Farm Science Review - CAUV Program

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Questions

What is the CAUV Program, why does it exist, and what the heck goes into it?

- Optional program for farmers with more than 10 acres of land to enroll in calculating their property tax value based off of agricultural conditions instead of market conditions, almost everyone participates
- Started in the 1970s – its primary stated intent has been to combat urbanization which can put upward pressure on farms property values and hence their tax
- The objective of the CAUV program was to discourage the sale of farmland for development purposes by providing the farmer with a tax break (http://www.the-daily-record.com/opinion/20120214/understanding-cauv-tax-program)
- Attempts to tie the property value of a farm to its agricultural use and not its "next best use"
- The formula involves:
  - Soil type/quality, yields/prices/non-land costs for corn/soybeans/wheat, and a capitalization rate
  - Higher quality soil has higher CAUV
  - All values are based on at least 5 historical values, usually through an Olympic average where the highest and lowest values are dropped

All categories are Olympic averages with the exception of rotation and yields.

Tax Year	Capitalization Rate	Yields	Prices	Non-Land Costs	Rotation
2005	1999-2005	1984	1997-2003	1998-2004	ad hoc
2006	2000-2006	1995-2004	1998-2004	1999-2005	ad hoc
2007	2001-2007	1996-2005	1999-2005	2000-2006	ad hoc
2008	2002-2008	1997-2006	2000-2006	2001-2007	ad hoc
2009	2003-2009	1998-2007	2001-2007	2002-2008	ad hoc
2010	2004-2010	1999-2008	2002-2008	2003-2009	2004-2008
2011	2005-2011	2000-2009	2003-2009	2004-2010	2005-2009
2012	2006-2012	2001-2010	2004-2010	2005-2011	2006-2010
2013	2007-2013	2002-2011	2005-2011	2006-2012	2007-2011
2014	2008-2014	2003-2012	2006-2012	2007-2013	2008-2012
2015	2009-2015	2005-2014	2008-2014	2009-2015	2010-2014
2016	2010-2016	2006-2015	2009-2015	2010-2016	2011-2015
2017	2011-2017	2007-2016	2010-2016	2011-2017	2012-2016
2018	2012-2018	2008-2017	2011-2017	2012-2018	2013-2017
2019	2013-2019	2009-2018	2012-2018	2013-2019	2014-2018
Future	current-6 years ago	previous-11 years ago	previous-7 years ago	current-6 years ago	previous-5 years ago
Years	7 Olympic	10 Average, lag	7 Olympic, lag	7 Olympic	5 Average, lag

Sources and timing of release:

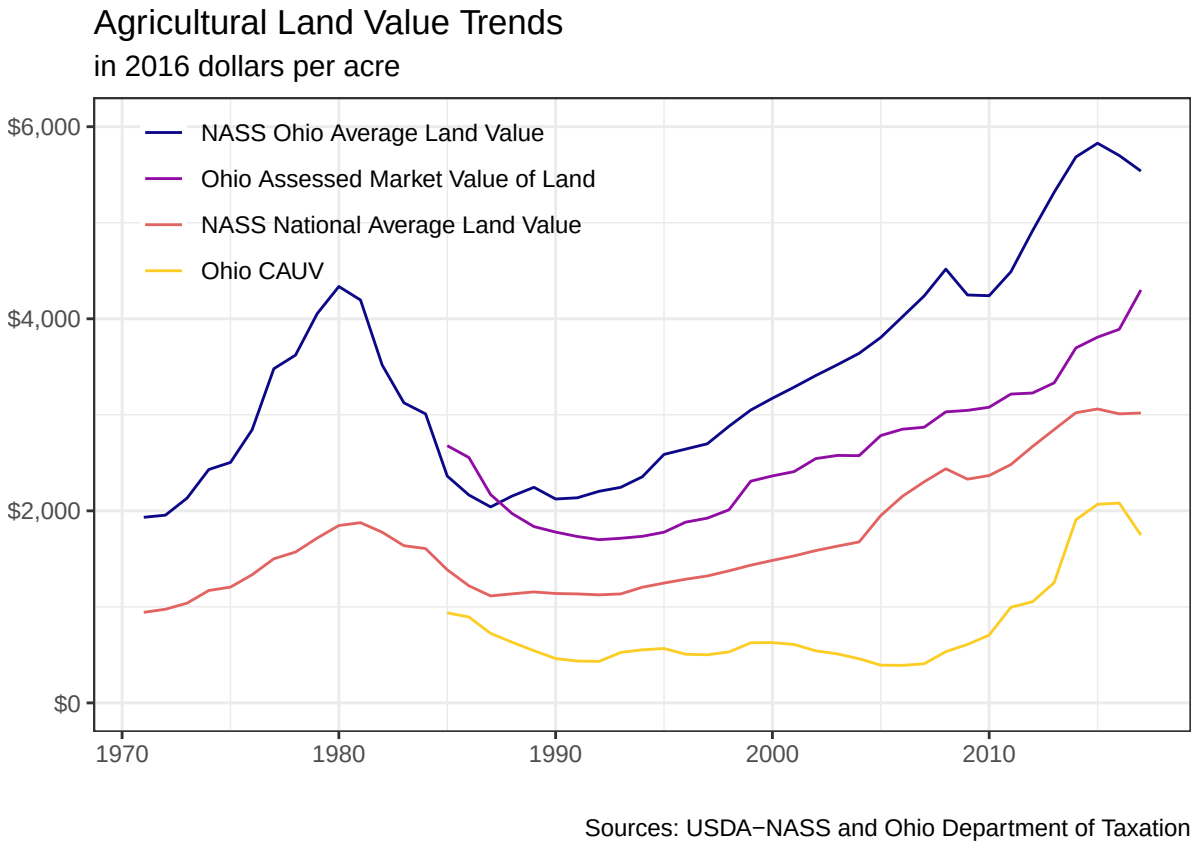
1. Capitalization Rate - interest rates come from Ohio Department of Taxation while the equity rate comes from USDA-ERS which has updates each year in February (should be considered "official"), August, and November.

