From the Strait to the Plate

The Salad Market Responds to the Strait of Hormuz Closure

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LA RESSOURCE PRO · OCTOBER 2026

ABSTRACT

The Strait of Hormuz closed on February 28, 2026, and removed a fifth of the world's liquefied natural gas from the market; by mid-October the GB gas price stood 142% above its February level. British glasshouse vegetables are grown on that gas: a kilogram of tomatoes contains about 6 kWh and a kilogram of cucumbers 4.5 kWh. This article measures the shock's path into UK cucumber and tomato prices in both parts of the market: imports, which supplied 83% and 80% of 2025 consumption (308 months of HMRC trade data), and the home-grown crop (nine seasons of Defra wholesale prices). Import demand is inelastic (−0.43 for tomatoes, −0.30 for cucumbers), and import supply is flat: UK temperature moved volumes but never the border price, so Britain buys at a price set by European costs. The response of border prices to gas fell with the origin's exposure: the Netherlands +6.3%, Spain +4.6%, Morocco zero, the placebo. The closure was a pure supply shock and the market adjusted through price: from March to July 2026 real import prices rose 7.3% and 6.8% while volumes did not fall. The border repriced in weeks; the home glasshouse, priced annually, reprices next season. The result was a larger grocery bill, not an emptier plate.

Keywords: import demand elasticity; placebo identification; pass-through; supply-shock decomposition; price-taker market; Strait of Hormuz; gas prices; food inflation; supply chain; UK economy

1. Introduction

In Northern Europe, tomatoes and cucumbers are grown in gas-heated glasshouses, and a fifth of the world's liquefied natural gas (LNG) normally sails through the Strait of Hormuz. Since the strait closed on February 28, 2026, the GB gas price has soared, and the gas is affecting the vegetables on the plate. The strait remains shut after seven months and the 7-day average of tanker transits through Hormuz vs the pre-closure year is down 97% (see Figure 1). The GB day-ahead gas is 142% above its February level (2.73 to 6.61 p/kWh), which peaked at 157% above the February level on September 14. The physics that connect gas to salad are real. There are approximately 6 kWh of gas in a kilogram of glasshouse tomatoes and 4.5 kWh in a kilogram of cucumber. Since the strait closure the cost of gas in a kilo of tomatoes went from 16p to 28p (closure average) to 42p at the peak. Cucumber's gas per kilogram price jumped from 12p to 32p at the peak, with 21p/kg for the crisis average (see Figure 2). Who pays, when, and through which margin? The analysis covers both parts of the British market: the imports that supply most of what Britain eats, and the home-grown glasshouse crop. La Ressource Pro constructed the necessary econometric models to decompose the mechanisms and answer those questions.

