The controversy over mammography screening persists because of disagreement over the contribution of earlier detection versus advancements in breast cancer treatment. We obtained incidence and mortality data for 664,000 breast cancer patients from the Surveillance, Epidemiology, and End Results registries (1975-2012). We used demographic methods to calculate the gain in life expectancy and quantified its three constituent components: earlier detection, advancements in breast cancer treatment, and advancements in the treatment of other diseases. We assumed a 10% overdiagnosis level for tumors ≤3cm.Life expectancy increased 10.94 years (1975-2002) for a 40-year old breast cancer patient. Advancements in breast cancer treatment contributed more to this gain in life expectancy than earlier detection: 6.79 years versus 2.92 years. Advancements in the treatment of other diseases contributed the remaining 1.25 years. Life expectancy increased over time primarily because of advancements in breast cancer treatment, although the contribution of earlier detection was not trivial.