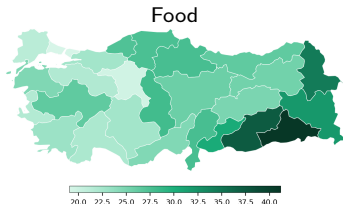
Panel A: regional inflation in the two crisis years (%)

TurkStat NUTS2 CPI



Panel B: baseline expenditure shares, 2007–08 (% of household budget)

Household Budget Survey



The exposure combines the Panel B shares w/ national category shocks; note the inflation pattern is not the food-share (poverty) map.

Identification: what we assume, and what we do not

- Region FEs absorb everything **permanent** about a region, incl. the poverty–health gradient in levels; year FEs absorb every national shock
- Identifying variation: shares $\times$ year-specific national category shocks, *within* region, across years when the national price mix moves toward or away from its basket
- **Needed**: regions w/ different baskets hit by no *other* health shocks timed w/ the national price surges (Goldsmith-Pinkham et al. 2020)
- **Not needed**: shares unrelated to health *levels*; they are related, and the FEs handle it
- All of it is checkable: balance, pre-trends, falsifications, Rotemberg weights

An obvious concern: the food share may be a poverty proxy

High food shares mark *poor* regions, and poor regions have worse health. Isn't the instrument built on a poverty proxy?

- True, and we report it: log GDPpc is the strongest share correlate (−4.7 pp per SD); shares form one food-vs-housing Engel contrast (corr −0.83)
- 1: FEs absorb the gradient in levels; the threat is only *shocks* timed w/ the surges
- 2: let poverty compete directly: poverty / GDPpc / physicians × national inflation leave the external-mortality result unchanged (table below)
- 3: exposure is *not* monotone in poverty: in housing-shock years the *richer* regions get the larger dose, and $\hat{\beta}_{\text{housing}} \approx \hat{\beta}_{\text{food}} \approx \text{overall}$ (1.13 / 1.20 / 1.28)

Balance: what the baseline shares proxy for

Regional characteristic	Food share	Housing share
Log GDP per capita (2008)	−4.66*** (0.51)	+3.27*** (0.40)
Net migration rate per 1,000 (2008)	−3.30*** (0.84)	+2.02*** (0.66)
Physicians per 10,000 (2008)	−3.21*** (0.86)	+2.52*** (0.59)
Hospital beds per 10,000 (2008)	−3.42*** (0.82)	+2.19*** (0.64)
Elderly dependency ratio (2008)	−1.58 (1.03)	+0.78 (0.76)
Poverty rate (2014 proxy)	−0.85 (1.06)	+0.57 (0.77)

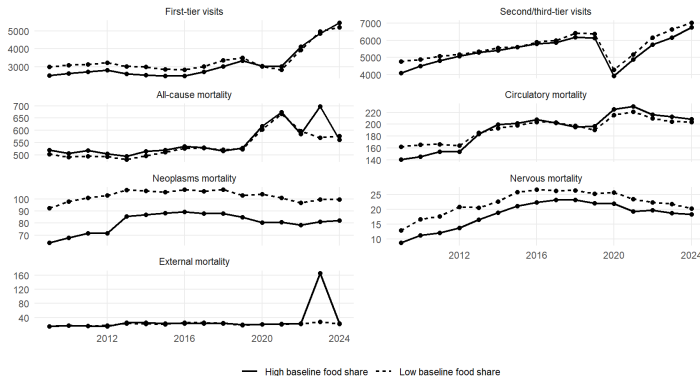
Percentage-point change in the 2007–08 baseline share per 1 SD of each characteristic, one covariate at a time (bivariate); 26 NUTS2 regions; descriptive. Jointly, the six covariates give $R^2 = 0.86$ for the food share (0.80 housing).

