

Memo on eSNI 2010 and 2015

For: Roefie Hueting and Bart de Boer
 From: Thomas Colignatus
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(1) Typing error

There is a typing error in a text by IVM in 2005.

The IVM publication for 2000 page 14 has SNI value 141

[https://www.researchgate.net/publication/228256395 Sustainable National Income A Trend Analysis for the Netherlands for 1990-2000](https://www.researchgate.net/publication/228256395_Sustainable_National_Income_A_Trend_Analysis_for_the_Netherlands_for_1990-2000)

Table 4.1 Absolute value of NNI, SNI and SNI2, growth, and the relative gap between both SNI variants and NNI, 1990–2000.

	1990	1995	2000
<i>Absolute values</i>			
NNI	213.0	235.4	273.1
SNI 1	139.8	163.8	204.6
SNI 2	94.2	107.2	141.0

The IVM publication for 2005 page 25 has SNI value 141

The IVM publication for 2005 page 24 has SNI value 143 which must be a typing error

<https://research.vu.nl/ws/portalfiles/portal/2415673>

Table 4.4 Development of NNI and SNI variants 1 & 2 (at constant 1990 prices) and emissions.

	1990	1995	2000	2005
<i>Absolute values (bln Euro)</i>				
NNI	213	235	273	307
SNI1	140	164	205	239
SNI2	94	107	143	179

Thus:

Year	1990	1995	2000	2005
Nominal NNI	213	268	340	432
CPI	100	114	124.5	140.7
NNI / CPI	213	235	273	307
eSNI	94.2	107.2	141.0	179
eSNI / NNI %	44.2	45.6	51.6	58.3

(2) Revisions by CBS. Deflation by CPI gives a problem

CBS has revised its data. (Holland pays more to the EU now.) <https://www.cbs.nl/nl-nl/achtergrond/2014/14/revisie-van-de-macro-economische-cijfers-van-het-cbs>

IVM used to deflate NNI by the CPI. This is dubious, but might perhaps still be acceptable for rather stable periods. However, there has been the Global Financial Crisis, with some years of recession and deflation in Holland. In the years of recovery since 2009, we see that GDP grows while the NNI deflated with CPI falls.

My proposal is use the NNI value of 2010 (2015 is still preliminary) and use the GDP volume rates to generate a volume index in prices of 2010.

The (new) eSNI values for 1995-2005 can be found by using the same proportions. Thus:

$$\text{eSNI ratio} = (\text{eSNI old}) / (\text{NNI old}) \text{ in real terms, from the tables above}$$

$$\text{NNI} = \text{NNI}[2010] * \text{GDP-index in volume or real terms, in prices 2010}$$

$$\text{eSNI} = (\text{eSNI ratio}) * \text{NNI}$$

This gives:

CBS ¹	bn euro	Market prices 2010, with revisions in 2001 and 2010				
Year	1990	1995	2000	2005	2010	2015
NNI nominal	-	277.9	386.8	459.0	529.6	562.2
CPI	30.02	70.54	81.95	92.67	100.00	109.18
Nom/CPI ²	357.0	393.9	472.0	495.3	529.6	514.9
Chained ³	343.6	379.1	440.4	495.3	529.6	514.9
GDP nom	-	325.3	448.1	545.6	631.5	676.5
GDP 2010	400.6	448.8	555.0	593.1	631.5	655.6
GDP 100	63.4	71.1	87.9	93.9	100.0	103.8
NNI/GDP ⁴	-	85.4	86.3	84.1	83.9	83.1
NNI ⁵	336.0	376.4	465.5	497.4	529.6	549.9
eSNI	148.6	171.7	240.4	290.0	308.8	320.6
Difference ⁶	-21.0	-17.5	-6.5	2.1	0.0	34.9

NB. It appears that NNI is also less used internationally. For international comparison, GDP is most used, e.g. on the Stiglitz & Sen & Fitoussi results. Some people seem to think: if you don't correct GDP then there is no need to mention your work. On content, my impression is that Domestic production is more important than National production. GDP is determined from expenditure data and the deduction of depreciation is rather arbitrary. There might be theoretical reasons to use NNI rather than GDP, but given above data problems the series is essentially a GDP volume series. In the discussion below, I will tend to use GDP.

¹ <http://statline.cbs.nl/Statweb/publication/?DM=SLLEN&PA=82595ENG&D1=16.75,138-139,142-143&D2=0&D3=0&D4=0,13,38,63,88&LA=EN&HDR=G1,G2,G3&STB=T&VW=T>

² Nominal NNI divided by the CPI. Observe the negative growth from 2010 to 2015. The missing value in 1990 is chained from the IVM table.

³ Nominal NNI divided by the CPI only for 2005-2015. The earlier values are chained from the IVM table. Also this casts doubts on the method of deflating by CPI.

⁴ Ratio of nominal NNI to nominal GDP in percentages.

⁵ GDP 100 (volume in prices 2010) multiplied by the nominal NNI value of 2010

⁶ NNI minus Nom / CPI.

(3) Data on GDP, Population and CO2

These are the data for GDP and CO2 (equivalents) from 1990 to 2015. A quick estimate is that CO2 per capita tends to rise but that technology allows a reduction over time. In this estimate, the period of almost 30 years causes that GDP helps to reduce CO2. Of course, the 2007+ recession also contributed to less emissions.

