Average Rent as a Percentage of Purchase Price

Asking “What is the average rent as a percentage (%) of purchase price?” is exactly the same as asking “What is the nominal return on a VIP$?”

The nominal VIP$ in existence (including banked VIP$) exactly match the total purchase price of all properties purchased into a commons trust. This is an identity that must exist until federation.

In the last module, we were introduced to the treble curve. Although there can be many treble curves based on the values of different parameters, such as loan term length, mortgage rate, and closing costs, expected values of these parameters determine the treble curve used.

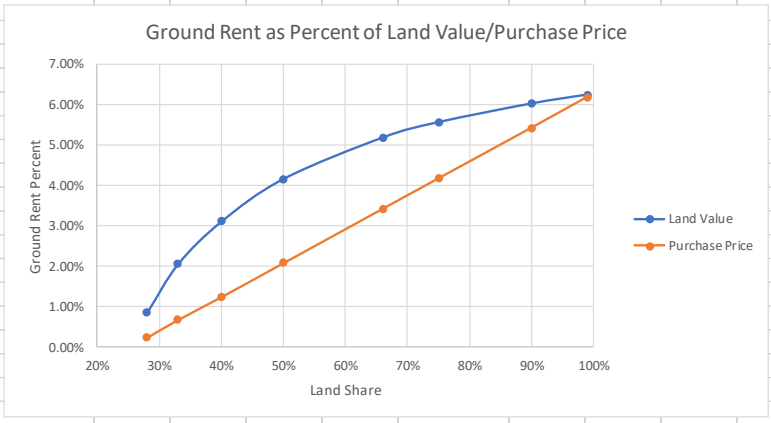
Recall that the treble curve maps land share to ground rent as a % of land value. How can a treble curve be converted into something that maps land share to ground rent as a % of purchase price (the price paid by the ABC to purchase the land into the ABC Commons Trust)?

For vacant land, ground rent as a % of land value and ground rent as a % of purchase price are the same. That is because the land share is 100%.

If the land share were 90%, then ground rent as a % of purchase price would be 90% of ground rent as a % of land value. Ground rent as a % of land value must be multiplied by the land share to give ground rent as a % of purchase price.

In the data below, the treble curve mapping land share to ground rent as a % of land value is placed side by side with a mapping of land share to ground rent as a % of purchase price. The result might take you by surprise.

Land Share	Minimum treble-safe rent as percent of land value	Minimum treble-safe rent as percent of purchase price
25%	0%	0.00%
28%	0.86%	0.24%
33%	2.06%	0.68%
40%	3.11%	1.24%
50%	4.16%	2.08%
66%	5.18%	3.42%
75%	5.56%	4.17%
90%	6.02%	5.42%
99%	6.24%	6.18%
100%	6.26%	6.26%



That ground rent as a % of purchase price is linear with respect to land share is both astounding and expected. It is astounding because computations could only be done by separating the land and the structure, and expected because it demonstrates that rent is only on the land share of a property.

This line is called the treble-danger line because a ground rent below the line makes the treble more economical than the purchase of an identical property on private land next door.

In this module, we are concerned only with the linear nature of the relationship, allowing for an actual equation relating ground rent as a % of purchase price to land share, using the familiar formula from high school algebra y = mx + b.
For the slope, m = (y2 – y1)/ (x2 – x1).

y1 = 0.24%, y2 = 6.26% x1 = 28%, x2 = 1 → m = 6.02% / (1-28%) = .0836

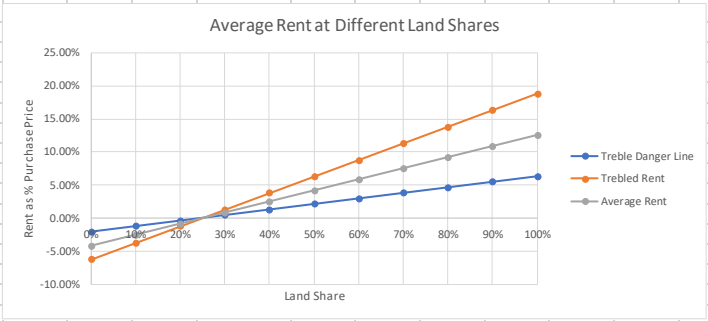
Rent as % purchase price = .0836*land share – X. Substitute 50% LS to solve .0208 = .0836*.5 - X → .0208 = .0418 - X →
X = .0418 - .0208 = .021 (= -b in formula above).

Treble danger equal or below .0836 x land share - .021

The maximum treble-danger rent as a % of purchase price, which is the rent for vacant land, is 0.0836 - 0.021 = 6.26%. That agrees with the spreadsheet.

The meaning of the numbers is not important. Very importantly, we now have the tool to compute the average rent for any land share.