Figure 1

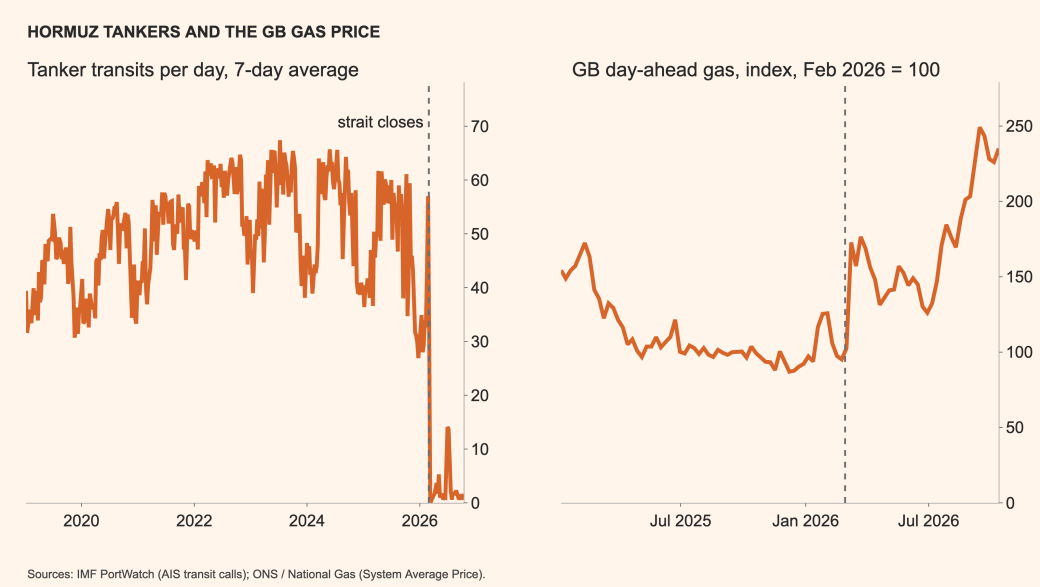
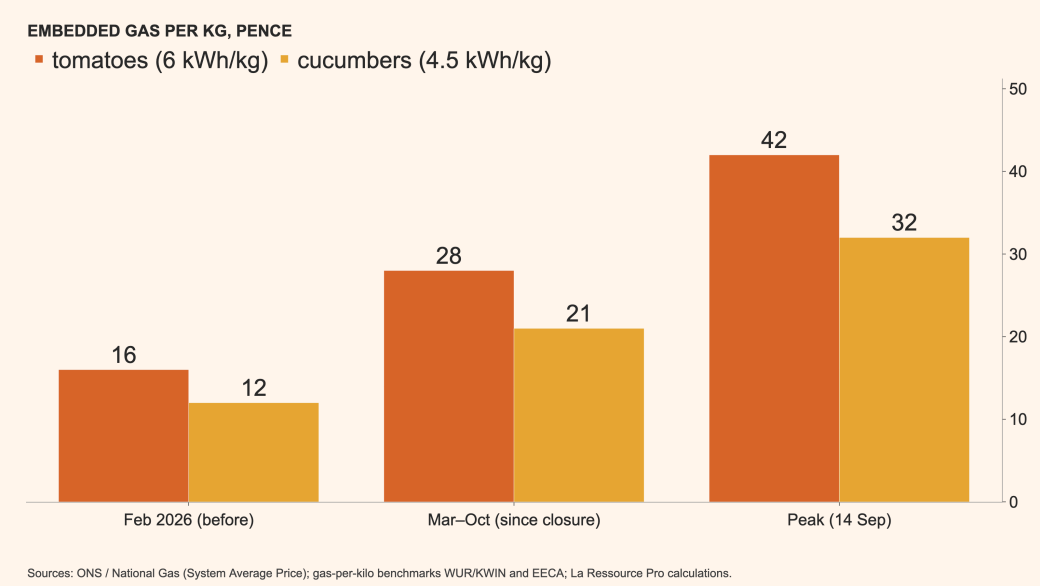


Figure 2



2. Quantity

Volumes barely moved since the strait closure. The quantity side was measured from HMRC trade statistics and recorded as monthly UK imports of fresh tomatoes and cucumbers from 2001 to August 2026, 308 months per crop. Prices were deflated by the CPI for food and every comparison was taken as a 12-month change, which removed the strong seasonality of both crops. In 2025 imports supplied 83% of the tomatoes and 80% of the cucumbers Britain consumed, against home production of 79 and 51 thousand metric tons. From March to July 2026, compared with the same months a year earlier, real import prices rose 7.3% for tomatoes and 6.8% for cucumbers, while volumes changed by +1.6% and +6.1% (see Figure 3). In cash terms, the five-month import bill came to £308m for tomatoes and £136m for cucumbers, 12% and 17% more than a year earlier. Figure 4 shows the estimated demand curve behind these numbers. Import demand elasticity is −0.43 for tomatoes and −0.30 for cucumbers; in simple terms, a 10% price rise trims volumes by 3 to 4%. Demand for these vegetables is inelastic: a salad is a habit, not a choice. Identification rests on the nature of the variation: border prices moved with producers' costs and weather, not with British tastes. When all the price movement comes from the supply side, each month samples the demand curve at a different point, so the slope of volumes on prices is an estimate of the demand slope. The formal instruments are reported as weak in Section 4. Weather is the one demand-side force, and it is controlled directly: hot UK weather raised tomato imports by about 1.4% per degree Celsius, and the hot 2026 season appeared as the positive demand shift in Section 3's decomposition (+4.7% for tomatoes and +8.1% for cucumbers). Finally, the five closure months, highlighted in Figure 4, sat within the long-

sample scatter graph, the hottest months a little above the line: demand behaved as it always does; only the price changed. That points the search to the supply side in the next section.