- USDA data files, should select the Farm Income Statements and then returns to operators

2. Crop Production Reports affects yields and rotation. Typically there is an August, September, October, and November forecast. Then finalized values occur in January of the following year. The USDA Quick Stats API will incorrectly place the most recent forecast value for the current year in the "YEAR" reference period. This needs to be accounted for.
3. Prices are for the marketing year period which are published by the USDA-NASS and have monthly prices. However, the official values come out around March each year.
4. Non-Land Costs maintained at the Ohio State Extension website and there will usually be an initial estimate for the budgets in October of that year with the final update usually around May.

Has this been an effective program?

- Well that depends who you ask – it has been effective to reduce the average CAUV property value over the years to at least 60% of average market value in a county
  - At the same time, the reduction in agricultural property values results in a shifting of the tax burden for residential land – so if you ask your typical homeowner then this program stinks
  - Some counties have struggled with budgetary issues because of the CAUV changes, so they might not enjoy this
  - The extremely low CAUV values in 2005 triggered the adjustment to yields, partly from the homeowners and counties
- But there are certainly instances where highly productive soils exceeded their market value, although the lowest is always used for property tax assessment purposes
- Historically, 1985 had average CAUV of 35% of market value and this trended down to about 14% in 2006. A steady rise has resulted in averages above 50% the last 3 years but this should come down



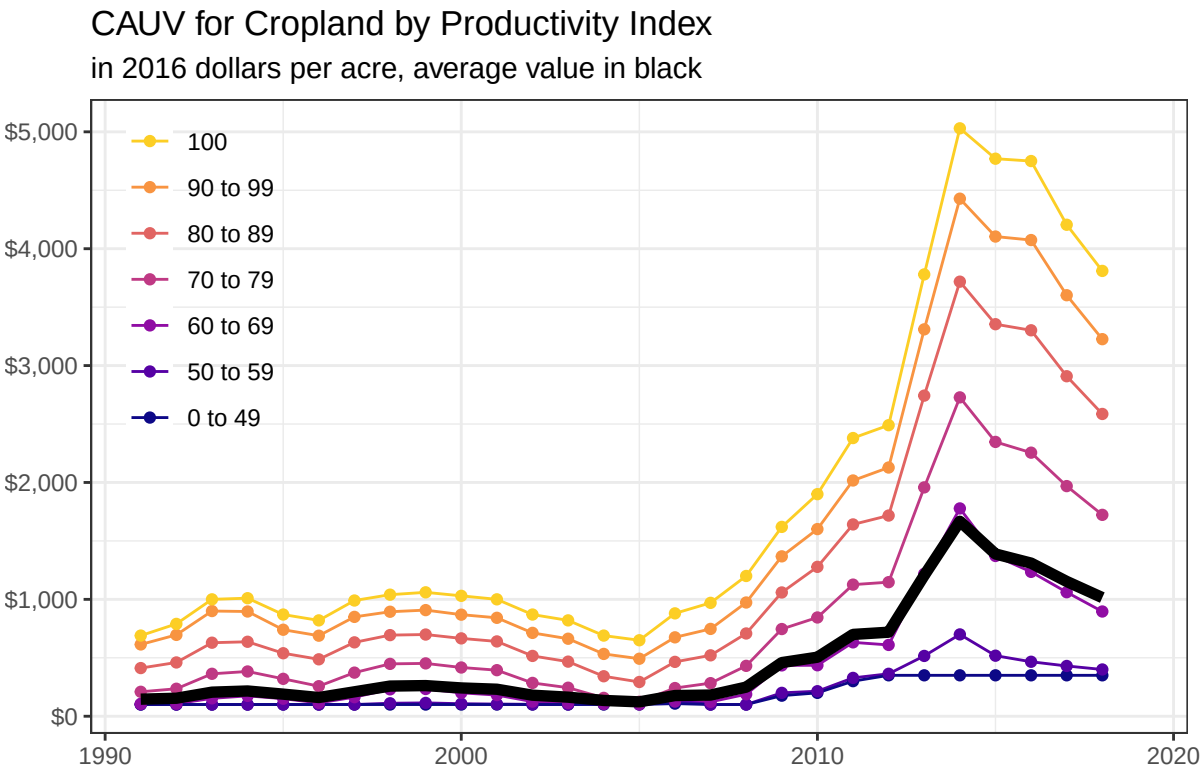
year	Ohio Assessed Market Value of Land	Ohio CAUV	Ratio	Property Tax
1985	$1,378	$482	0.3500964	$NA
1986	$1,341	$469	0.3500119	$NA
1987	$1,166	$389	0.3338258	$NA
1988	$1,097	$351	0.3201732	$4.90
1989	$1,061	$314	0.2961261	$4.62
1990	$1,066	$277	0.2596851	$4.19
1991	$1,073	$270	0.2514389	$4.04
1992	$1,077	$274	0.2541885	$4.16
1993	$1,112	$341	0.3066224	$5.36
1994	$1,149	$366	0.3187499	$5.47
1995	$1,202	$383	0.3186032	$5.89
1996	$1,296	$349	0.2693014	$5.38
1997	$1,348	$351	0.2605236	$5.36
1998	$1,424	$376	0.2638681	$5.71
1999	$1,658	$450	0.2712735	$6.83
2000	$1,736	$462	0.2659053	$6.82
2001	$1,809	$457	0.2527020	$6.82
2002	$1,941	$414	0.2132366	$6.22
2003	$2,005	$397	0.1981093	$6.02
2004	$2,058	$368	0.1786110	$5.68
2005	$2,297	$325	0.1412912	$5.16
2006	$2,424	$333	0.1372609	$5.32
2007	$2,506	$356	0.1420226	$5.71
2008	$2,697	$475	0.1760780	$7.69
2009	$2,732	$546	0.1998910	$8.88
2010	$2,796	$641	0.2293531	$10.57
2011	$2,980	$923	0.3095819	$15.52
2012	$3,046	$994	0.3264738	$16.92
2013	$3,196	$1,202	0.3758907	$20.63
2014	$3,609	$1,862	0.5158883	$32.60
2015	$3,757	$2,041	0.5431598	$35.04
2016	$3,890	$2,081	0.5348508	$35.66
2017	$4,387	$1,783	0.4063974	$30.58

