

# Package ‘TF’

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**Type** Package

**Title** Technology Forecasting - Growth Curve

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**Description**

Forecast technological adoption curve including Bass Curve, Gompertz Curve, Pearl Curve

**License** GPL-2

**Lazydata** TRUE

**RoxygenNote** 5.0.1

**Suggests** knitr, rmarkdown

**VignetteBuilder** knitr

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| Bass_AC | <i>Analogous Bass Curve</i> |
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### Description

Analogous Bass Curve uses analogy to estimate Bass Curve parameters. In case that there is no data available for technology, parameters of similar cases can be used to forecast growth curve.

### Usage

```
Bass_AC(p, q, m, t)
```

### Arguments

|   |  |
|---|--|
| p | is a number represents coefficient of innovation.          |
| q | is a number represents coefficient of imitation.           |
| m | is a number represents maximum market size can be reached. |
| t | is an integer shows the growth periods.                    |

### Value

data frame (period, adoption rate, cumulative adoption)

### Examples

```
Bass_AC(0.016, 0.304, 100000, 20)
## Not run:

## End(Not run)
```

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|              |                                  |
|--------------|----------------------------------|
| Bass_AC_Plot | <i>Analogous Bass Curve Plot</i> |
|--------------|----------------------------------|

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### Description

Analogous Bass Curve Plot function plots Historical Bass Curve function results.

### Usage

```
Bass_AC_Plot(p, q, m, t)
```

### Arguments

|   |  |
|---|--|
| p | is a number represents coefficient of innovation.          |
| q | is a number represents coefficient of imitation.           |
| m | is a number represents maximum market size can be reached. |
| t | is an integer shows the growth periods.                    |

**Value**

plot of adoption rate and cumulative adoption

**Examples**

```
Bass_AC_Plot(0.016, 0.304, 100000, 20)
## Not run:

## End(Not run)
```

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|      |                                    |
|------|------------------------------------|
| CATV | <i>Growth of Cable TV Industry</i> |
|------|------------------------------------|

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**Description**

This data shows the Cable TV adoption 1952-1989.

**Usage**

CATV

**Format**

dataframe with two variables:

**year** year

**CATV** Cable TV cumulative adoption

**References**

J. P. Martino, Technological forecasting for decision making. McGraw-Hill, Inc., 1993.

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|             |                                 |
|-------------|---------------------------------|
| Gompertz_AC | <i>Analogous Gompertz Curve</i> |
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**Description**

Analogous Gompertz Curve uses analogy to determine curve coefficients (b & k) .

**Usage**

```
Gompertz_AC(b, k, l, t)
```

**Arguments**

|   |   |
|---|---|
| b | is a number represents curve coefficients.            |
| k | is a number represents curve coefficients.            |
| l | is a number represents maximum growth can be reached. |
| t | is an integer shows the growth periods.               |

**Value**

data frame (period, cumulative adoption)

**Examples**

```
Gompertz_AC(0.8, 0.2, 10000, 20)
## Not run:

## End(Not run)
```

---

Gompertz\_AC\_Plot

*Analogous Gompertz Curve Plot*

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**Description**

Analogous Gompertz Curve Plot function plots Analogous Gompertz Curve.

**Usage**

```
Gompertz_AC_Plot(b, k, l, t)
```

**Arguments**

|   |   |
|---|---|
| b | is a number represents curve coefficients.            |
| k | is a number represents curve coefficients.            |
| l | is a number represents maximum growth can be reached. |
| t | is an integer shows the growth periods.               |

**Value**

plot of cumulative adoption over certain period of time.

**Examples**

```
Gompertz_AC_Plot(0.8, 0.2, 10000, 20)
## Not run:

## End(Not run)
```

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|             |                                  |
|-------------|----------------------------------|
| Gompertz_HC | <i>Historical Gompertz Curve</i> |
|-------------|----------------------------------|

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**Description**

Historical Gompertz Curve function estimates the curve parameters (b & k) based on the historical data.