Figure 3

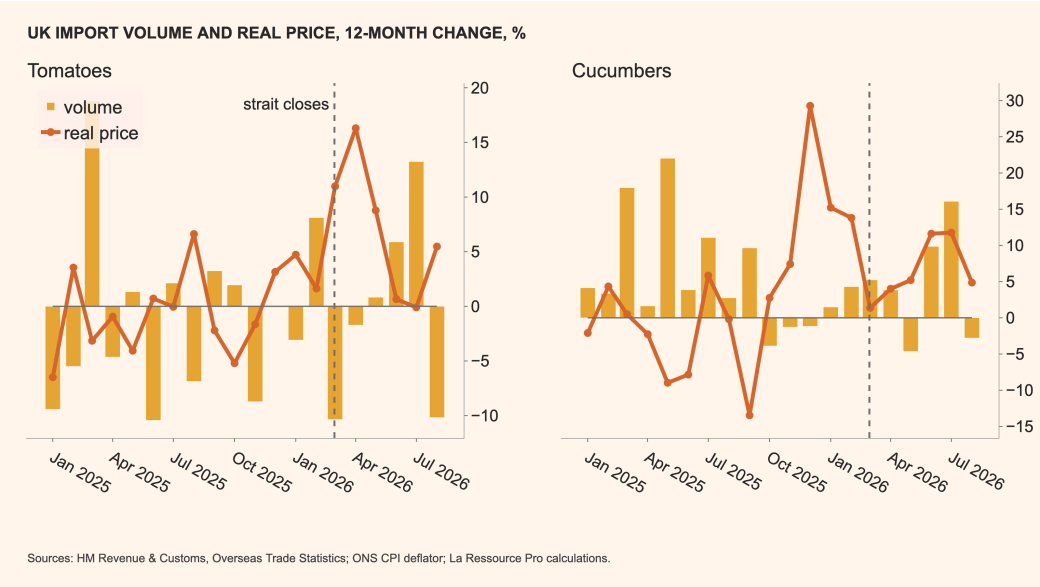
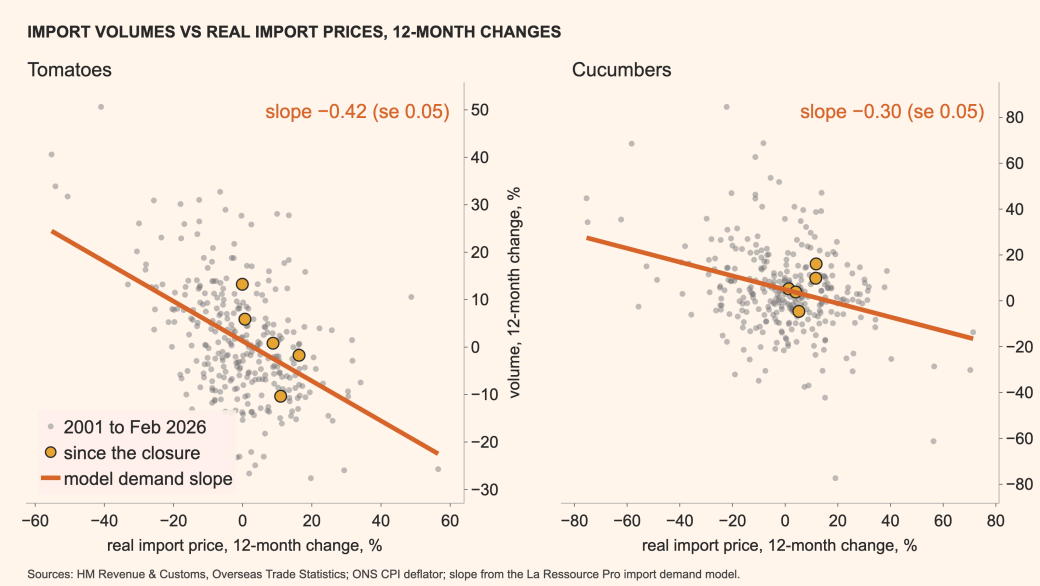


Figure 4



3. Price

The border evidence used import unit values by country of origin; the slopes were estimated on data from 2019 onward. Dutch and Spanish prices were affected by the 2022 and 2026 energy episodes (see Figure 5); Moroccan prices were not affected. For tomatoes, the response of the border price to a doubling of GB gas was ordered by the origin's use of gas: the Netherlands (heated glasshouse) +6.3%, Spain (unheated, same market) +4.6%, Morocco (outside the EU market) −0.3%, statistically zero. The Morocco series was the placebo. All imports blended responded by +2.0%. For cucumbers the strongest response was Spain's, +9.6%, consistent with Spain as the marginal winter supplier (see Figure 6); the cucumber estimates were noisier, and the country pattern, not any single coefficient, supported the result.

