



# Turas Tabs

*Transparent. Trustworthy. Tangible insights.*

Cross-tabulations with significance testing—the foundation of survey reporting. Creates professional crosstab tables showing how different groups answered your questions, with statistical tests to identify which differences are real versus random chance.

## What This Module Does

Tabs creates publication-ready cross-tabulation tables showing response percentages across demographic or segment groups. More importantly, it applies rigorous statistical significance testing to every comparison—so you know which differences you can trust.

When you see that 68% of men prefer Product A versus 62% of women, is that a meaningful difference or just sampling variation? Tabs answers this definitively using z-tests for proportions and t-tests for means.

## What You Get

### Excel Outputs

- **Main crosstab tables:** Percentages with significance letters, base sizes, net scores (Top 2 Box, Bottom 2 Box, user defined categories)
- **Professional formatting:** Significance markers, configurable decimal places, banner headers
- **Statistical indicators:** Letters in the row below showing significant differences
- **Effective sample sizes:** For weighted data, shows  $n_{eff}$  alongside actual  $n$

### What the Letters Mean

- "52% ^B" means: Men are significantly HIGHER than Women (column B) at  $p < 0.05$
- No letter = no proven difference—numeric variation may be random chance
- Letters only appear when a column is significantly HIGHER than another

## How It Works

### For Proportions (Percentages)

Uses two-proportion Z-test to compare percentages between columns. Calculates Z-statistic, compares to critical value (1.96 for 95% confidence), determines if difference is statistically significant.

### For Means (Rating Scales)

Uses Welch's t-test for unequal variances to compare average scores. Accounts for different sample sizes and standard deviations between groups.

### Weighted Data Handling

When data is weighted, Tabs uses effective sample size (Kish's formula) for honest testing. This means differences that were significant when unweighted may become non-significant when weighted—because effective sample sizes are smaller.

## Packages Used

All packages are peer-reviewed, open-source R packages available on CRAN.

Package	Why We Use It
<b>Base R stats</b>	Z-tests (prop.test), t-tests (t.test), chi-square—universally validated
<b>openxlsx</b>	Professional Excel output with formatting and styling
<b>data.table</b>	Fast data manipulation for large datasets

## Strengths

- ✓ **Industry-standard methods:** Z-tests and t-tests are universally recognized and defensible
- ✓ **Transparent calculations:** Every calculation can be traced and manually verified
- ✓ **Handles weighting properly:** Uses effective n (Kish's formula) for honest testing
- ✓ **Multiple comparison correction:** Bonferroni correction controls false positives
- ✓ **Large data ready:** Efficiently processes surveys with 10,000+ respondents
- ✓ **Publication quality:** Output formatted for immediate client delivery

## Limitations

- ⚠ **Single wave only:** Analyzes one survey wave at a time (use Tracker for trends)
- ⚠ **Assumes independence:** Tests assume respondents are independent (not clustered)
- ⚠ **Pre-configured banners:** Requires banner specification upfront
- ⚠ **Excel output:** Primary output is Excel; dashboards require separate tools

## Sample Size Requirements

For reliable subgroup comparisons, recommend  $n \geq 50$ -100 per subgroup. Smaller subgroups should be flagged as "low reliability" or combined with adjacent groups. Overall sample of  $n \geq 300$  recommended for typical demographic breakdowns.

## Best Use Cases

### Ideal For

- ✓ Standard market research surveys with demographic breaks
- ✓ Client deliverables requiring professional formatted tables
- ✓ Large-scale surveys (500+ respondents)
- ✓ Studies requiring weighted data analysis
- ✓ Projects needing defensible statistical validation

### Not Ideal For

- ⚠ Longitudinal tracking (use Tracker module)
- ⚠ Small samples (<50 respondents) where significance testing is limited
- ⚠ Real-time dashboards (Tabs is batch-oriented)
- ⚠ Highly customized table layouts beyond standard crosstabs

## Key Takeaways

- ✓ Letters mean statistically significant—^A, ^B, ^C show which columns differ
- ✓ No letter = no proven difference—numeric variations may be random chance
- ✓ Effective n matters—weighting reduces statistical power
- ✓ Large samples detect small differences—significance  $\neq$  importance
- ✓ Always report base sizes alongside percentages

## The Bottom Line

Tabs is your statistical foundation for survey analysis. It doesn't just show percentages—it tells you which differences are real versus random noise. Using industry-standard Z-tests and t-tests with proper handling of weighted data and multiple comparisons, Tabs ensures you report findings you can defend.

## About The Research LampPost

Turas is developed and delivered by **The Research LampPost**, an organisational member of the Southern African Marketing Research Association (SAMRA). Duncan Brett is a SAMRA accredited researcher with 30+ years of market research experience. If you have questions about whether Turas is right for your project, if there is interest in the statistical documentation or module-specific information, or you would like a copy of our credentials, please get in touch at [duncan@researchlamppost.co.za](mailto:duncan@researchlamppost.co.za)

**Ready to discuss your project?**

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