- Shares proxy *development*: GDPpc strongest; crude poverty itself flat
- Mirror-image signs = one Engel contrast $\Rightarrow$ falsify on GDPpc + poverty

High- vs. low-food-share regions move in parallel pre-surge

Health outcomes in high- versus low-food-share regions

Population-weighted annual means; groups defined using baseline 2007-2008 expenditure shares



Median split at the 2007–08 baseline food share; population-weighted annual means; descriptive, not an event study. The 2023 spike in external deaths in high-food-share regions is the Kahramanmaraş earthquake, outside the 2009–2021 window.

Mortality: external-cause deaths rise with inflation exposure

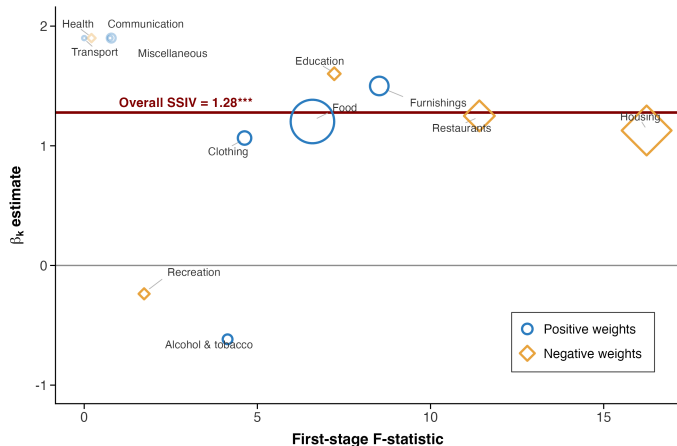
Effect of a 1pp rise in regional inflation on deaths per 100,000 (2009–2021):

	TWFE	SSIV		
		Reduced form	2SLS	2SLS, excl. 2020–21
External causes	0.02 (0.14)	1.99*** (0.65)	1.28*** (0.40)	1.73*** (0.47)
Nervous system	0.35*** (0.12)	1.29** (0.58)	0.83** (0.32)	0.90* (0.45)
Circulatory	1.91* (0.94)	6.43 (4.74)	4.13* (2.22)	−2.96 (1.87)
All-cause	3.76* (2.04)	3.58 (7.81)	2.30 (4.55)	2.84 (2.63)

Per 1pp actual regional Dec–Dec inflation (reduced form: per 1pp predicted exposure); 2007–08 baseline shares; clustered SEs (26 regions); first-stage $F = 11.6$. External is the most robust result: stable at 1.16–1.28 across instrument variants, stronger excluding 2020–21 (wild $p < .001$), robust to rescaling to complete vital statistics (0.88**); circulatory attenuates under those checks; all-cause null.

- Magnitude: 1pp of inflation $\Rightarrow \approx 6.1\%$ more external deaths (mean 21.0 per 100k)

Diagnostics: the categories that carry the design give the same answer



12 COICOP (consumption category) instruments, 2009–2021, $N = 338$; markers sized by $|\alpha_j|$; faded markers are pinned to the top edge, not at their $\hat{\beta}_j$.

$$\hat{\beta}_{2SLS} = \sum_j \alpha_j \hat{\beta}_j, \quad \sum_j \alpha_j = 1$$

α_j : Rotemberg weight, how much category j drives the IV (can be < 0)

$\hat{\beta}_j$: IV using category j alone (GPSS 2020)

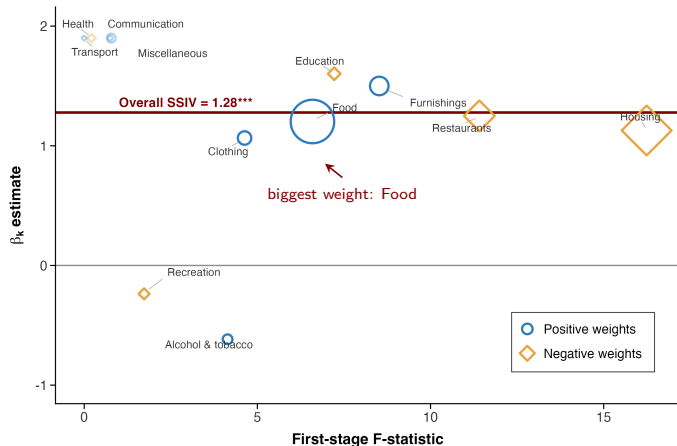
Categories w/ real weight give $\hat{\beta}_j \approx 1.0$ – 1.6 , bracketing the overall 1.28 (exception: alcohol -0.6 , $|\alpha| = 0.09$)

