

Package: p0bservations (via r-universe)

September 18, 2024

Type Package

Title Assorted Functions and Observations by P0bs

Version 0.3.3

Description Provides assorted functions by p0bs.

URL <https://github.com/p0bs/p0bservations>,
<https://festive-mcclintock-0b679a.netlify.app>

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Encoding UTF-8

LazyData true

RoxygenNote 7.3.1

Depends R (>= 4.1)

Imports dplyr, readr, rlang, rvest, stats, tidyr

Suggests covr, testthat (>= 3.0.0)

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Repository <https://p0bs.r-universe.dev>

RemoteUrl <https://github.com/p0bs/p0bservations>

RemoteRef HEAD

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`liability_tax`*Calculate UK income and/or National Insurance taxes*

Description

This function applies the prevailing tax bands and rates to give a simple calculation for UK Income Tax and National Insurance (to the nearest couple of pounds). Please note that these are approximations, so do not rely on them for financial returns or planning. The output is a list, containing the following measures: ‘income_net’ for the net income (after Income Tax and National Insurance); ‘income_tax’ for the Income Tax liability; ‘ni’ for the National Insurance liability; and ‘total_tax’ for the combined Income Tax and National Insurance liability.

Usage

```
liability_tax(income_taxable, tax_year_end)
```

Arguments

`income_taxable` The taxable income level (i.e. after deductions for things like pension contributions).

`tax_year_end` The calendar year in which the tax year ends, as a YYYY integer. For example, tax year 2023/24 would be 2024.

Examples

```
liability_tax(  
  income_taxable = 38000,  
  tax_year_end = 2024  
)$total_tax
```

`probability_ruin`*Calculate the probability of retirement ruin*

Description

This function uses the Milevsky-Robinson to analyse the probability of retirement ruin, by parsimoniously meshing investment risk and return, mortality estimates and spending rates without resorting to opaque Monte Carlo simulations. For further details, see: Milevsky, M. and C. Robinson; "A Sustainable Spending Rate without Simulation"; Financial Analysts Journal, Volume 61, Number 6. (2005). Please note that these are approximations, so do not rely on them for financial returns or planning.

Usage

```
probability_ruin(  
  return_expected,  
  return_sd,  
  life_remaining_expected,  
  rate_spend  
)
```

Arguments

return_expected	The expected real return of the entire pension portfolio
return_sd	The projected standard deviation of the returns of the entire pension portfolio
life_remaining_expected	The median projected remaining lifespan of the individual in question
rate_spend	The annual spending rate applied by the individual to their pension portfolio

Examples

```
probability_ruin(  
  return_expected = 0.07,  
  return_sd = 0.2,  
  life_remaining_expected = 28.1,  
  rate_spend = 0.05  
)
```

probability_ruin_rate *Calculate the spend rate for a given probability of retirement ruin*

Description

This function uses the Milevsky-Robinson to analyse the spend rate for a given probability of retirement ruin, by parsimoniously meshing investment risk and return, mortality estimates and spending rates without resorting to opaque Monte Carlo simulations. For further details, see: Milevsky, M. and C. Robinson; "A Sustainable Spending Rate without Simulation"; Financial Analysts Journal, Volume 61, Number 6. (2005). Please note that these are approximations, so do not rely on them for financial returns or planning.

Usage

```
probability_ruin_rate(  
  return_expected,  
  return_sd,  
  life_remaining_expected,  
  value_probability_ruin  
)
```

Arguments

return_expected	The expected real return of the entire pension portfolio
return_sd	The projected standard deviation of the returns of the entire pension portfolio
life_remaining_expected	The median projected remaining lifespan of the individual in question
value_probability_ruin	The desired probability of retirement ruin (which is used to solve for the corresponding spend rate)

Examples

```
probability_ruin_rate(
  return_expected = 0.07,
  return_sd = 0.2,
  life_remaining_expected = 28.1,
  value_probability_ruin = 0.1
)
```

rate_annuity

Get the latest annuity rates for the UK

Description

This function retrieves data on UK annuity rates from Sharing Pensions. Rates are available for different specifications and ages. See the website for further details. Please note that these are approximations, so do not rely on them for financial returns or planning.

Usage

```
rate_annuity(value_age, value_specifications)
```

Arguments

value_age	These are the choices for the age of the annuitant, namely: '55', '60', '65', '70' or '75'. The ensuing annuity rates imply that the annuity begins to be paid immediately and thereafter on a monthly basis.
value_specifications	These are the specifications available, varying by: whether the annuity is on a single basis or a joint basis (and, if so, whether the last remaining spouse receives half or all of the annuity); whether the annuity is guaranteed for ten years or not; and whether the payments will escalate at 3 <ul style="list-style-type: none"> single_simple single, level rate, no guarantee single_guaranteed single, level rate, guaranteed single_escalating single, escalating rate, no guarantee

half_simple joint, half upon first death, level rate, no guarantee
full_simple joint, all upon first death, level rate, no guarantee
half_escalating joint, half upon first death, escalating rate, no guarantee

Source

<https://www.sharingpensions.co.uk/annuity_rates.htm>

Examples

```
## Not run:  
rate_annuity(value_age, value_specifications)  
  
## End(Not run)
```

stop_not_positive *Stop the function the value entered is (or is below) zero*

Description

Error function to stop the function if the value entered is (or is below) zero

Usage

```
stop_not_positive(value_entered)
```

Arguments

value_entered The value to be error-checked by the function

Examples

```
## Not run:  
stop_not_positive(value_entered = age)  
  
## End(Not run)
```

stop_not_scalar_double

Stop the function if zero or more than one value is entered

Description

Error function to stop the function if zero or more than one value is entered

Usage

stop_not_scalar_double(value_entered)

Arguments

value_entered The value to be error-checked by the function

Examples

```
## Not run:
stop_not_scalar(value_entered = age)

## End(Not run)
```

tax_parameters

Key income tax parameters for the UK.

Description

A dataset containing the main tax parameters used for calculating net income for the UK (outside of Scotland).

Usage

tax_parameters

Format

A data frame with 3 rows (one for each tax year) and 14 variables:

year_tax_end the calendar year in which the end of the tax year occurs

level_ni_lower the lower level breakpoint for National Insurance

level_ni_upper the upper level breakpoint for National Insurance

level_allowance_lower the lower level breakpoint for personal allowance

level_allowance_upper the upper level breakpoint for personal allowance

level_tax_higher the income breakpoint for higher rate income tax
level_tax_upper the income breakpoint for upper rate income tax
rate_ni_lower the lower level tax rate for National Insurance
rate_ni_upper the upper level tax rate for National Insurance
rate_allowance_drop the rate at which personal allowance drops after 'level_allowance_upper'
rate_tax_basic the basic rate of income tax
rate_tax_higher the higher rate of income tax
rate_tax_upper the upper rate of income tax
rate_tax_sales the rate of sales tax, also called VAT

Source

<https://www.crunch.co.uk/knowledge-tax/tax-rates-thresholds-and-allowances-for-current-tax-year/>

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