(Note these are for assessed properties and does not treat soil types equally like later calculations do)

What changes have been made to the program and why?

- Document main changes:
  - 2006 yield update started an increase - Farm Bureau had concerns the program would be revoked due to unjustifiably low CAUV values
    - Then high crop prices pushed the values upward
    - Declining interest rates also caused an upward rise in CAUV
  - Large complaints about the rapidly increasing property tax bills of farmers: the state average was about $5.32 per acre in 2006 and quickly quadrupled to $20.63 in 2013.
  - 2015 adjustment to decrease lags in components began the decline in CAUV values and higher clearing/drainage costs
  - 2017 changed in capitalization rate which will be phased in over a period of time
- Wood County Document
- New minimum values of $350 for cropland and $230 for woodland

- Woodland value is the cropland value less clearing and drainage costs. Clearing is now $1,000 per acre (up from $500 in 2014) and drainage is $800 for somewhat poorly drained, poorly drained, very poorly drained, and saturated (ie soils which are not well drained)
- Land in conservation is now assessed $230, the lowest value that can occur



Source: Ohio Department of Taxation

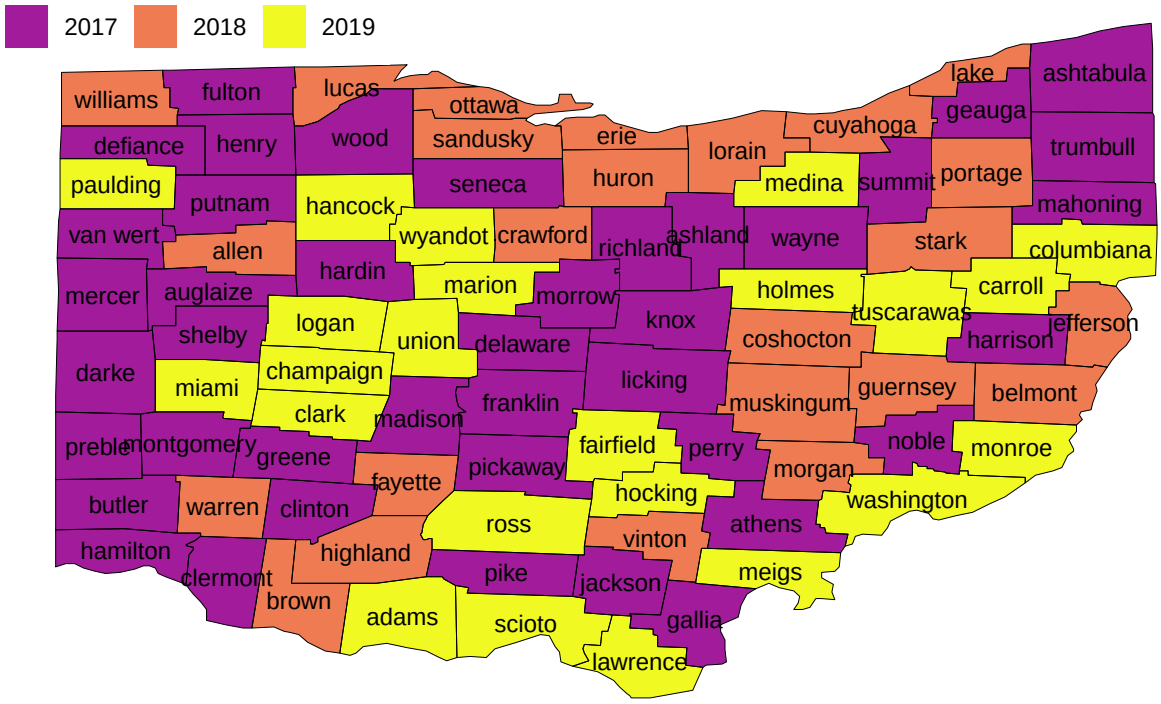
year	corn_price	corn_price_odt	corn_price_cauv_exp	soy_price	soy_price_odt	soy_price_cauv_exp	whea
2006	$3.08	$1.99	$1.97	$6.46	$4.84	$5.04	$3.35
2007	$4.29	$1.96	$2.06	$9.93	$4.89	$5.38	$5.37
2008	$4.21	$2.02	$2.29	$10.30	$5.19	$5.83	$5.82
2009	$3.55	$2.29	$2.70	$9.78	$5.60	$6.63	$4.41
2010	$5.45	$2.66	$2.89	$11.50	$6.41	$7.97	$5.21
2011	$6.44	$2.89	$3.26	$13.00	$7.22	$8.57	$6.73
2012	$7.09	$3.19	$3.93	$14.60	$7.74	$9.08	$7.94
2013	$4.41	$3.91	$4.54	$13.00	$8.98	$10.40	$6.54
2014	$3.78	$4.48	$4.70	$10.30	$10.13	$11.07	$5.60
2015	$3.89	$4.55	$4.57	$9.16	$11.09	$11.08	$4.57
2016	$3.61	$4.49	$4.50	$9.66	$10.91	$10.91	$4.25
2017	$3.55	$4.51	$4.50	$9.50	$10.83	$10.83	$4.90
2018	$NA	$4.18	$4.17	$NA	$10.43	$10.43	$NA
2019	$NA	$NA	$3.75	$NA	$NA	$9.79	$NA

So the new 2017 changes have affected me already?

- Not quite, for one this will be phased in over the 2016 CAUV values so as to not reduce values dramatically.

- Depends on your county, 2017 had about half the state adjust while 2018 has a quarter and 2019 the remaining quarter.
  - CAUV values will update once every three years, but it depends on which county you live in. There will be about a quarter of the counties updated this year, last tax season had roughly half and in 2019 there will be the remaining counties updated.
  - Starting in 2020, there will be no more phase-in procedure

Schedule for updating CAUV



Source: Ohio Department of Taxation

How much will this phase in process affect my CAUV?

- In 2017 estimates, the average soil CAUV is around $1,150 but this includes a phased in adjustment factor of around $150. If this were 2020, then we would have seen values of around $1,000
- For 2018, the average soil CAUV was $1,015 but the phase-in adjustment was around $140.
- Our current projections for 2019 is to see about a 13% decline in CAUV value of around $890 which would have a phase-in of about $130.
  - This is the last year of the phase-in, the 2020 values would be $760 if there are no changes to CAUV values because the phase-in would not apply.

year	avg_cauv	indx_49	indx_59	indx_69	indx_79	indx_89	indx_99	indx_100	avg_change
1991	$146	$100	$101	$106	$209	$412	$614	$690	NA%
1992	$154	$100	$100	$107	$235	$460	$696	$790	5.48%
1993	$206	$100	$100	$153	$363	$629	$900	$1,000	33.77%
1994	$216	$100	$100	$174	$383	$637	$896	$1,010	4.85%
1995	$189	$100	$101	$150	$320	$539	$740	$870	-12.50%
1996	$160	$100	$100	$114	$257	$487	$689	$820	-15.34%
1997	$209	$100	$100	$163	$373	$632	$850	$990	30.62%
1998	$258	$100	$111	$230	$448	$694	$894	$1,040	23.44%

