



## Rural Valuation Topic #RVT 16: Equivalency Ratio (ER) or Factor

**Equivalency Ratio (ER) or Equivalency Factor (EF):** The ER or EF may be defined as the relative value of a property to a “standard” through a mathematical process. The process converts the mix to an expression of the analyst’s “100% standard”. The most basic observation finds that most sales include:

- Different land types or “layers” resulting in a “blended” overall sale price (\$/acre or \$/unit)
- Any sale’s overall price per acre or unit has limited, if any, validity in the valuation of a subject with a different mix of land types or “layers” unless it can be allocated consistently.

Historically, numerous methods were presented in ASFMRA’s course work to address the differences between a sale’s mix and a subject’s mix for valuation purposes. Sale 3 in the “Example Appraisal Report” published in the 2109 Edition of Valuing Rural America (see page 650) shows the lengthy calculations which were previously taught in the ASFMRA’s courses to compare Sale 3 with the subject. The current ER methods are simple, provide the same answers, and are easier to understand. Procedures #1-#3, as follows, illustrate the simplicity in the use of the current methodology.

Procedure #1	Subject			Sale 3		
	Gross Acres	Price Ratios	100% Equiv. Acres	Gross Acres	Price Ratios	100% Equiv. Acres
Category						
Land Type 1	240	100%	240	80	100%	80
Land Type 2	100	80%	80	120	80%	96
Land Type 3	80	50%	40	80	50%	40
Gross v. Equiv. Acres	420	versus	360	280	versus	216
Equiv. Ratio or Factor	(360 ÷ 420)	=	85.71%	(216 ÷ 280)	=	77.14%

The mathematical Difference is: Subject 85.71%  
Sale 6 77.14% } **NOT PROPER CALCULATION**  
8.57%

The CORRECT calculation for Sale 3 is the % change (% Δ)  
 Calculation: (85.71% - 77.14% = 8.57%) ÷ Sale's ER or 77.14% = + 11.11%

**Alternative Procedure: #2** Knowing subject's ER at 85.71%, then Compute Sale 3 by Procedure #2  
 Sale 3's Total Land Contribution = \$ 743,800  
 Divided by the Sale's 100% Land Contribution or \$/Acre = \$ 3,445  
 Equivalent 100% Acres = 215.91  
 Divided by Sale 3's Gross Acres = 280.00  
 Equivalency Ratio or Equivalency Factor (slight rounding difference in Excel) = **77.11%**

**Alternative Procedure: #3** Dividing Sale 3's blended price (land only) by Land Type 1's allocated price  
 Sale 3's Blended \$/Acre (land only) = \$ 2,656.43  
 Sale 3's Contribution of Land Type 1 at 100% = \$ 3,445.00  
 Equivalency Ratio or Equivalency Factor (slight rounding difference in Excel) = **77.11%**

**Sales Comparison Grid Adjustment**  
 Sale 3's Gross \$/Acre = \$ 4,079.82  
 Land Mix Calculation at \$4,079.82/acre X 11.11% change ('yellow' % Δ) + \$ 453.31  
 Land Mix Adjusted Price = \$ 4,533.13  
 Building mix calculation between Sale 3 and subject (ASPMRA's Text, p. 650) + \$ (165.84)  
 Adjusted Subtotal (after land & building-mix) = \$ 4,367.29  
 NOTE: Other adjustments for market conditions (time), location, size, etc. should be applied when needed after \$4,367/acre

**NOTE:** The appraiser is seeking the \$/acre adjustment from the sale to the subject. The adjustment is initially expressed as the **percent change of 11.11%** (**NOT** the 8.57% difference (see upper blue arrow in middle of the example)) from which the \$/acre adjustment is calculated.