

Owner occupied housing in the Icelandic CPI, a survey of simple user cost for a quarter of a century.

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CPI 1914-2018

- The expenditure weights for housing estimated in line with:
 - 1924-1984 with market rent.
 - 1984-1992 according to payment method
 - 1992-2018 in national account methods-flow of services.
- The price updating was by Indices:
 - 1939-1992 measuring lower price change than other indicators such as CPI less housing or the building cost.
 - 1992-2018 user cost-house price indices

CPI 1914-1992

- The first base for the CPI was estimated in 1922 and calculated back to 1914.
 - This was based on estimation not survey.
- The first household expenditure survey was conducted in 1939.
 - 1939-1984 were all based on all families with
 - From 1984 the sample included all households in the country.
- CPI mainly used for wage indexation 1939-1983

CPI 1992-

- In 1992 the rental equivalence approach was adopted by calculating simple user cost.
 - This is an adoption of a flow of services approach in line with national account.
- Market rent was incorporated in March 1997.
- From 1997 the index has been defined as having strong resemblance to a cost of living index.
- This is an adoption of a flow of services approach in line with national accounts.
 - CPI law in 1995 the target for the CPI was defined as private consumption.

CPI overview 1914-2018

**Table 1. Price changes for different bases of the Icelandic CPI from 1939
CPI less housing cost, housing and the building cost index (BCI)**

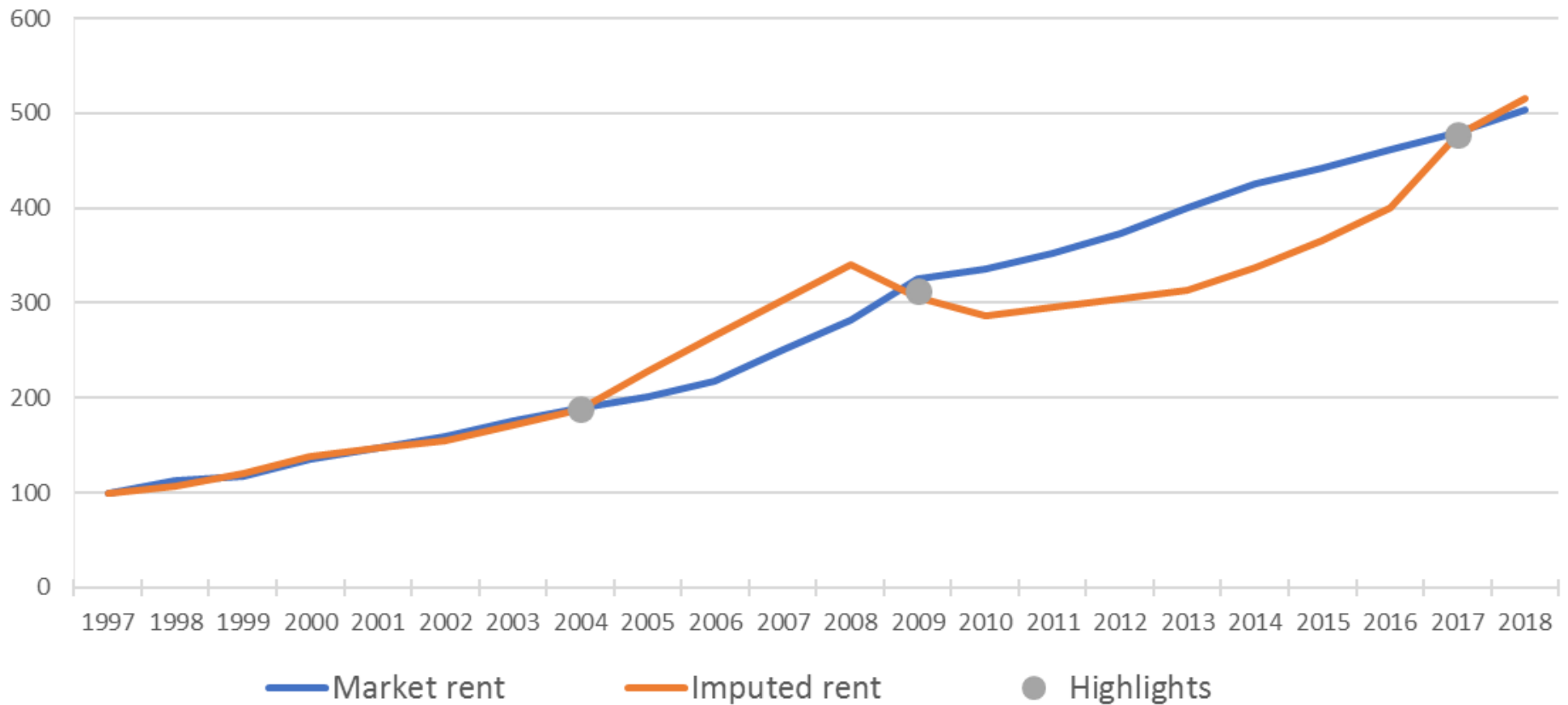
Years	CPI	CPI less housing	Housing	BCI
1914-1924	221%	219%	231%	226%
1924-1939	-16%	-29%	51%	-6%
1939-1959	673%	890%	175%	1189%
1959-1968	116%	150%	51%	159%
1968-1984	12777%	14617%	6085%	13474%
1984-1988	145%	148%	124%	124%
1988-1992	61%	64%	44%	71%
1992-1997	11%	11%	-4%	16%
1997-2019	162%	119%	415%	227%

