

## Refutation of the supply and demand conjecture

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**Abstract:** The supply and demand conjecture takes on two states of affairs, depending on assignment of the relation for price, quantify and the relation for supply, demand as antecedent or consequent. The relations are greater than, lesser than, or equivalent. None of the assertions is tautologous, hence refuting the supply and demand conjecture.

We assume the method and apparatus of Meth8/VL4 with Tautology as the designated *proof* value, **F** as contradiction, N as truthity (non-contingency), and C as falsity (contingency). Results are a 16-valued truth table in row-major and horizontal, or repeating fragments of 128-tables for more variables. (See ersatz-systems.com.)

LET p, q, r, s: price, quantity, demand, supply;  
 > Imply, greater than; < Not imply, lesser than; = Equivalent.

From: [en.wikipedia.org/wiki/Supply\\_and\\_demand](http://en.wikipedia.org/wiki/Supply_and_demand)

We frame the conjecture as antecedent and consequent, then reversed, for two states of affairs of two implications and one equivalence for the equilibrium case.

(price greater per quantity) implies (supply less than demand) (1.1.1)

$(p > q) > (s < r)$  ; **F T F F F T F F F T T T T F T F F** (1.1.2)

(price lesser per quantity) implies (supply greater than demand) (1.2.1)

$(p < q) > (s > r)$  ; T T T T T T T T T **F T T T T T T T** (1.2.2)

(price equivalent per quantity) implies (supply equivalent to demand) (1.3.1)

$(p = q) > (s = r)$  ; T T T T **F T T F T T T T F T T F** (1.3.3)

(supply less than demand) implies (price greater per quantity) (2.1.1)

$(s < r) > (p > q)$  ; T **F T T T F T T F F F F F T F T T** (2.1.2)

(supply greater than demand) implies (price lesser per quantity) (2.2.1)

$(s > r) > (p < q)$  ; **F F F F F F F F F T F F F F F F** (2.2.2)

(supply equivalent to demand) implies (price equivalent per quantity) (2.3.1)

$(s = r) > (p = q)$  ; **F F F F T F F T F F F F T F F T** (2.3.3)

Eqs. 1.1.2, 1.2.2, 1.3.2, 2.1.2, 2.2.2, and 2.3.2 as rendered are *not* tautologous. This refutes the supply and demand conjecture.

**Remark:** Eq. 1.2.2 is closest to tautology, but diverges by one **F** contradiction value.

This may explain popular expression of the conjecture as:

(price lesser per quantity) implies (supply greater than demand).