year	avg_cauv	indx_49	indx_59	indx_69	indx_79	indx_89	indx_99	indx_100	avg_change
1999	$262	$100	$114	$233	$452	$699	$908	$1,060	1.55%
2000	$242	$100	$107	$200	$417	$666	$869	$1,030	-7.63%
2001	$231	$100	$104	$181	$394	$640	$842	$1,000	-4.55%
2002	$180	$100	$102	$125	$285	$516	$713	$870	-22.08%
2003	$163	$100	$101	$113	$244	$467	$663	$820	-9.44%
2004	$135	$100	$114	$104	$157	$342	$533	$690	-17.18%
2005	$123	$100	$106	$101	$124	$293	$492	$650	-8.89%
2006	$177	$108	$134	$125	$241	$465	$675	$880	43.90%
2007	$181	$100	$100	$123	$283	$521	$747	$970	2.26%
2008	$249	$100	$100	$188	$431	$708	$973	$1,200	37.57%
2009	$459	$176	$200	$435	$746	$1,059	$1,368	$1,620	84.34%
2010	$505	$200	$214	$436	$845	$1,278	$1,601	$1,900	10.02%
2011	$700	$300	$328	$632	$1,126	$1,641	$2,017	$2,380	38.61%
2012	$719	$350	$363	$610	$1,147	$1,717	$2,128	$2,490	2.71%
2013	$1,205	$350	$516	$1,218	$1,958	$2,743	$3,310	$3,780	67.59%
2014	$1,668	$350	$700	$1,778	$2,728	$3,718	$4,428	$5,030	38.42%
2015	$1,388	$350	$518	$1,371	$2,347	$3,354	$4,104	$4,770	-16.79%
2016	$1,310	$350	$466	$1,235	$2,255	$3,302	$4,074	$4,750	-5.62%
2017	$1,153	$350	$430	$1,061	$1,969	$2,909	$3,602	$4,205	-11.98%
2018	$1,015	$350	$400	$896	$1,723	$2,586	$3,226	$3,810	-11.97%
2019	$887	$350	$379	$743	$1,491	$2,298	$2,892	$3,445	-12.57%

How do you make these projections?

- Based off of current expectations of prices, yields, non-land costs, and interest rates
  - Prices carry forward the most recent USDA values
  - Yields and rotation use the August forecast values from USDA which, will be updated with the September, October, and November forecasts. Finalized in January 2019.
  - Non-land costs use Ohio State Extension budgets carrying forward values from 2018 as place-holder for 2019. Will be updated when preliminary budget estimates are released
  - Interest rates carry forward current values

Once this takes effect fully – I will definitely see a decrease in my CAUV?

- It is highly likely but not certain, it will still depend on yield/price and interest rate trends
- Even if you realize a decreased CAUV, your tax rate might change
- **CAUV is different than property tax**
  - CAUV gives the property value of which you're taxed but not the actual tax you pay
  - Ohio has a taxable value of 35% property value, but then the "millage rate" will depend on your county, municipality, and school district
  - Millage rates might increase, so your CAUV might go down but tax rate could increase
- Keep in mind that while the average in Ohio for property tax per acre was about $31.55 the minimum was $5.93 for monroe and maximum was $98.29 for cuyahoga

