Appendix G: Net Capital Stock Estimates and Depreciation Profiles for Canada: A Comparison Between Existing Series and a Test Series Using the BEA Methodology for the United States[1]

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G.1 Introduction[2]

CAPITAL STOCKS ARE REPRODUCIBLE TANGIBLE ASSETS used as factors of production in combination with other factor inputs such as labour, energy and other natural resources or materials. The stock of capital consists of building construction (such as plants and offices), engineering construction (such as roads and dams), and machinery and equipment used in the production process. These are distinguished from non-reproducible assets such as land, mineral deposits and natural resources, which are not produced but are directly incorporated in the production of other commodities.

Although capital stocks by industry can be measured in a variety of ways such as surveys of physical stock or book values, the method traditionally used by Statistics Canada is the perpetual inventory method. This method, which is a flexible way to develop time series of capital stocks, accumulates investment expenditures by industry to obtain estimates of capital stock in any particular year. It requires information on the value of investment, price indices for capital goods, service lives, and methods of depreciation.

The essence of the perpetual inventory method is to add each year's gross investment (gross fixed capital formation) to the capital stock of the previous year. If the value of assets which cease to exist each year is subtracted from this accumulated investment, then a gross measure of the capital stock is obtained. If yearly deductions for depreciation are made, then a net measure of the capital stock is the result.

Section G.2, Current Methodology, describes the methodology underlying the current measures of capital stock. Section G.3, BEA-type Geometric Depreciation Methodology, describes another set of measures more in line with the latest measures of capital stock being produced in the United States' Bureau of

Economic Analysis (BEA).[3] Section G.4 compares the results of the two different geometric methodologies and Section C.5 concludes.

G.2 Current Methodology

STATISTICS CANADA PROVIDES ESTIMATES of gross and net capital stocks for broad categories of assets and industries.

G.2.1 Gross Stocks and Retirements

The gross stock is an accumulation of past gross investment with yearly deductions (called retirements or discards) of the value of assets which cease to exist in that year. Thus, this measure of the capital stock assumes that the efficiency of the capital asset remains the same over its entire service life. The retirement pattern is a bell-shaped distribution which has been truncated so that all retirements occur between 50 percent and 150 percent of the mean useful life. The asset lives used are derived from the Capital and Repair Expenditures Survey.[4]

Table G.1

Truncated Normal Retirement Distribution Applied to a Cohort of Assets Worth $100,000 with a Mean Service Life of 10 Years

Sub-cohort	Length of Life of Sub-cohort	Fraction of Cohort	Value in Dollars of Sub-cohort
1	5	0.0032	320
2	6	0.0314	3,140
3	7	0.0762	7,620
4	8	0.1273	12,730
5	9	0.1692	16,920
6	10	0.1854	18,540
7	11	0.1692	16,920
8	12	0.1273	12,730
9	13	0.0762	7,620
10	14	0.0314	3,140
11	15	0.0032	320
Total		1.0000	100,000

The assets which the investment of a given year represents are described as a cohort of assets. If the mean service life of a cohort of assets is 10 years, then when the truncated normal retirement distribution is applied, there are 11 sub-cohorts each with its own service life. Table G.1 above shows the division into sub-cohorts of a cohort of assets with a value of $100,000 when purchased and with a mean useful life of 10 years.

G.2.2 Net Stocks and Depreciation

The net stock concept attempts to measure the productive capacity of the capital stock. This means that in addition to assembling data on investment flows, price indices and asset lives, the analyst must make assumptions about the pattern of aging and loss of efficiency of the assets and incorporate them into the perpetual inventory method in the form of depreciation. The estimates of net stocks are derived from the gross by making yearly deductions for depreciation. Various methods can be used to measure the deterioration of assets making up the capital stock. Three sets of depreciation and net stock estimates are produced by using the straight-line form, the double-declining balance form and the hyperbolic or “delayed” form of depreciation. Following is a brief comparison of the methods used to produce the current measures and the relationships between them.

Probably the most familiar model of depreciation is the straight-line method in which equal dollar amounts are deducted from the stock every year. The amount of straight-line depreciation (SL) is given by $x = 1,2,3,\ldots,L$:

$$d_{x,SL} = \frac{1}{L},$$

$$x = 1,2,3\ldots,L,$$

where L is the number of years over which the asset is depreciated and x is the age of the asset.

In the linear form, all of the asset’s value has disappeared from the capital stock by the end of the asset’s service life. When the truncated normal retirement pattern is applied to straight-line depreciation, the effect is to produce an accelerated rate of depreciation (see Table G.2a).

The geometric rate of depreciation is one type of accelerated depreciation. The term "accelerated" is used because the dollar amounts of depreciation deducted are highest in the earlier years of the asset's life and become progressively smaller with each year of the asset's life.

With the geometric form (*G*), the declining-balance rate is the same every year:

$$d_G = \frac{R}{L},$$

where *R* is the rate relative to the straight-line rate of 1. Thus the double-declining-balance rate is $2/L$. The higher the value of *R*, the more accelerated the rate, i.e. the higher the dollar values deducted in the earlier years.

