Experimental Measurements of Parton Distributions

- Deep Inelastic Scattering (DIS)
  (Assuming Charge Symmetry)

  $\Rightarrow F_2^{\mu N}(x) \propto \sum_i e_i^2 x \left[q_i(x) + \bar{q}_i(x)\right]$

  $\Rightarrow F_2^{\nu p}(x) + F_2^{\nu n}(x) \propto \sum_i x \left[q_i(x) + \bar{q}_i(x)\right]$

  $\Rightarrow x F_3^{\nu N}(x) \propto \sum_i x \left[q_i(x) - \bar{q}_i(x)\right]$

- W Production Asymmetry

  $\Rightarrow A_w(y) \propto \frac{u(x_1)d(x_2) - d(x_1)u(x_2)}{u(x_1)d(x_2) + d(x_1)u(x_2)}$

- Semi-inclusive DIS

  $\Rightarrow N^{\pi^\pm} \propto \sum_i e_i^2 \left[q_i(x) D_{q_i}^{\pi^\pm} + \bar{q}_i(x) D_{\bar{q}_i}^{\pi^\pm}\right]$

- Drell-Yan

  $\Rightarrow \sigma^{pN} \propto \sum_i e_i^2 \left[q_i(x_1)\bar{q}_i(x_2) + \bar{q}_i(x_1) q_i(x_2)\right]$

- Phenomenological fit to Experimental Data
  MRST, Eur. Phys. J **C4** 463 (1998).
  CTEQ4, Phys. Rev. **D55** 1280 (1997) and
  Phys. Rev.**D51** 4763 (1995).