Figure 5

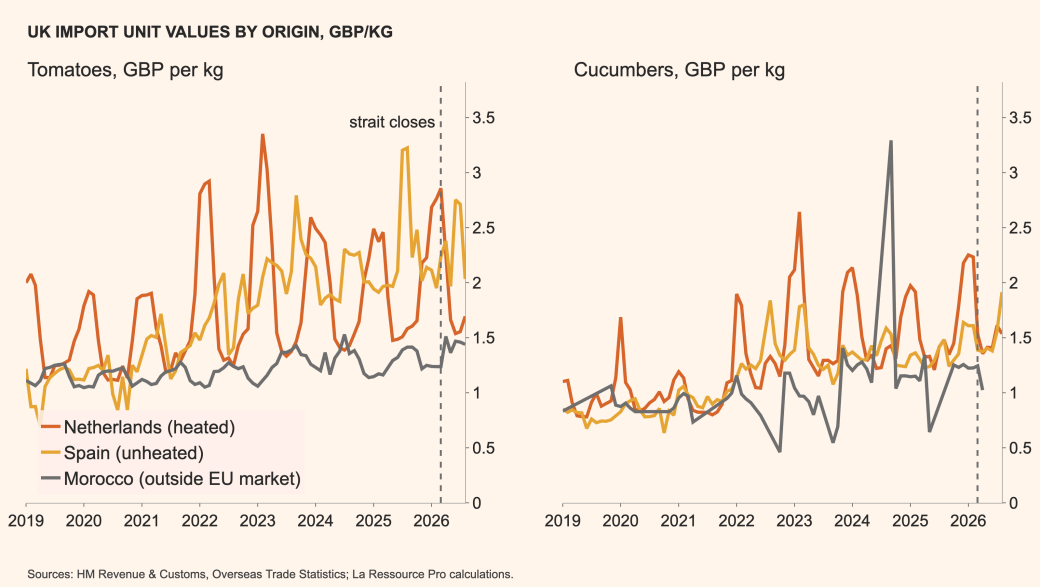
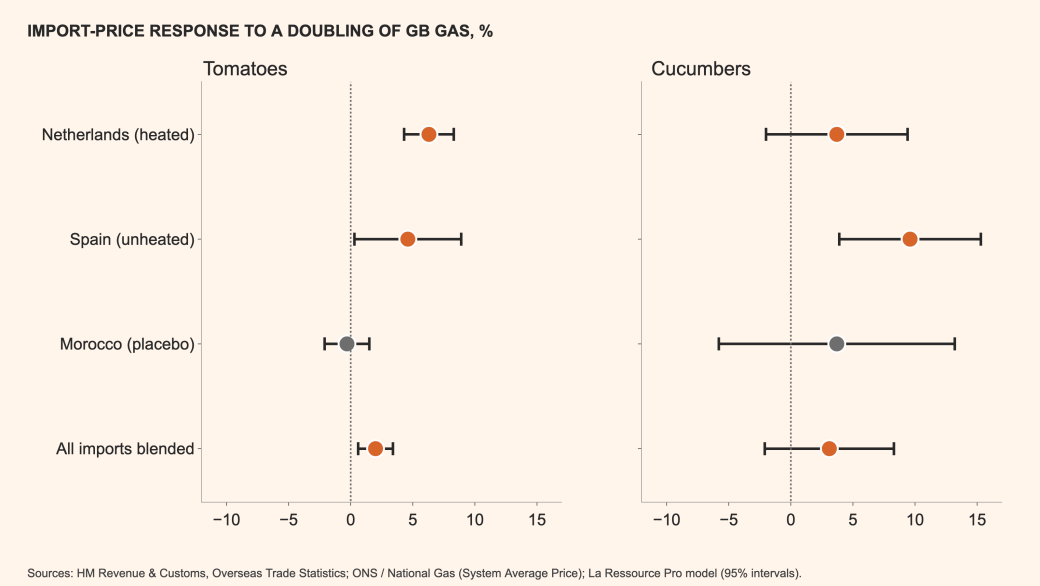


Figure 6



Spain is a special example in that list. Spanish produce is grown without heating, yet its border price responded to gas, because it sells into the same market where the marginal cost rose. The gas effect stopped at the border of the EU market, not at the greenhouse door: Spanish prices moved with the shared market, not with each grower's fuel bill.

The home glasshouse responded on a different timeline. Across nine seasons, the season-average wholesale price of the home-grown crop moved with the embedded gas cost: the 2026 season averaged 164p per kg for tomatoes against 148p in 2025, and 130p against 106p for cucumbers, with 23p and 17p of gas inside, respectively (see Figure 7). Within the season, however, weekly wholesale prices did not follow the weekly gas bill; the in-season response for tomatoes was statistically zero, and the adjustment came in the following season (see Figure 8 and Section 4). UK glasshouse output is priced annually, before planting: the border reprices in weeks, the glasshouse by season.