Robust to dropping faded categories

▶ interpreting negative weights

▶ SSIV details

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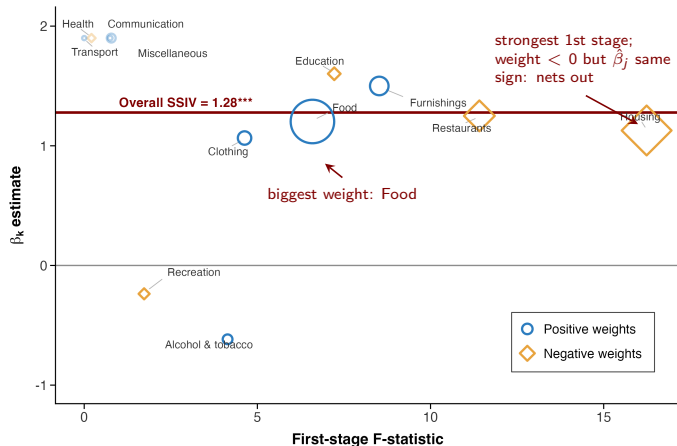
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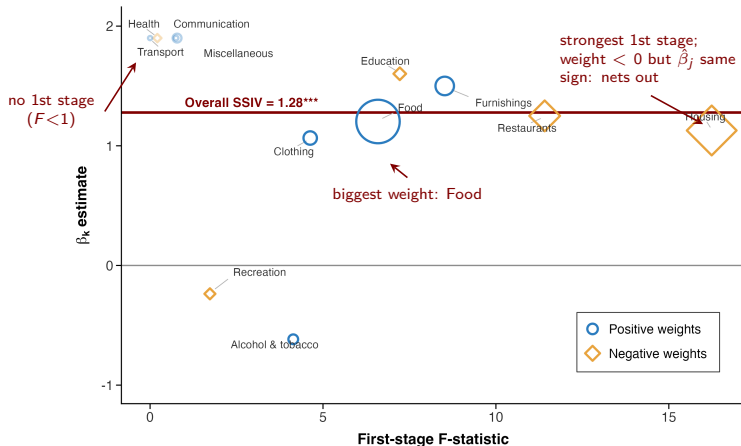
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Falsifications: the exposure is baskets, not poverty in bad times

Reduced form; each column adds one interaction w/ national headline inflation:

	Baseline	+ poverty $\times$ infl.	+ GDPpc $\times$ infl.	+ physicians $\times$ infl.
External mortality	1.99*** (0.65)	2.08*** (0.62)	1.47** (0.57)	1.58** (0.62)
First-tier visits	+166.7*** (43.0)	+166.5*** (42.7)	-10.9 (28.8)	+85.6* (42.6)

2009–2021, $N = 338$; clustered SEs (26 regions). Poverty = 2014 regional rate (persistent-poverty proxy; series starts 2014). GDPpc = 2008 log GDP per capita, centered. 2SLS versions: external 1.28 $\rightarrow$ 1.36 (poverty), 1.92 (GDPpc). First-stage F falls to ≈ 6 in the interacted 2SLS.