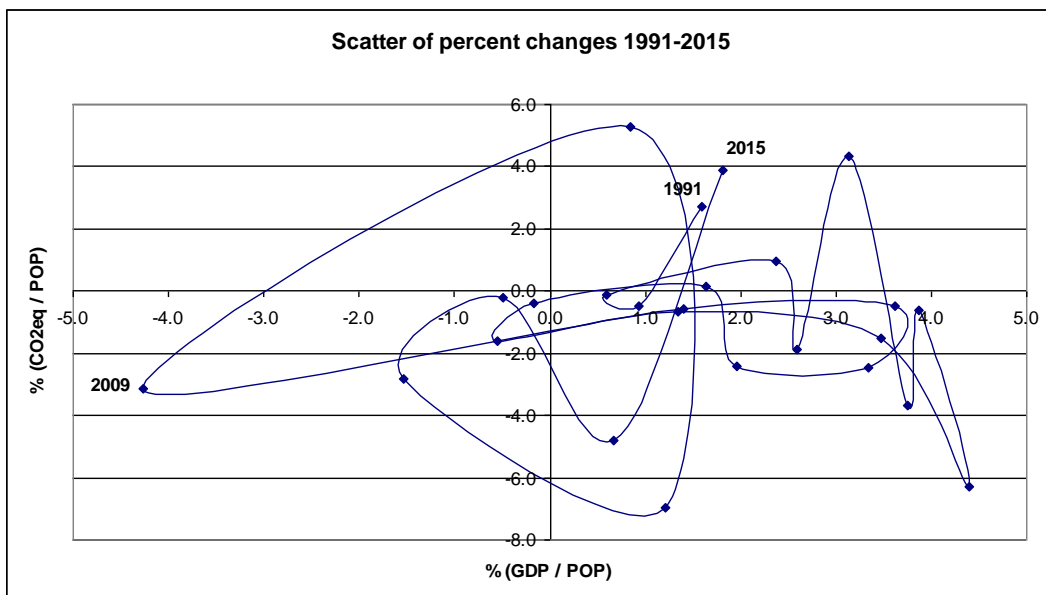
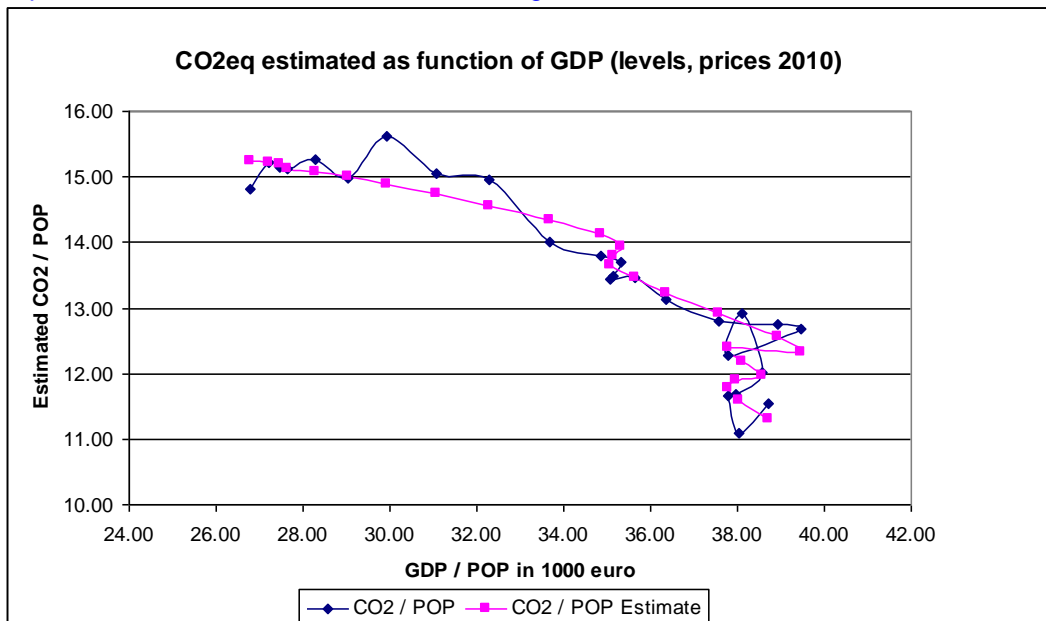
$$y = \text{CO2} / \text{POP} \quad \text{CO2eq per capita}$$

$$x = \text{GDP} / \text{POP} \quad \text{GDP per capita}$$

$$y = x^{(0.1 - 0.03 * \text{Time})} * \text{Exp}[0.1 * \text{Time}] * \text{Constant} \quad (R2 = 0.95)$$

Year	1990	1995	2000	2005	2010	2015
CO2eq	221.4	231.5	219.7	214.4	214.2	195.2
POP	14951	15459	15924	16320	16575	16934

<http://www.clo.nl/indicatoren/nl0165-broeikasgasemissies-in-nederland>



(4) A projection range for eSNI in 2010 and 2015

For 2010 and 2015 there is need of a rough estimate of eSNI. There are two extreme assumptions that create a range, so that the true value must lie in that range.

(1) An assumption might be that the eSNI / NNI ratio for 2010 and 2015 remains at the same level of 2005, namely 58.3%. This assumption might be awkward for other periods, but seems reasonable in the light of the 2007+ recession. The green line gives observations for 1990-2005 and assumes this constant ratio of 58.3% for 2010-2015.

(2) An alternative assumption (purple) is that the reduction of CO2/POP over the period over 5 years has an influence on the rate of change of the eSNI / NNI ratio. The estimate has only three data points and two coefficients.

y = the relative mutation of the eSNI / NNI ratio (perunage and not percentage)

x = the relative mutation of the CO2eq / POP ratio

$$y = -1.19 x + 0.052 \quad (R^2 = 0.91, df = 1)$$

The eSNI / NNI ratio improves by 1% per year or 5.2% over five years autonomously, while a growth of the CO2eq emissions per capita reduces it almost proportionally.

The purple line gives the rough estimate, with a ratio rising to 73.7% in 2015. The 10% drop in emissions per capita in the period since 2010 might have quite an impact.