Minimum Treble Safe Rent = 0.0836 x Land Share - .021			
Land Share	Treble Danger	Trebled Rent	Average Rent
0%	-2.10%	-6.30%	-4.20%
10%	-1.26%	-3.79%	-2.53%
20%	-0.43%	-1.28%	-0.86%
30%	0.41%	1.22%	0.82%
40%	1.24%	3.73%	2.49%
50%	2.08%	6.24%	4.16%
60%	2.92%	8.75%	5.83%
70%	3.75%	11.26%	7.50%
80%	4.59%	13.76%	9.18%
90%	5.42%	16.27%	10.85%
100%	6.26%	18.78%	12.52%



As a % of the purchase price, the gold treble line is 3 times the blue treble danger line. The treble danger line (from another perspective, the treble-safe line) is the minimum ground rent where the purchase of an identical property on private land makes more financial sense.

Rents for a given land share, over time, become uniformly distributed between the blue and gold lines. Rent cannot fall beneath the blue line without being trebled, and it is highly unlikely to be frozen above the gold line.

An average rent line can be drawn halfway between the blue and gold lines. Rents can never drop below zero, so everything below a land share of 27% can be ignored (about half of all U.S. residences).

Keep in mind that the minimum rent applies to well-maintained homes. If a home has half the value of the average home in an area, then the land share is doubled as well. A slum on rent free 25% land-share land would need to pay a rent near 5% purchase price to avoid a treble.

Incorrectly assuming a uniform distribution of land shares among the purchased properties, the average rent is the area under the average rent line, or the area of the triangle (½ x base x height).

With a base of 1 – 28% = 72% and a height of 12.52%, the area of the triangle = ½ x 72% x 12.52% = 4.5%. This would be a fantastic average rent as a % of purchase price, corresponding to well over the 5% share of land price that rent should ultimately represent.

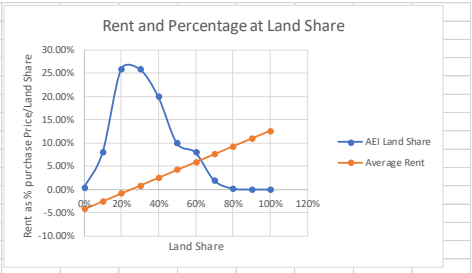
Unfortunately, there is not a uniform distribution of land shares for residential properties. Most of them are clustered between 30% and 40% land share, where the average rent goes from 0.82% purchase price to 2.49% purchase price. At the median 33% land share, the average rent would be (.0846*33.33 - .021) x 2 = 1.44%

(where 2 is the multiplier for the average rent line, halfway between 1- treble danger and 3 - treble).

Data from the American Enterprise Institute provides a histogram showing the relative number of properties at each land share. By multiplying the histogram with the average rent line at each data point, and by adding up the various weighted rents, the actual expected total rent as a % of purchase price can be calculated.

For homes selected at random anywhere on the land share spectrum, the average ground rent is 1.31%. This is not acceptable for efficient ABC operations.

Rent % PP, Land Share Minimums, 0%, 30%, 40%			0+		30+		40+	
Land Share	Avg Rent	AEI Land at Share	AEI % Land at Sha	Weighted	231,777	Weighted	140,777	Weighted rent
0%	-4.20%	1400	0.40%	-0.0167%	**65.81%**		**39.97%**	
10%	-2.53%	28000	7.95%	-0.2010%				
20%	-0.86%	91000	25.84%	-0.2212%				
30%	0.82%	91000	25.84%	0.2108%	39.26%	0.3204%		
40%	2.49%	70000	19.88%	0.4945%	30.20%	0.7514%	49.72%	1.2371%
50%	4.16%	35000	9.94%	0.4134%	15.10%	0.6282%	24.86%	1.0343%
60%	5.83%	28000	7.95%	0.4637%	12.08%	0.7045%	19.89%	1.1600%
70%	7.50%	7000	1.99%	0.1492%	3.02%	0.2266%	4.97%	0.3731%
80%	9.18%	700	0.20%	0.0182%	0.30%	0.0277%	0.50%	0.0456%
90%	10.85%	70	0.02%	0.0022%	0.03%	0.0033%	0.05%	0.0054%
100%	12.52%	7	0.00%	0.0002%	0.00%	0.0004%	0.00%	0.0006%
		352,177		**1.3134%**		**2.6625%**		**3.8561%**



It is the ABC's mission to ultimately allow every landowner to sell their land into the commons trust. However, they must prioritize resources, particularly scarce U.S. dollars, and will favor high land share areas in the first few years. The same is true for computing and staffing resources, even when the VIP$ is used for the purchase.

If we concentrate on the 39.97% of all residential homes with a land share of 40% or more (which includes almost all of residential Colorado and California) **we will have an average rent of 3.86%**, 30% of which is higher than property taxes in both California and Colorado!

But what of the other 60% of properties? Do we abandon them? No. In two or three years, the ABC demand for those properties will exceed the supply. Even in the first year or two, some of those properties will need to be purchased into the commons trust as a tool of monetary policy.

Viral communities have been divorced from the ABC business plan. They are encouraged as private enterprises. Low-land-share counties might consider a viral community enterprise. The very qualities that make a property a poor candidate for ABC U.S. dollar purchase make it a fantastic candidate for a viral community.