- “Poor regions in bad times” would drive these to zero: external robust to all three
- Where the tests bite: the GDPpc interaction *does* kill the first-tier result (a COVID-era pattern), so robustness here is informative, not mechanical

Healthcare use shifts down the tier ladder, concentrated in 2020–21

Effect of a 1pp rise in regional inflation on visits per 1,000 residents:

Dependent variable	TWFE	SSIV, 2009–2021		2SLS, excl. 2020–21
		Reduced form	2SLS	
First-tier (free)	+32.9*** (9.1)	+166.7*** (43.0)	+107.0*** (34.4)	–26.5 (17.1)
Second/third-tier (fees)	–50.2** (23.6)	–122.2 (118.8)	–78.5 (57.0)	–83.9 (52.7)

2007–08 baseline shares; clustered SEs (26 regions); first-stage $F = 11.6$; excl.-2020–21 wild bootstrap $p = .22$. We read the last column as: the tier shift is cost-driven substitution during the 2020–21 surge, not a standalone causal claim.

- Potential mechanism: hospital tiers carry fees and OOP costs; when the squeeze peaked, patients traded hospital visits for free primary care

System response: physicians leave during the 2020–21 surge, nurses follow

Staffing per 10,000 residents in year t , by timing of the 1pp inflation shock (2SLS):

Shock in. . .	Physicians	Nurses	Other personnel	Hospital beds
same year t	−0.54*** (0.10)	−0.30 (0.19)	−0.35 (0.42)	+0.15 (0.59)
year $t - 1$	−0.65* (0.36)	−0.72** (0.27)	−1.10 (0.75)	−0.12 (0.41)
year $t - 2$	+0.20* (0.12)	+0.02 (0.15)	+0.42* (0.24)	+0.36** (0.14)

Each row is a separate 2SLS at one lag; timing pattern holds on a common sample; excl. 2020–21 = 2009–2019, physicians −0.27 (0.22), $F = 30.2$.

- Physicians leave in the shock year, nurses follow next year (the *physician exodus*)
- Not just supply reshuffling: first-tier stays +86** w/ supply controls
- Concentrated in the surge: drop 2020–21 and it halves to −0.27, wild $p = .20$

Robustness checks: the external-cause result is robust to every test we run

- **COVID window:** excl. 2020–21, external is *stronger*: 1.73^{***} , wild $p < .001$
- **Coverage:** vital-stats rescale: external 0.88^{**} (ex-COVID 2.05^{***}); nervous n.s.
- **Falsifications:** poverty/GDPpc/physicians $\times$ national inflation: external intact
- **Instrument composition:** leave-one-out + trimmed; external 2SLS stable at 1.16–1.28
- **Inference** (26 clusters): wild cluster bootstrap $p = .029$; $p < .001$ excl. 2020–21
- **Pre-trends:** outcome paths parallel pre-surge; leads jointly zero ($p = .23$)

[▶ balance tests](#)
[▶ pre-trends](#)
[▶ leave-one-out](#)

It is inflation, not unemployment

Per 1pp of predicted inflation exposure (SSIV reduced form):

	Separate		Joint	
	Exposure	Unemp.	Exposure	Unemp.
External deaths per 100k	+1.99*** (0.65)	−0.07 (0.16)	+2.06*** (0.66)	−0.09 (0.15)
All-cause deaths per 100k	+3.58 (7.81)	−2.56** (0.93)	+5.62 (7.24)	−2.63*** (0.86)
First-tier visits per 1,000	+166.7*** (43.0)	+11.1 (10.2)	+159.6*** (42.5)	+9.2 (10.2)
Hospital visits per 1,000	−122.2 (118.8)	+7.4 (8.7)	−129.2 (117.4)	+9.0 (7.4)

- Unemp.: *lower* all-cause mortality, the familiar procyclical pattern (Ruhm 2000)
- Opposite signs, exposure coefficients unchanged jointly: separate channels

Horse race: unemployment is an observed covariate, never instrumented. 338 region-years; population weights, NUTS2 + year FE, clustered SEs (26). TWFE version: same pattern; suicide unemp. coef. 0.00; the all-cause unemp. association fails the wild bootstrap ($p = .17$).

Inside external deaths: distress, care access, or both?