**Usage**

```
Gompertz_HC(x, l, t)
```

**Arguments**

|   |   |
|---|---|
| x | is data frame with two columns to estimates b & k parameters. First column contains the period and second column contains the associated cumulative adoption. |
| l | is a number represents maximum growth can be reached.   |
| t | is an integer shows the growth periods.   |

**Value**

data frame (period, best fitted cumulative adoption)

**Examples**

```
Gompertz_HC(PE, 2.81, 20)
## Not run:

## End(Not run)
```

---

|                  |                                       |
|------------------|---------------------------------------|
| Gompertz_HC_plot | <i>Historical Gompertz Curve Plot</i> |
|------------------|---------------------------------------|

---

**Description**

Historical Gompertz Curve Plot function plots Historical Gompertz Curve function results.

**Usage**

```
Gompertz_HC_plot(x, l, t)
```

**Arguments**

|   |   |
|---|---|
| x | is data frame with two columns to estimates b & k parameters. First column contains the period and second column contains the associated cumulative adoption. |
| l | is a number represents maximum growth can be reached.   |
| t | is an integer shows the growth periods.   |

**Value**

plot of best fitted cumulative adoption.

**Examples**

```
Gompertz_HC_plot(PE, 2.81, 250)
## Not run:

## End(Not run)
```

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|    |  |
|----|--|
| PE | <i>Power-Generation Efficiency of Public Utilities</i> |
|----|--|

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**Description**

This data shows the efficiency improvement 1920 - 1987.

**Usage**

PE

**Format**

dataframe with two variables:

**year** year

**Kwhperc** Kilowatt.hours per pound of coal

**References**

J. P. Martino, Technological forecasting for decision making. McGraw-Hill, Inc., 1993.

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|          |                              |
|----------|------------------------------|
| Pearl_AC | <i>Analogous pearl Curve</i> |
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**Description**

Analogous Pearl Curve uses analogy to determine curve coefficients (a & b) .

**Usage**

```
Pearl_AC(a, b, l, t)
```

**Arguments**

|   |   |
|---|---|
| a | is a number represents curve coefficients.            |
| b | is a number represents curve coefficients.            |
| l | is a number represents maximum growth can be reached. |
| t | is an integer shows the growth periods.               |

## Value

data frame (period, cumulative adoption)

## Examples

```
Pearl_AC(1.6, 0.8, 10000, 20)
## Not run:

## End(Not run)
```

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|               |                                   |
|---------------|-----------------------------------|
| Pearl_AC_Plot | <i>Analogous pearl Curve Plot</i> |
|---------------|-----------------------------------|

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## Description

Analogous Pearl Curve Plot function plots Analogous Pearl Curve.

## Usage

```
Pearl_AC_Plot(a, b, l, t)
```

## Arguments

|   |   |
|---|---|
| a | is a number represents curve coefficients.            |
| b | is a number represents curve coefficients.            |
| l | is a number represents maximum growth can be reached. |
| t | is an integer shows the growth periods.               |

## Value

plot of cumulative adoption over certain period of time.

## Examples

```
Pearl_AC_Plot(1.6, 0.8, 10000, 20)
## Not run:

## End(Not run)
```

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|          |                               |
|----------|-------------------------------|
| Pearl_HC | <i>Historical Pearl Curve</i> |
|----------|-------------------------------|

---

**Description**

Historical Pearl Curve function estimates the curve parameters (a & b) based on the historical data.

**Usage**

```
Pearl_HC(x, l, t)
```

**Arguments**

|   |   |
|---|---|
| x | is data frame with two columns to estimates b & k parameters. First column contains the period and second column contains the associated cumulative adoption. |
| l | is a number represents maximum growth can be reached.   |
| t | is an integer shows the growth periods.   |

**Value**

data frame (period, best fitted cumulative adoption)

**Examples**

```
Pearl_HC(CATV,89024390,20)
## Not run:

## End(Not run)
```

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|               |                                    |
|---------------|------------------------------------|
| Pearl_HC_plot | <i>Historical Pearl Curve Plot</i> |
|---------------|------------------------------------|

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**Description**

Historical Pearl Curve Plot function plots Historical Pearl Curve growth function results.

**Usage**

```
Pearl_HC_plot(x, l, t)
```

**Arguments**

|   |   |
|---|---|
| x | is data frame with two columns to estimates b & k parameters. First column contains the period and second column contains the associated cumulative adoption. |
| l | is a number represents maximum growth can be reached.   |
| t | is an integer shows the growth periods.   |



**Value**

plot of best fitted cumulative adoption.

**Examples**

```
Pearl_HC_plot(CATV, 89024390, 20)  
## Not run:
```

```
## End(Not run)
```

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