

Probability Density Functions (continuous vars)

- We can't list all the values on a table because continuous. So, we list ranges.
 - *N.B. square brackets are inclusive*
- So we can ask "what is the probability of x falling in $[a, b]$?"

Question: What is the probability that x lies in $[a, b]$?

- To answer this question we need a pdf (probability distribution function), let's call ours $f(x)$
- $P(a \leq x \leq b) = \int_a^b f(x)dx$
 - Total area under pdf is always 1

Example 29.1

x is a cont r.v. where $x \in [1, 4]$ the pdf is $f(x) = \frac{1}{2\sqrt{x}}$ where $1 \leq x \leq 4$

a. Is $f(x)$ a pdf?

- Total must be 1
 - $\int_1^4 \left(\frac{1}{2\sqrt{x}} \right) dx = \frac{1}{2} \int_1^4 \left(x^{-\frac{1}{2}} \right) dx = \left[\frac{2x^{\frac{1}{2}}}{2} \right]_1^4 = [\sqrt{x}]_1^4$
 $= \sqrt{4} - \sqrt{1} = 1$
 - So, yes

Majoritarian vs. Consensus government

- A majoritarian govt. can be formed by a majority or a plurality of the vote

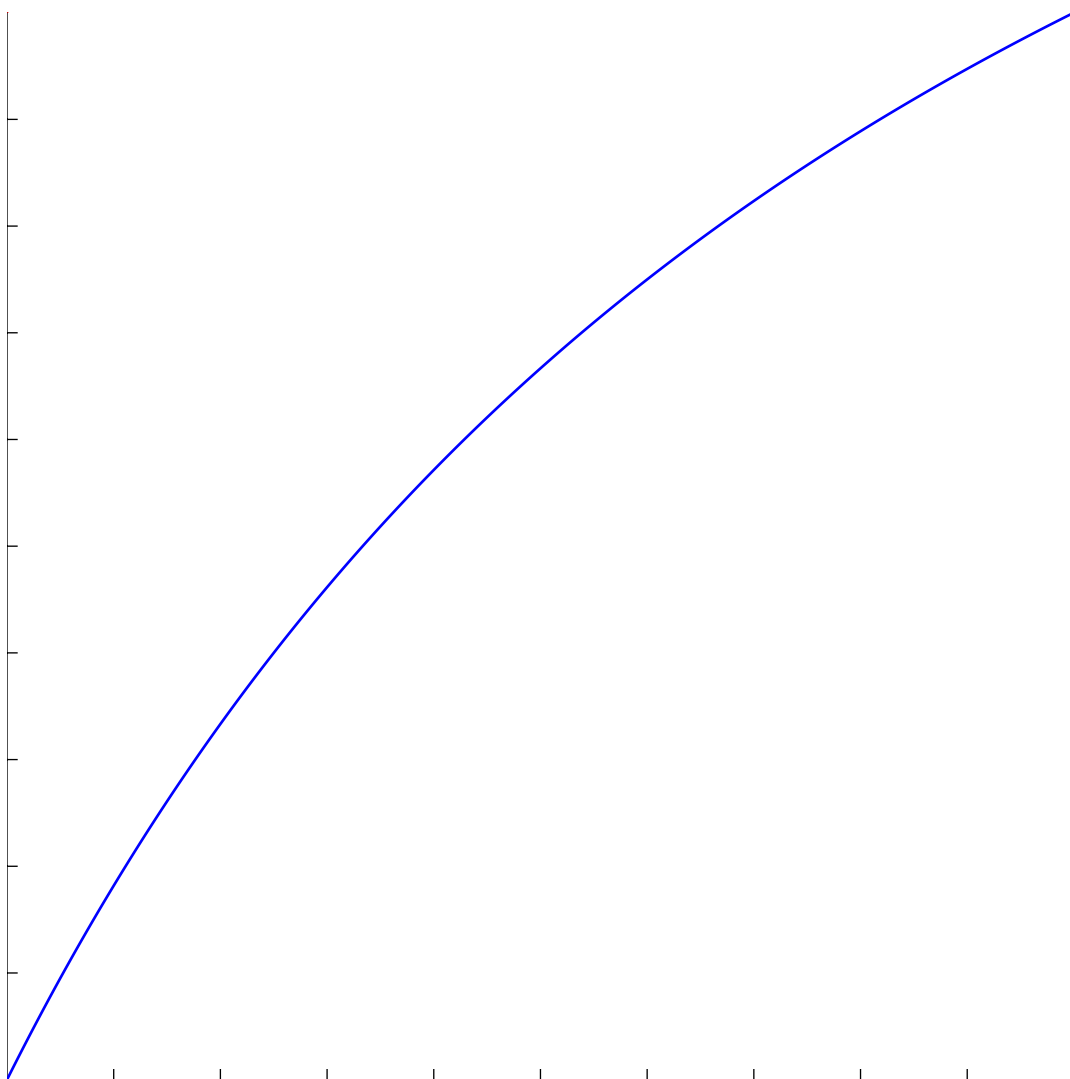
| Source: Lijphart, 1984, 1999 | Majoritarian (Westminster) | Consensus |
|---|----------------------------|---|
| Executive Power | Concentrated | Dispersed |
| Relationship between exec and legislative | Fused. Exec dominates | Separated |
| Number of chambers | One | Two |
| Number of parties in legislatures | Two | Multiple |
| Electoral System | FPTP | Proportional |
| Relationship between central and local | Central dominates | Central doesn't dominate |
| Constitution | Nothing limiting anything | Supreme law constitution with judicial review |

$SINR(P) = \log\left(1 + \frac{PG_1}{PG_2 + 1}\right)$ (Signal Range with interference and noise ratio)

Example

$$G_1 = 1, G_2 = \frac{1}{10}$$

$$SINR(P) = \frac{P}{\frac{P}{10} + 1} = \frac{10P}{P + 10}$$



We also support some TeX: μPad is cool! $a^2 + b^2 = c^2$