- External causes bundle **accidents, violence, suicide, poisonings**: which moves?
- Channel 1, **distress**: cost-of-living squeeze $\Rightarrow$ deaths of despair $\Rightarrow$ **suicide up**
(Case & Deaton 2015; crisis-suicide evidence: Stuckler et al. 2009)
- Channel 2, **care access**: strained care $\Rightarrow$ **deaths up**, injuries flat: deadlier casualties
- Different predictions: distress moves suicide; care access moves deaths *per casualty*
- First-pass split (next slide): **both** patterns show up
- Data: TurkStat province-year suicide + traffic files (no poisoning measure)

External-cause split, first pass: suicide and traffic deaths both rise

Effect of a 1pp rise in regional inflation, per 100,000:

	2009–2021		Excl. 2020–21	
	Reduced form	2SLS	Reduced form	2SLS
Suicide (mean 4.1)	0.20 (0.14)	0.13* (0.07)	0.25** (0.12)	0.23* (0.12)
Traffic deaths (mean 6.7)	0.31 (0.25)	0.20 (0.19)	0.64** (0.29)	0.59** (0.27)
Traffic injuries (mean 348)	−4.8 (15.5)	−3.1 (9.1)	−5.7 (9.3)	−5.2 (8.3)

First pass. TurkStat province-year suicide and traffic files nested into 26 NUTS2 regions; 338 region-years; means excl. 2020–21, per 100k; clustered SEs (26 regions); first stage as baseline ($F = 11.6$; excl. 2020–21 $F = 30.2$). Wild-bootstrap p 's (reduced form, excl. 2020–21): suicide .08, traffic deaths .07, injuries .76, so component-level inference is marginal; the aggregate external result anchors (wild $p < .001$ excl. 2020–21). Suicide counts switch source in 2013 and traffic deaths to the 30-day definition in 2015; year effects absorb the level shifts, and post-break subsamples give the same signs. No separate poisoning measure; homicide and remaining components not split. Case-fatality rate (deaths/casualties) as outcome, definition-consistent 2015+ window: +0.2pp per 1pp (mean 2.1%; wild $p = .09$ –.16).

- Excl. 2020–21: suicide +6.1%, traffic deaths +9.5% per 1pp: **both** channels
- Injuries flat, deaths up $\Rightarrow$ *deadlier* casualties, not more: care access, not roads

How big is it? Benchmarks for the external-mortality effect

- Baseline: 1pp of inflation $\Rightarrow \approx 6.1\%$ more external deaths (mean 21.0 per 100k)
- At Turkey's population: 1pp $\approx 1,000$ additional external-cause deaths per year
- One within-year SD of regional inflation ≈ 1 pp (0.96): per-SD = per-point
- Suicide benchmark: $+0.79\%$ per 1pp *unemployment* vs. $+6.1\%$ per 1pp *inflation*
- U.S. deaths of despair $\approx 45\text{--}50$ per 100k; Turkey's external-cause mean is 21

Population scaling: $1.28 \text{ per } 100\text{k} \times \sim 85\text{M}$. Suicide comparison: our excl.-2020–21 estimate (first pass; wild $p = .08$) against the European crisis-suicide elasticity for ages under 65 (Stuckler et al. 2009). Despair rate: Case & Deaton (2020), drugs + alcohol + suicide, 2017.

Conclusion: Inflation does kill, at least *externally*

- External-cause deaths rise w/ inflation exposure; robust to many tests
- Care shifted to free tiers in the 2020–21 surge; hospital tiers carry fees
- Physicians left exposed regions in the surge too, w/ partial rebound by year two
- The shock is the cost of living: not job losses, not the price of care itself
- Where care carries fees, inflation acts like an across-the-board copay increase
- External split, first pass: suicide + traffic deaths up, injuries flat: two channels

Thank you! Comments welcome:

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Appendix: benchmarks: what counts as “high” inflation?