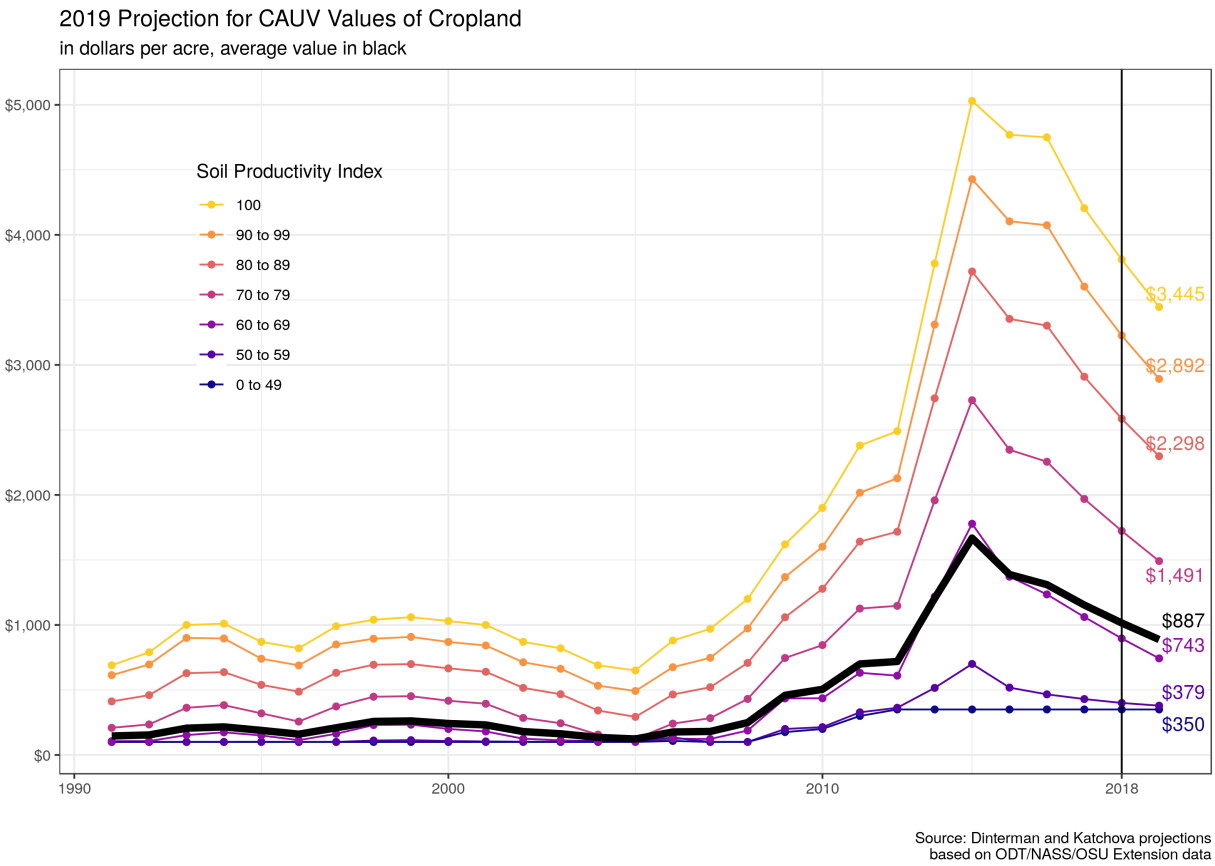

2019 Projection for CAUV Values of Cropland
in dollars per acre, average value in black
Soil Productivity Index
100
90 to 99
80 to 89
70 to 79
60 to 69
50 to 59
0 to 49
$5,000
$4,000
$3,000
$2,000
$1,000
$0
1990
2000
2010
2018
$3,445
$2,892
$2,298
$1,491
$887
$743
$379
$350
Source: Dinterman and Katchova projections
based on ODT/NASS/OSU Extension data

Figure 1:

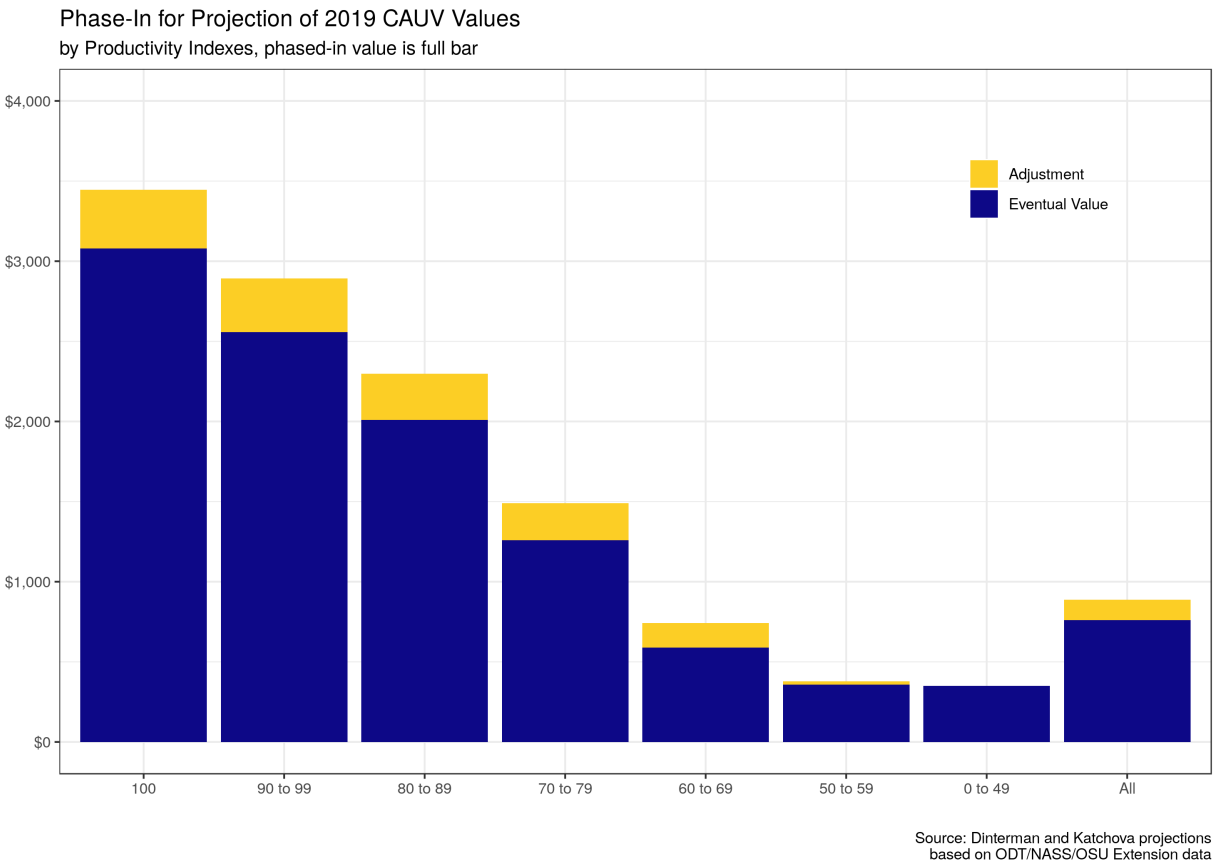
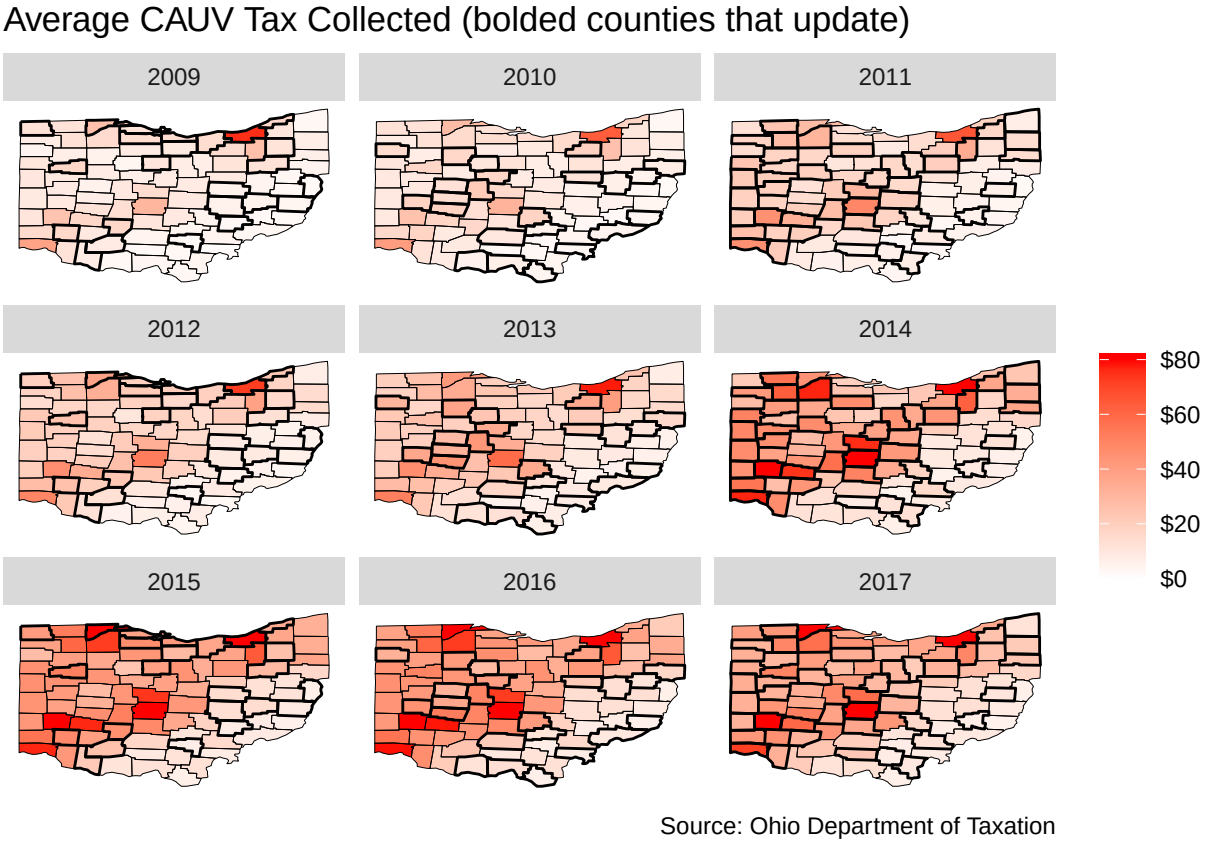

Phase-In for Projection of 2019 CAUV Values
by Productivity Indexes, phased-in value is full bar
$4,000
$3,000
$2,000
$1,000
$0
Adjustment
Eventual Value
100
90 to 99
80 to 89
70 to 79
60 to 69
50 to 59
0 to 49
All
Source: Dinterman and Katchova projections
based on ODT/NASS/OSU Extension data