Figure 7

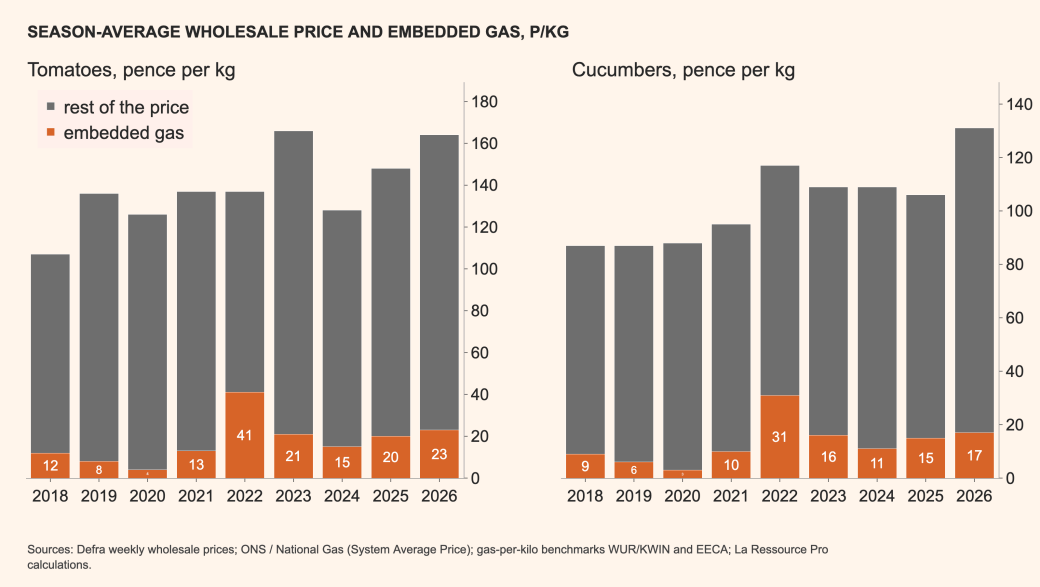
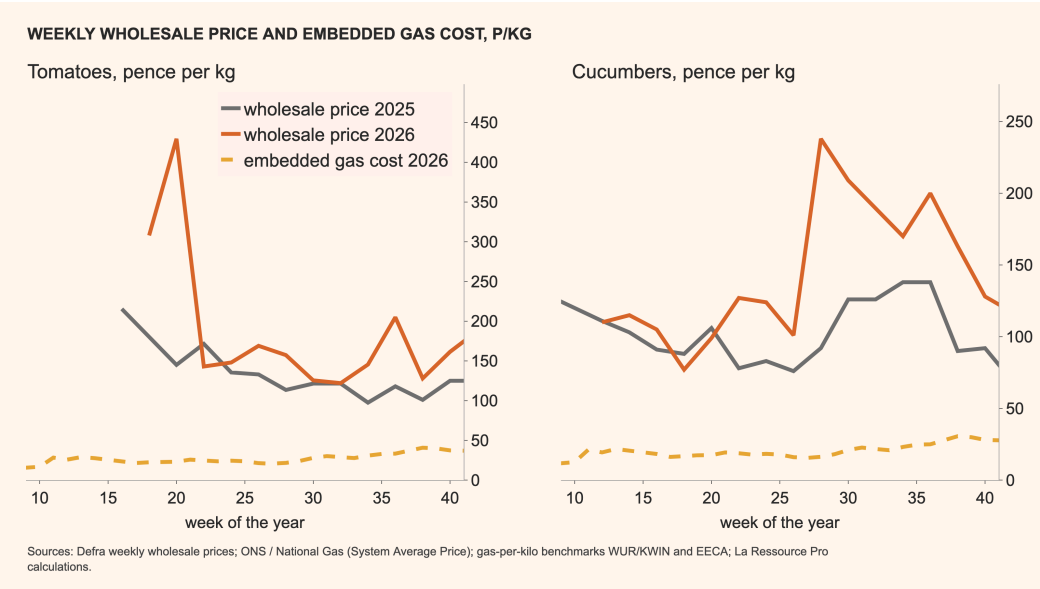
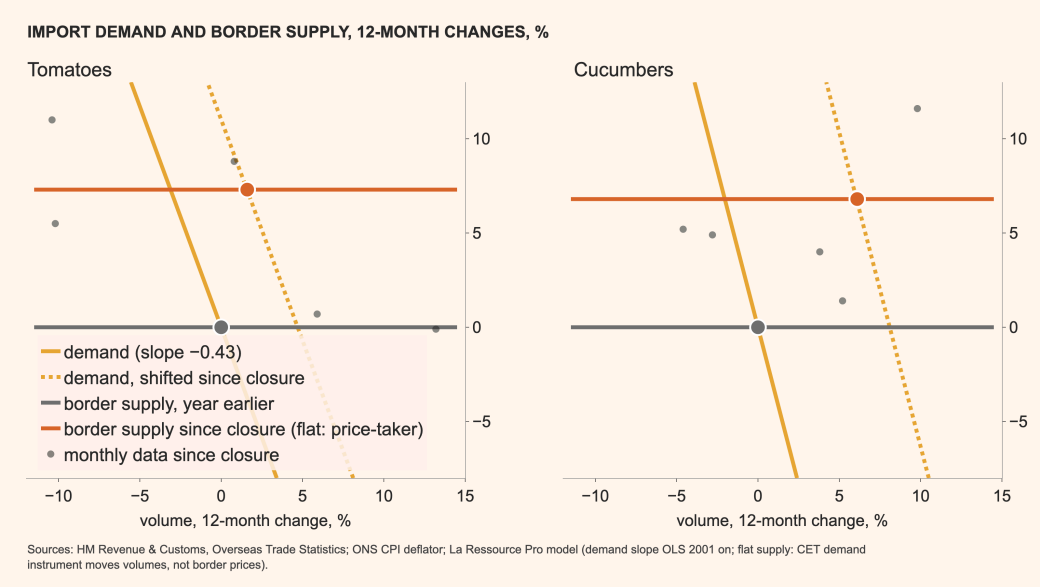