CPI market rent-imputed rent

- Precondition for being able to use user cost to measure rental equivalence
 - is a strong link between price changes in market rent and the rental equivalence measured by the simple user cost.
- In Iceland market rent and imputed rental equivalence move in line over time.

Market rent-imputed rent from 1997

Indices for rent in Iceland 1997-2017



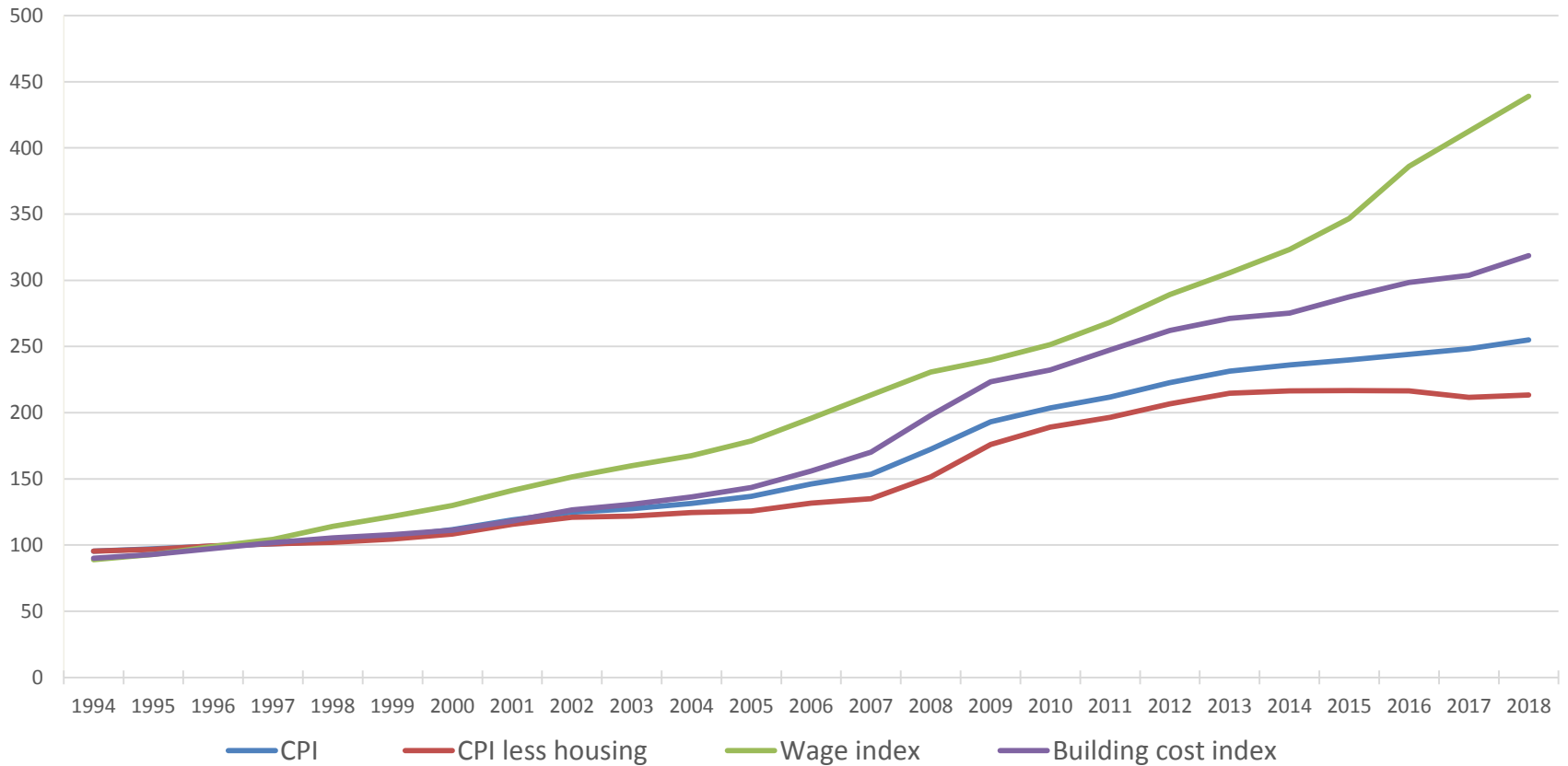
Difference imputed rent-market rent

The ratio of imputed rent to market rent in Iceland 1998-2017



Main indexes 1994-2018

The CPI, BCI and Wage index in Iceland 1994-2018, March 1997=100



Comparing Icelandic, Swedish and Canadian user cost (1)

- The Icelandic user cost measures the flow of services method targeting rental equivalence as defined in the national accounts.
 - prices are present prices.
- The Swedish and Canadian user cost methods reflect that the main use of the CPI is for compensation.
 - The prices used are from various time points, which are 12-15 years on average in the past.
 - Hence, property prices in this context are more or less old prices.

Comparing Icelandic, Swedish and Canadian user cost (2)

- Both the Swedish and the Canadian owner occupied housing methods are payment related.
 - The Canadian method is a full payment method using outlying mortgages.
 - The payment method covers only households that are in debt and excludes households which have none.
- In this respect the Swedish method differs
 - all households living in their owned homes are included.
 - The interest is calculated from the whole stock including in that way own equity.

Comparing Icelandic, Swedish and Canadian user cost (3)

