



Why

1

Definition

A *parametric distribution family* (*parametric density family*) on X is a family of distributions (densities) $\{p^{(\theta)}\}_{\theta \in \Theta}$ on X . We call the index set Θ (see Families) the *parameters*.

Similarly, a *parametric conditional distribution family* (*parametric conditional density family*) on Z from X is a family $\{q^{(\theta)}\}_{\theta \in \Theta}$ whose terms $q^{(\theta)} : Z \times X \rightarrow \mathbf{R}$ are such that $q^{(\theta)}(\cdot, \xi) : Z \rightarrow \mathbf{R}$ is a distribution (density) for every $\xi \in X$.

A conditional distribution $q : Z \times X \rightarrow \mathbf{R}$ is *functionally parametrizable* if there exists a function $f : X \rightarrow \Theta$ and parametric distribution family $\{p^{(\theta)}\}_{\theta \in \Theta}$ on Z satisfying $q(\cdot, \xi) \equiv p^{(f(\xi))}$. In this case we call f the *parametrization function* and we call $\{p^{(\theta)}\}_{\theta \in \Theta}$ the *parameterized family*. We call $(f, \{p^{(\theta)}\}_{\theta})$ a *functionally parameterized conditional distribution* on Z from X . All conditional distributions $q : Z \times X \rightarrow \mathbf{R}$ are functionally parametrizable, since $\{q(\cdot, \xi)\}_{\xi \in X}$ with parameters X and identity parameterization satisfies the conditions.

Examples

2

¹Future editions will include.

²Future editions will include.