Figure 8



The supply curve facing UK buyers was flat. The one clean demand-side instrument, UK temperature, moved import volumes strongly but never moved the border price; demand shifts slid along the supply curve. Britain is a price-taker: the strait closure raised European producers' costs, and that set the border price (see Figure 9).

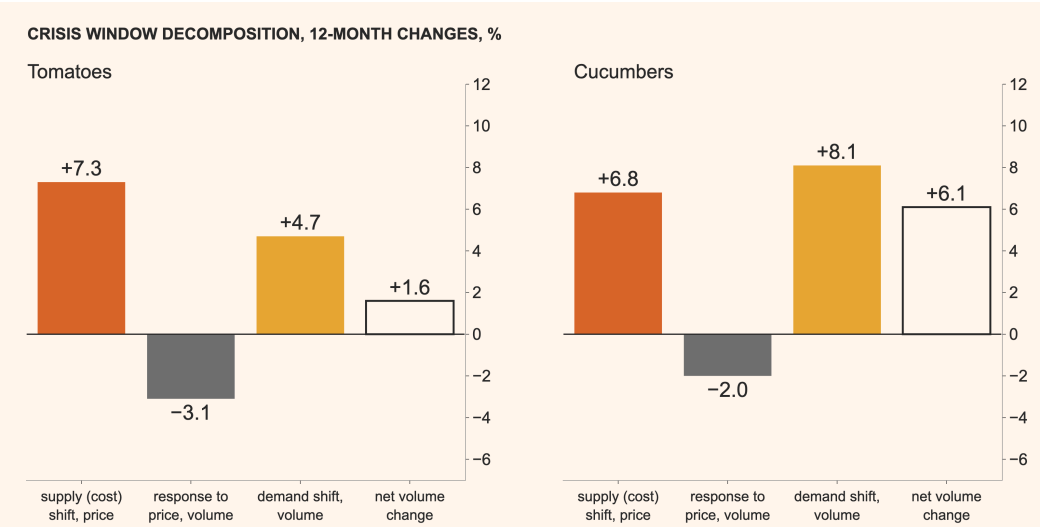
Figure 9



Sources: HM Revenue & Customs, Overseas Trade Statistics; ONS CPI deflator; La Ressource Pro model (demand slope OLS 2001 on; flat supply: CET demand instrument moves volumes, not border prices).

A flat supply curve made the decomposition exact. All price movement was the supply shift; volume movement was the demand response plus the demand shift. Figure 10 shows the decomposition for March to July 2026. The entire price rise, +7.3% for tomatoes and +6.8% for cucumbers, was the supply shift; on the volume side, the hot-summer demand shift offset the response to the higher price, so quantities did not fall. The closure was a pure supply shock, and the market adjusted almost entirely through price: flat supply passed the costs through, and demand at −0.3 to −0.4 barely responded. Gas was the traceable part of that cost shift through the Dutch slope; diesel, freight and origin-country weather made up the rest, and the decomposition does not need to separate them. Section 4 explains what each estimate can and cannot support.

Figure 10



Sources: HM Revenue & Customs, Overseas Trade Statistics; ONS CPI deflator; La Ressource Pro model (window Mar to Jul 2026; volume = response + demand shift).