- Advanced-economy central banks target 2%; Turkey's own official target is 5%
- The 2022 U.S. crisis peaked at **9.1%**; “moderate”: 15–30%
- Hyperinflation is another universe: 50% *per month* $\approx$ 13,000% per year
- Turkey: 36.1% (2021), 64.3% (2022), peak 85.5% (2022.10); ENAG: $\sim 2\times$ higher
- Cumulative: prices $\sim 5.7\times$ over 2017–23: **very high, not hyperinflation**

Annual % changes in consumer prices; Turkey figures are Dec-over-Dec. Sources: Dornbusch & Fischer (1993); Cagan (1956); TurkStat; ENAG.

Table 1

Appendix: Table 1: summary statistics

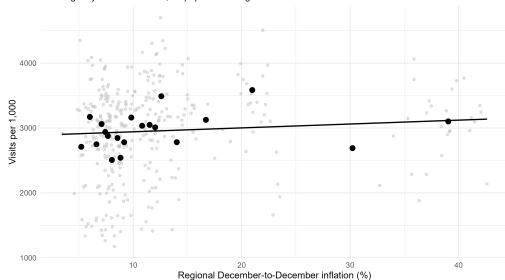
	Mean	SD	W-yr SD		Mean	SD	W-yr SD
<i>Inflation (percent)</i>				<i>Visits (per 1,000)</i>			
Regional Dec–Dec inflation	12.58	8.41	0.96	First-tier	2,957.36	651.42	619.54
SSIV exposure (predicted)	12.16	7.90	0.27	Second/third-tier	5,358.85	769.99	412.68
<i>Mortality (per 100,000)</i>				<i>Health system (per 10,000)</i>			
All causes	532.09	141.00	129.76	Physicians	18.29	5.31	5.07
Circulatory	189.81	66.58	61.56	Nurses	20.34	5.37	3.55
Neoplasms	95.09	28.11	27.51	Other personnel	18.84	5.73	4.18
Respiratory	57.95	27.37	18.99	Hospital beds	27.55	5.34	5.12
Endocrine/metab.	25.43	8.07	7.95	<i>Controls</i>			
Nervous system	20.93	7.89	6.41	Elderly dependency ratio	12.16	3.82	3.58
External causes	21.01	7.85	6.92	Net migration per 1,000	0.00	7.84	7.67
<i>External split (per 100,000)</i>				Unemployment rate (%)	11.53	4.33	3.96
Suicide	4.16	0.96	0.90				
Traffic deaths	6.62	3.62	3.07				
Traffic injuries	339.78	128.29	120.57				

338 region-years (26 NUTS2 $\times$ 2009–2021), population-weighted. W-yr SD = pop-weighted SD across the 26 regions per year: the cross-region variation left once the common national path is removed (for inflation, 0.96pp of a total SD of 8.41). Baseline cross-section (2007–08 shares, 2008 GDP pc, 2014 poverty) in the paper's Table 1.

Appendix: raw relationships: visits by tier

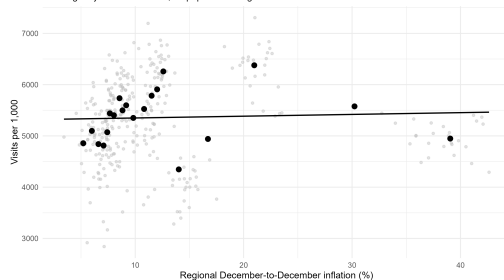
First-tier visits

Raw region-year observations; 20 population-weighted bins



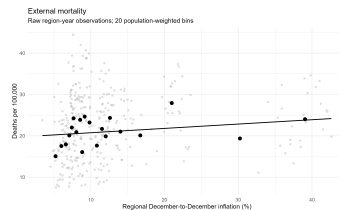
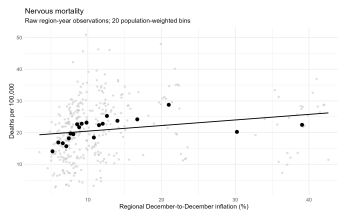
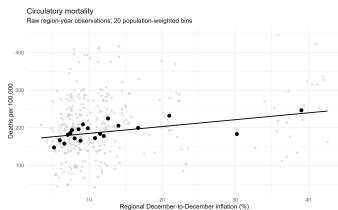
Second/third-tier visits