- All three countries use present time interest rates.
 - Interest rates in Iceland are real interest rates.
 - Sweden and Canada the choice is to use nominal interest rates.
- The treatment of depreciation is similar in all three countries.
 - The depreciation is calculated at a similar rate from a stock that is price updated to current prices.
 - Depreciation is calculated in Canada and Iceland from the property stock excluding land
 - price indexes used in Iceland and Sweden include land but the index used in Canada excludes land

Swedish user cost with Icelandic data

Table 8. Simulation Swedish user cost model with Icelandic data

	Annuity method Iceland				Simulation Swedish method,				Difference	
	Property index	Real interest	Effect	Weight	Capital index	Nominal interest	Effect	Weight	Effect	Weight
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(3)-(7)	(4)-(8)
					15 year moving average					
2007	100	100			100	100				
2008	106,2	106,8	0,31%	21,0%	110,0	110,6	0,91%	87,1%	-0,60%	-66,1%
2009	95,9	106,3	0,05%	21,0%	119,4	87,8	2,48%	93,2%	-2,43%	-72,2%
2010	93,0	102,2	-0,18%	16,9%	127,6	48,5	-4,23%	73,0%	4,05%	-56,2%
2011	97,3	100,2	-0,05%	15,0%	136,2	33,1	-1,06%	43,8%	1,01%	-28,8%
2012	104,0	95,7	0,07%	14,8%	145,6	36,9	-0,02%	32,9%	0,09%	-18,1%
2013	110,0	92,4	0,00%	14,5%	155,7	42,1	0,68%	36,5%	-0,68%	-22,0%
2014	119,3	91,8	0,09%	14,3%	166,5	41,9	0,38%	41,8%	-0,29%	-27,5%
2015	129,1	91,8	0,07%	15,1%	177,8	39,1	0,13%	43,7%	-0,06%	-28,6%
2016	141,7	91,6	0,11%	16,1%	190,0	43,2	0,50%	43,4%	-0,39%	-27,3%
2017	169,4	91,6	0,20%	17,4%	204,8	38,1	0,03%	49,4%	0,17%	-32,1%
2018	183,3	91,1	0,23%	20,4%	222,1	35,8	-0,18%	47,2%	0,41%	-26,8%