4. Strengths and Limitations

The design has three strengths. First, geography provides a placebo: Moroccan produce enters the same UK market through the same channels but is grown outside the EU market, and its border price did not respond to gas (−0.3%, statistically zero; Figure 6). That result supports the reading of the Dutch and Spanish responses as cost transmission rather than as some common UK-side shock, which would have moved all three. Second, two independent datasets agreed: HMRC unit values at the border and Defra wholesale prices at home both show the 2022 and 2026 episodes, and Defra's published import quantities match the HMRC series used here (390 thousand metric tons of tomatoes in 2025 in both sources). Third, the sample is long, 308 months per crop and nine seasons of wholesale data, and the estimates were stable when the 2026 months were added.

The decomposition in Section 3 is arithmetic, not an estimation: given the demand slope and a flat supply curve, the split of each observed change into a supply shift, a demand response and a demand shift follows by identity. Its accuracy therefore depends entirely on those two inputs, and both have limits.

The demand elasticity was estimated by least squares with an identification argument, not an instrument. Gas-based instruments were tested and produced estimates near zero with standard errors above one. They were reported as uninformative and were not used. Any remaining demand-side variation in border prices would bias the estimated slope toward zero, so −0.43 and −0.30 are lower bounds in magnitude, and the conclusion that demand is inelastic is conservative.

The flat-supply evidence was established on tomatoes: temperature moved tomato volumes (t = +3.4) and did not move the border price (first-stage F near zero, in the full sample, the Spain-only sample and the winter-only sample). For cucumbers the instrument moved neither volumes nor prices, so the test had no power there; cucumbers were assigned the same price-taker structure by the logic of the shared market.

Unit values are values divided by weights, not transaction prices: changes in variety mix, packaging and within-month timing move them. The 12-month-change specification and the origin split reduce this composition problem but do not remove it. The Moroccan cucumber series is thin, 45 months. Defra's weekly series has winter gaps for home-grown produce. HMRC data end in August 2026 and are subject to revision; the window numbers in Section 3 changed when July became available and can change again with revisions.

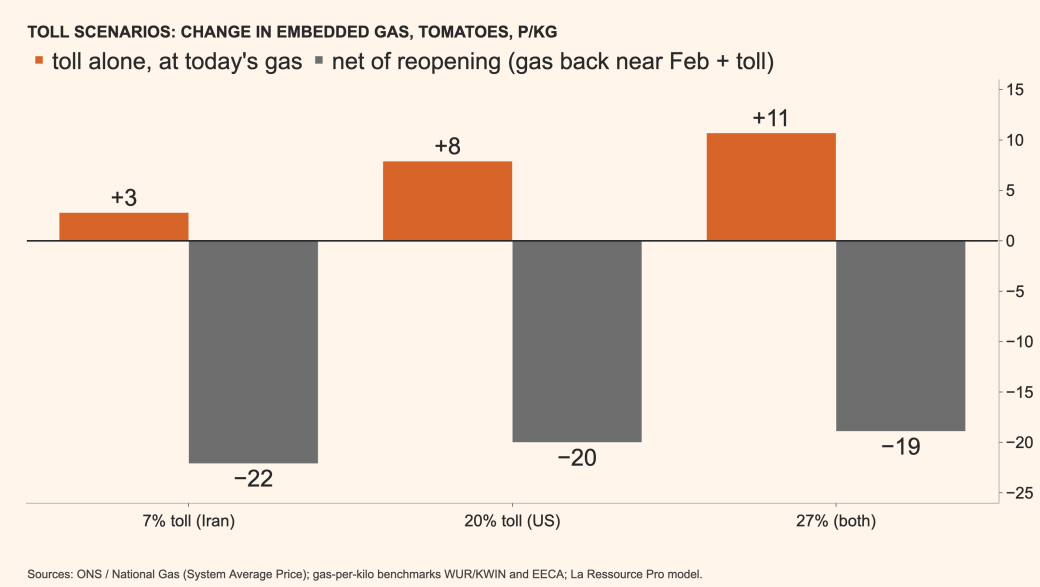
The wholesale pass-through regression behind the sticky-season reading is fragile: the pooled estimate was +0.47 (t = 1.7) and changed sign when 2022 and 2023 were excluded, so it was identified by one episode. The report therefore states the annual pricing of glasshouse output as an institutional fact and uses the regression only as corroboration; the in-season coefficient for tomatoes was −0.01 and the next-season coefficient +0.34. Finally, the decomposition attributes the 2026 price rise to the supply side; it does not attribute it to gas alone. Multiplied by the actual rise in gas, the Dutch response accounts for part of the border-price increase, and diesel, freight, fertilizer and origin-country weather account for the rest. The closure is not the only reason for these costs, but it is the common one.