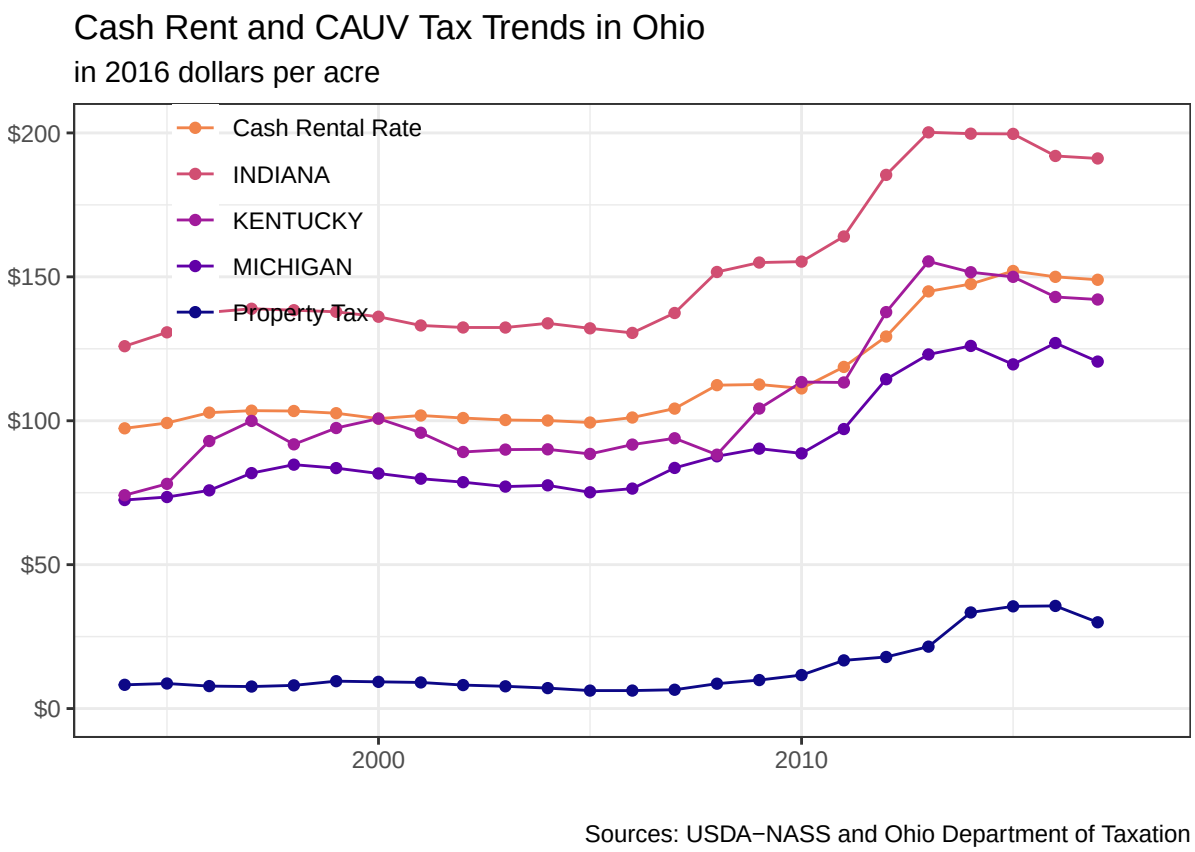
Figure 2:



How does CAUV compare to other states?

All of the surrounding states do provide some sort of differential tax treatment

- Indiana is most similar in using a use-value formulation but also use cash rents in their formula
  - $35 to $42 property tax paid per acre of farmland in Indiana for 2016
- Illinois is about $17 to $20 per acre
- West Virginia: about $1.50 per acre
- Kentucky has been in trouble with improper classification of farmland (used for commercial development but received preferable farmland taxation.)



Was there a change in the conservation assessment?

Yes, in 2017 one large change was that land enrolled in conservation is now assessed at the lowest value ($230) whereas before its CAUV value was still based on the soil type.

- In 2017, there were 16,007,314 acres enrolled in CAUV – which has been pretty stable.
  - There were 257,519 acres enrolled in CRP
  - Not a *large* issue, but still of interest.
- Will be interesting to keep track of enrollment, farmers have a bit more incentive to enroll into CRP

Acreage history for CRP:

YEAR	US	OHIO	fraction
1986	1,926,692	8,171	0.424%
1987	15,331,971	99,651	0.650%
1988	23,845,154	139,207	0.584%
1989	28,850,447	195,669	0.678%
1990	32,496,627	243,152	0.748%
1991	32,969,180	262,679	0.797%
1992	33,966,698	313,153	0.922%
1993	34,988,426	365,984	1.046%
1994	34,988,426	365,984	1.046%
1995	34,952,266	364,534	1.043%
1996	34,478,302	352,961	1.024%
1997	32,792,055	327,177	0.998%

YEAR	US	OHIO	fraction
1998	30,108,903	320,145	1.063%
1999	29,797,800	296,109	0.994%
2000	31,394,934	280,632	0.894%
2001	33,578,202	300,540	0.895%
2002	33,934,239	304,836	0.898%
2003	34,080,953	301,552	0.885%
2004	34,676,658	276,465	0.797%
2005	34,871,389	287,956	0.826%
2006	35,972,520	329,639	0.916%
2007	36,740,293	362,311	0.986%
2008	34,584,010	352,248	1.019%
2009	33,692,761	347,521	1.031%
2010	31,270,394	343,584	1.099%
2011	31,103,325	343,619	1.105%
2012	29,505,418	336,198	1.139%
2013	26,819,626	317,073	1.182%
2014	25,429,615	278,409	1.095%
2015	24,167,810	267,227	1.106%
2016	23,865,634	263,381	1.104%
2017	23,415,018	257,519	1.100%