Package 'AgriDiversiX'

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Type Package

Title Agricultural Crop Diversification Indices Analysis

Version 0.1.0

Depends R (>= 3.5.0)

Imports dplyr,DT,MCMCpack,ggplot2,tidyr,viridis

Description Provides functions to compute agricultural crop diversification indices for crop data across zones and years. The package implements widely used diversification and concentration measures including Herfindahl Index,Simpson Index, Entropy Index, Ogive Index, and Maximum Proportion Index.

Encoding UTF-8

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NeedsCompilation no

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agri_div *Agricultural Diversification Indices*

Description

The agri_div function computes major agricultural crop diversification indices from crop area or production data across years and zones.

Usage

```
agri_div(data, summary = c("none","year","zone","overall"))
```

Arguments

data	Input data frame containing Year, Zone, and crop variables (C1, C2, ...). Each row represents crop area or production for a particular year and zone.
summary	Option to summarise diversification indices. The options include: "none" (default) – returns row-wise indices, "year" – returns year-wise mean indices, "zone" – returns zone-wise mean indices, "overall" – returns overall mean indices.

Details

This function calculates commonly used crop diversification indices based on crop share proportions. The indices computed include:

Herfindahl Index (HI), Simpson Index (SI), Entropy Index (EN), Ogive Index (OI), and Maximum Proportion Index (IMP).

These indices help measure the degree of crop diversification or concentration in agricultural systems.

Value

HI	Herfindahl Index indicating crop concentration.
SI	Simpson Index indicating crop diversification.
EN	Normalized Entropy Index measuring diversification.
OI	Ogive Index measuring deviation from equal crop distribution.
IMP	Maximum Proportion Index representing dominance of a single crop.
Diversification	Interpretation of diversification level (Low, Moderate, High).

Author(s)

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References

Joshi, P. K., Gulati, A., Birthal, P. S., & Tewari, L. (2004). Agriculture diversification in South Asia: patterns, determinants, and policy implications. Economic and Political Weekly.

Rathod, S., Surendra, H. S., Munirajappa, R., & Gowda, D. M. (2011). Statistical appraisal on the extent of agriculture diversification in different district of Karnataka. Mysore Journal of Agricultural Sciences, 45(4), 788–794.

Simpson, E. H. (1949). Measurement of diversity. Nature, 163, 688.

See Also

herfindahl_index, simpson_index, entropy_index

Examples

```
data <- data.frame(
Year = c(2020,2020,2021,2021),
Zone = c("North","South","North","South"),
Rice = c(100,80,90,70),
Wheat = c(80,60,70,50),
Maize = c(40,30,35,20),
Pulses = c(20,10,25,15)
)

agri_div(data)

agri_div(data, summary = "year")

agri_div(data, summary = "zone")
```

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