

76.3% flagged by one, 3.4% by all four

Four instruments on the same 1,955 households give prevalences of 7.4%, 42.9%, 51.0% and 48.2%. The union is 76.3% and the intersection is 3.4%. Every argument in the rest of this course starts from that gap.

Pierre Robentz Cassion

Lesson 4 of 8

Food Security Analysis and IPC — Coping is a sequence, not a score

What this lesson covers

- Four answers to one question
- The overlap
- Why they disagree, in order of importance
- What not to do about it
- What to do instead
- The rule this course is built on
- What comes next

Four answers to one question — In Python

```
import pandas as pd

survey = pd.read_csv("food-security-survey-2024.v1.csv")
coping = pd.read_csv("livelihood-coping-2024.v1.csv")
data = survey.merge(coping, on="household_id", how="inner", suffixes=("", "_lcs"))

flags = pd.DataFrame({
    "poor_consumption": fcs <= 28,          # FCS on the 28/42 set
    "hunger": hhs >= 2,                     # HHS moderate or severe
    "high_coping": rcsi >= 19,              # rCSI at or above the median
    "crisis_strategies": severity.isin(["crisis", "emergency"]),
})
flags = flags.dropna()
print(f"analysable on all four: {len(flags)} of {len(survey)}")
print((flags.mean() * 100).round(1))
```

Four answers to one question — In R

```
library(dplyr)
```

```
flags |> summarise(across(everything(), ~ mean(.x)), n = n())
```

Four answers to one question

Instrument	Households flagged	Share
Poor food consumption	144	7.4%
Moderate or severe hunger	839	42.9%
High coping index	997	51.0%
Crisis or emergency strategies	943	48.2%

Four answers to one question

- A sevenfold range on the same 1,955 households — These are not four estimates of one quantity with sampling error. . .

The overlap — In Python

```
count = flags.sum(axis=1)
print(count.value_counts().sort_index())
print(f"any: {(count >= 1).mean():.1%}    all four: {(count == 4).mean():.1%}")
```

The overlap — In R

```
flags |> mutate(n_flags = rowSums(across(everything())) |> count(n_flags)
```

The overlap

Flagged by	Households	Share
None of the four	464	23.7%
One	591	30.2%
Two	434	22.2%
Three	400	20.5%
All four	66	3.4%

The overlap

- 76.3% of households are flagged by at least one instrument and 3.4% by all four
— Both numbers are defensible answers. . .

Why they disagree, in order of importance

- They measure different moments in the same process — Coping runs ahead of consumption
- They have different sensitivities — The FCS at 7.4% is the least sensitive instrument here by a wide margin, because. . .
- Some ask about behaviour and some about experience — rCSI and LCS ask what a household *did*; HHS asks what it **went*. . .

Why they disagree, in order of importance — In Python

```
nothing_left = flags["hunger"] & ~flags["crisis_strategies"]  
print(f"hungry, no crisis strategies: {nothing_left.sum()} households")
```

Why they disagree, in order of importance — In R

```
flags |> filter(hunger, !crisis_strategies) |> nrow()
```

Why they disagree, in order of importance

- 282 households are hungry and using no crisis or emergency strategy — That is the group a coping-only analysis loses, . . .

What not to do about it

- Average them into a composite score — There is no defensible weighting, the instruments are on different scales, and a...
- Pick the one that gives the number you expected — This happens more often than the previous one and is harder to see,...
- Take the intersection to be safe — 3.4% is the most conservative estimate and it excludes the 400 households flagged by...

What to do instead

- Report all four, with what each is for

What to do instead — Example

Food security indicators, lean season 2024, 1,955 households

Poor food consumption (FCS ≤ 28)	7.4%	severe dietary deprivation
Moderate or severe hunger (HHS ≥ 2)	42.9%	experienced deprivation
High coping (rCSI ≥ 19)	51.0%	consumption-based coping
Crisis or emergency strategies (LCS)	48.2%	asset depletion
Flagged by at least one	76.3%	
Flagged by all four	3.4%	

These are four different quantities, not four estimates of one. The spread between them is the finding: coping and asset depletion are widespread while severe dietary deprivation is not yet, which is the profile of a population early in a deterioration rather than late in one.

What to do instead

- The last sentence is the analysis — The pattern across the four — high coping, high asset depletion, low severe. . .

The rule this course is built on

- Convergence of evidence means agreement across independent instruments raises confidence, and disagreement is information rather than error

What comes next

- Everything so far is what households reported about themselves.

Read the full lesson, with runnable code

```
https://data-analysis.cassion.dev/courses/food-security-ipc/  
fs-04-when-the-indicators-disagree
```