

Pareto Principle

■ 1. Introduction

The Pareto principle, or the 80/20 rule, originates from Vilfredo Pareto's observation that 80% of wealth in Italy was held by 20% of the population. It generalizes to economics and business: a small proportion of causes often generates the majority of effects.

■ 2. Definition

The Pareto principle states that "roughly 80% of effects come from 20% of causes."

Applications:

Income distribution

Sales and revenue

Inventory management

■ 3. Economic Applications

Wealth concentration: small population controls large resources

Market analysis: 20% of products often generate 80% of sales

Productivity: 20% of tasks often contribute most to output

■ 4. Mathematical Representation

Let X be the set of causes

Let Y be the set of effects

Pareto efficiency: no one can be made better off without making someone worse off

■ 5. Policy Implications

Targeting high-impact areas improves efficiency

Resource allocation can be optimized using Pareto insights

Common in welfare economics and income redistribution analysis

■ 6. Limitations

The 80/20 ratio is approximate

Not all situations follow the rule exactly

Requires careful data analysis to avoid misapplication

■ 7. Conclusion

The Pareto principle provides insight into imbalance and efficiency. It is widely used in economics, business, and public policy to focus on high-impact areas and optimize decision-making.