Raw region-year observations; 20 population-weighted bins



Raw slopes are flat: the tier shifts in the results are within-region movements that cross-region comparisons average away

Appendix: raw relationships: cause-specific mortality



Circulatory and nervous-system causes slope up most steeply in the raw data; the SSIV isolates the exposure-driven component, which loads on external causes

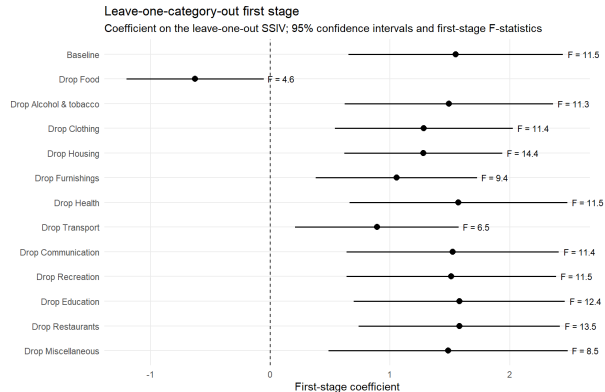
Appendix: why SSIV helps: variation, identification, mechanism

- **Variation:** food inflation ran 5–14pp above headline in 2018/2021/2022; food shares differ sharply (poorer regions $\sim 1/3$ of budget vs. $\sim 1/5$); Rotemberg weights: food dominates ($\alpha = 2.62$), housing offsets (-1.66), shares correlate at -0.83
- **Identification:** share-exogeneity frame à la Goldsmith-Pinkham et al.: only 12 shifters, correlated $\Rightarrow$ too few for shock-level asymptotics (GPSS 2020; BHJ 2022)
- **Diagnostics:** share balance; pre-trends by exposure; Rotemberg weights; poverty $\times$ year falsification; shock-robust SEs (AKM 2019)
- **Mechanism:** decompose $\hat{\pi}$ into food / health / residual $\Rightarrow$ cost-of-living squeeze vs. price of healthcare itself

Appendix: how to read negative Rotemberg weights

- Shares sum to 1 within a budget, so a region high in food is mechanically low in housing (corr -0.83): the instrument is one **food-vs-housing contrast**, not 12 separate experiments
- 2SLS is a weight-average of category-specific IVs, $\hat{\beta} = \sum_j \alpha_j \hat{\beta}_j$ with $\sum_j \alpha_j = 1$; housing enters with $\alpha = -1.66$ because its share *co-moves negatively* with the food exposure that drives the first stage (GPSS 2020)
- Negative α 's are a problem only if category-specific effects $\hat{\beta}_j$ *differ*: then 2SLS is not a convex average and can lie outside the $\hat{\beta}_j$ range
- Our defense is **agreement**: for external mortality the food/housing/restaurants standalone IVs are 1.20/1.13/1.25, so any weighting, negative or not, returns ≈ 1.2
- Belt-and-suspenders: dropping housing entirely (F rises to 14.6) leaves external at 1.18^{***} and first-tier at $+124^{***}$

Appendix: the food-vs-housing contrast is the instrument



Dropping food flips the first stage ($F = 4.6$): food carries the design; every other exclusion leaves the coefficient stable and the F between 6.5 and 14.6

Appendix: next steps

- **Finer shares:** regional sub-group Household Budget Survey shares; finer *shocks* alone (run: 43 sub-groups) do not unlock shock-level inference
- **Inference:** multiple-hypothesis adjustment across outcomes (Romano–Wolf)
- **Dynamics:** distributed lags for mortality
- **Demand vs. supply:** visits per physician by tier; Health Survey “forgone care due to cost”
- **Micro evidence:** individual-level Health Survey analysis (2008–2022 waves)