Ireland Cost of Living Visualization: Design Document

CS7DS4 Information Visualization | Author: Monish | February 2026

Overview

This dashboard explores how the cost of living has changed in Ireland since 2015, addressing: (1) Which price categories increased most? (2) How do increases differ over time? (3) Are lower-income regions experiencing higher pressure? (4) Are price increases concentrated in essential goods? **Data:** CSO Ireland HICP, Household Income, Personal Consumption (2015-2024).

Visualization Design & Encodings

Chart 1: Price Change by Category (Horizontal Bar Chart) — Q1

Channel	Encoding	Rationale
Position (X)	% change	Most accurate channel for magnitude comparison
Position (Y)	Category (sorted)	Rapid identification of highest/lowest
Color	Essential (red) / Non-essential (blue)	Highlights essential goods

Alternatives: Lollipop (less familiar), treemap (poor for comparison). **Pros:** Clear ranking. **Cons:** No temporal view.

Chart 2: Monthly Price Trends (Multi-line with Hover Highlight) — Q2

Channel	Encoding	Rationale
Position (X/Y)	Time / Index	Natural temporal mapping
Color	Category	Nominal distinction
Opacity	Hover highlight	Focus+context reduces clutter

Alternatives: Small multiples (loses comparison), stacked area (obscures trends). **Pros:** Direct comparison. **Cons:** Cluttered >7 categories.

Chart 3: Year-over-Year Heatmap

Channel	Encoding	Rationale
Position (X/Y)	Year / Category	2D layout
Color saturation	YoY % change	Diverging blue-red shows inflation vs deflation

Pros: Compact overview, pattern recognition (2022 crisis = red band). **Cons:** Less precise than position.

Chart 4: Regional Income Comparison (Grouped Bars) — Q3

Channel	Encoding	Rationale
Position	Year/Region	Categorical grouping
Color	Region (3 NUTS 2)	Categorical distinction

Channel	Encoding	Rationale
Grouped bars	Income vs CPI growth	Direct metric comparison

Key Metric: Real Income Change = Income Growth - CPI Growth. **Alternatives:** Choropleth (ineffective for 3 regions).

Chart 5: Essential vs Non-Essential (Violin Plot) — Q4

Channel	Encoding	Rationale
Position (X/Y)	Type / Price change %	Binary grouping, quantitative
Density shape	Distribution	Shows spread and concentration
Overlaid points	Individual categories	Prevents aggregation loss

Alternatives: Box plot (less informative), histogram (loses identity). **Pros:** Shows distribution + individual values.

Chart 6: Spending Distribution (Stacked Area)

Channel	Encoding	Rationale
Position (X/Y)	Year / % of total	Part-to-whole over time
Color	Category	Categorical

Pros: Shows compositional shifts. **Cons:** Baseline shift for middle layers.

Interaction Design

Interaction	Purpose
Year range slider	Filter all charts to specific period
Category multi-select	Focus on specific categories
Hover tooltips	Details on demand
Highlight on hover	Focus+context in line charts
Linked views	Sidebar filters affect all charts

Rationale: Follows Shneiderman's mantra: "Overview first, zoom and filter, details on demand."

Key Insights

1. **Housing & Utilities:** Highest increase (~45%), driven by 2022 energy crisis
2. **Education:** Consistently outpaces inflation (~40%)
3. **Clothing & Footwear:** Only category with price *decrease* (fast fashion/imports)
4. **Essential goods** average higher increases than non-essentials
5. **Northern & Western region:** Lowest real income growth, highest cost pressure
6. **2022-2023:** Clear inflation spike visible across categories

Technical Stack & Limitations

Stack: Python, Streamlit, Altair (Vega-Lite), Pandas. **Limitations:** Regional data limited to 3 NUTS 2 regions; no income quintile data; basket-weighted indices would improve analysis.

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