5. Conclusion

The Strait of Hormuz closed on February 28, 2026, and the British vegetable market absorbed the shock through price. The border repriced within weeks of the closure; the home glasshouse, priced annually, waits for the next planting; and demand, at −0.3 to −0.4, barely responded. Volumes did not fall and the bill rose: 12% more for the same tomatoes, 17% more for the cucumbers. For a British consumer the result was a larger grocery bill, not an emptier plate, and the retail shelf will receive a smaller and later version of the wholesale move, diluted by distribution costs and supermarket contracts.

Two consequences follow for 2027. First, because glasshouse output is priced before planting, the 2026 gas bill enters next season's contracts: part of this year's shock is already written into next spring's price lists, whether or not the strait reopens. Second, the transit tolls proposed for a reopened strait change little at current prices: a 7% toll adds about 2.8p to the gas in a kilo of tomatoes, a 20% toll adds 7.9p, and both together 10.7p, or 0.7p to 2.8p per cucumber (see Figure 11). Reopening would cut the embedded gas by 19 to 22p per kilogram from today's level, so the toll is the price of the dividend, not a second crisis.

Figure 11



The mechanism fits in one sentence: a fifth of the world's LNG sails through one strait, a kilo of British tomatoes contains six kilowatt-hours of gas, and the cost of gas traveled faster than the gas itself.

A. Appendix

- **A.1 Demand equation.** 12-month log changes, HAC(12) standard errors:

$$\Delta_{12} \ln Q_t = a + \varepsilon_d \, \Delta_{12} \ln P_t + \beta \, \Delta_{12} T_t + u_t$$

Q import net mass, *P* real unit value (CPI food deflator), *T* Central England mean temperature. Identification: supply-dominated price variation; the formal instruments are discussed in Section 4.

- **A.2 Supply test.** UK demand is instrumented with $\Delta_{12} T_t$; the first stage (price on temperature) and the reduced form (volume on temperature) are reported. Tomatoes: reduced form t = +3.4, first stage F ≈ 0 (Spain-only 0.2; Spain winter 0.9). Interpretation: locally flat import supply; the slope is unidentified because the border price does not respond to UK demand.
- **A.3 Border-price responses by origin.** Per origin o: $\Delta_{12} \ln UV_{o,t} = a_o + \gamma_o \, \Delta_{12} \ln Gas_t + e_{o,t}$, 2019 on, n = 79; γ × ln 2 is reported as the response to a doubling, with 95% intervals.
- **A.4 Decomposition identities.** With flat supply: supply shift (price units) = ΔP; demand response = ε_d ΔP; demand shift = ΔQ − ε_d ΔP. Window: March to July 2026, 12-month changes.
- **A.5 The wholesale pass-through regression.** Weekly wholesale price on embedded gas (crop-week fixed effects, trend, temperature): pooled total +0.47 (t = 1.7); tomatoes in-season −0.01, next season +0.34; crops differ (F = 6.5); excluding 2022 and 2023 the estimate changes sign to −2.09, which is why it is not used as a main result.

Table A1. Key estimates (vintages: HMRC to 2026-08, Defra to 2026-10-12, gas to 2026-10-11)

OBJECT	TOMATOES	CUCUMBERS
Import demand elasticity (se)	−0.43 (0.05)	−0.30 (0.05)
Response to a gas doubling: NL / ES / MA / blend, %	+6.3 / +4.6 / −0.3 / +2.0	+3.7 / +9.6 / +3.7 / +3.1
Crisis window ΔP real / ΔQ, %	+7.3 / +1.6	+6.8 / +6.1
Decomposition: supply shift / demand response / demand shift, %	+7.3 / −3.1 / +4.7	+6.8 / −2.0 / +8.1
Import share of UK supply, 2025 (Defra horticulture statistics + HMRC)	83%	80%
Import bill, Mar–Jul 2026 (nominal)	GBP 308m (+12%)	GBP 136m (+17%)
Gas in one kilogram, Feb / since / peak, pence	16 / 28 / 42	12 / 21 / 32

The 95% interval covers zero for the cucumber Netherlands, Morocco and blend responses (see Figure 6).

- **A.6 Data sources.**

- HM Revenue & Customs, Overseas Trade Statistics (OData API): monthly fresh tomato and cucumber imports by partner, value and net mass, 2001-2026.
- Defra, weekly wholesale prices of home-grown horticultural produce.
- ONS / National Gas: System Average Price of gas, daily.
- IMF PortWatch: daily chokepoint transit calls (AIS), Strait of Hormuz.
- Hadley Centre Central England Temperature, daily mean.
- ONS CPI (food and non-alcoholic beverages), deflator.
- Gas-per-kilo benchmarks: WUR/KWIN greenhouse norms; EECA.
- La Ressource Pro model outputs; interactive versions of the figures: laressource.pro/lab (Food & Drink, Cucumbers & Tomatoes).