Effective Programming Practices for Economists

Basic Python

Defining Functions

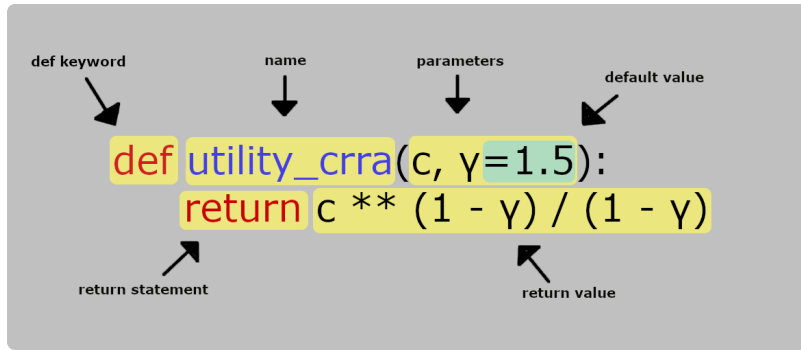Janoś Gabler and Hans-Martin von Gaudecker

Contents

- Anatomy of functions
- Examples of functions
- Why functions are important!

Example: CRRA Utility function

$$u(c, \gamma) = \frac{c^{(1-\gamma)}}{1-\gamma}$$

Anatomy of Python functions


```
def utility_crra(c, γ=1.5):
    return c ** (1 - γ) / (1 - γ)
```

- Start with the `def` keyword
- Name is `lowercase_with_underscores`
- There can be one or several parameters (a.k.a. arguments)
- You can assign default values for arguments
- Function body is indented by 4 spaces and can have one or several lines
- Inside the body you can do everything you have seen so far!

Example: CRRA Utility function

```
>>> def utility_crra(c, γ=1.5):
...     return c ** (1 - γ) / (1 - γ)

>>> utility_crra(1.0)
-2.0

>>> utility_crra(c=1.0, γ=1.5)
-2.0

>>> utility_crra(c=1.0, γ=0.0)
1.0
```

- Function calls work with positional and keyword arguments
- Pass keyword arguments for any function with more than one argument!

Defining functions like a pro is the most important skill to become a good Python programmer!