The depreciation for 1 dollar of investment using the geometric pattern is:

$$d_{x,G} = \delta_G(1\text{-}\delta_G)^{x\text{-}1}$$

$$x = 1,2,3\ldots,L.$$

The current measures also include a pattern called hyperbolic or delayed depreciation:

$$d_{x,D} = \frac{L\text{-}(x\text{-}1)}{L\text{-}ß(x\text{-}1)} - \frac{L\text{-}x}{L\text{-}ßx},$$

which has the following form:

$$x = 1,2,3\ldots,L.$$

where ß is a curvature parameter.

This form can help in understanding the relationships between the other forms. When the parameter ß is equal to zero, the beta-decay form is reduced to straight-line depreciation. When ß is equal to 1, the result is the gross stock concept where depreciation is zero for every year of the asset's life except the last, when it is 100 percent. For values of ß between 0 and 1, the graphical representation of the depreciation is concave to the origin, i.e. it is bowed outwards. This means that depreciation is lower in the early years of the asset's life and increases as the asset ages. This "delay" in the depreciation increases the closer ß is to 1. When ß is negative, the result is an accelerated form of depreciation. As β becomes a very large negative value, the curve approaches a pattern in which all the depreciation occurs in the first year of the asset's life and is zero for all other years i.e. it is the mirror image of the extreme when β is equal to 1. Figure G.1 illustrates the effect of β on this pattern of depreciation of an asset with a service life of 10 years.

In the current delayed depreciation measures, the value of β is equal to 0.75 for structures and 0.5 for machinery and equipment.

For all three of these depreciation patterns, to calculate the depreciation for an entire investment cohort, each sub-cohort must be depreciated according to its own rate. For example, if the straight-line form of depreciation is used, the first sub-cohort will be depreciated at a rate of 1/5 or 20 percent per year ($64 in the above example) for 5 years. Similarly, the second sub-cohort will be depreciated at a rate of 1/6 or 16.67 percent ($523) for 6 years and so on until the 11th sub-cohort, for which the depreciation will be 1/15 or 6.67 percent ($21) for 15 years. The following tables illustrate the combined effects of the truncated normal retirement pattern with each of the three depreciation patterns: straight line (Table G.2a), geometric (Table G.2b) and delayed (Table G.2c). As before, the value of the cohort is assumed to be $100,000 and the average useful life to be 10 years.

G.2.3 Geometric Depreciation in the Current Measures

Since the geometric pattern of depreciation is infinite, some further explanation is necessary in order to understand the geometric rates of depreciation presented in Table G.2b.

Column 2 in the table below shows the first 20 years of the geometric distribution for a sub-cohort of assets with a service life of 10 years (i.e. the rate, δ, is 2/10). When the cut-off point is at age 10, the depreciation function is adjusted so that the area under the truncated distribution is 1 and the depreciation is zero from age 11 onwards (i.e. the assets in the sub-cohort are fully depreciated by the end of their service life). This is accomplished in two steps. First the original distribution is moved downwards by the amount of depreciation at age 11 (giving column 3 in the table). The total value of this new distribution is then adjusted proportionally to give the values in column 4. For example, 0.178525 divided by 0.677877 gives 0.263359. The accompanying graph shows the two distributions. The area redistributed is the area on the graph bounded by the heavy line.

Table G.2a

Truncated Normal Retirement Pattern and Straight-line Depreciation Pattern

Sub-cohort	Life		Percentage Reduction by Age															Weight from Retirement Fraction
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
1	5	Depreciation	20	20	20	20	20											0.0032
		Weighted	0.06	0.06	0.06	0.06	0.06											
2	6	Depreciation	16.67	16.67	16.67	16.67	16.67	16.67										0.0314
		Weighted	0.52	0.52	0.52	0.52	0.52	0.52										
3	7	Depreciation	14.28	14.28	14.28	14.28	14.28	14.28	14.28									0.0762
		Weighted	1.09	1.09	1.09	1.09	1.09	1.09	1.09									
4	8	Depreciation	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5								0.1273
		Weighted	1.59	1.59	1.59	1.59	1.59	1.59	1.59	1.59								
5	9	Depreciation	11.11	11.11	11.11	11.11	11.11	11.11	11.11	11.11	11.11							0.1692
		Weighted	1.88	1.88	1.88	1.88	1.88	1.88	1.88	1.88	1.88							
6	10	Depreciation	10	10	10	10	10	10	10	10	10	10						0.1854
		Weighted	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85						
7	11	Depreciation	9.09	9.09	9.09	9.09	9.09	9.09	9.09	9.09	9.09	9.09	9.09					0.1692
		Weighted	1.54	1.54	1.54	1.54	1.54	1.54	1.54	1.54	1.54	1.54	1.54					
8	12	Depreciation	8.33	8.33	8.33	8.33	8.33	8.33	8.33	8.33	8.33	8.33	8.33	8.33				0.1273
		Weighted	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05				
9	13	Depreciation	7.69	7.69	7.69	7.69	7.69	7.69	7.69	7.69	7.69	7.69	7.69	7.69	7.69			0.0762
		Weighted	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59			
10	14	Depreciation	7.14	7.14	7.14	7.14	7.14	7.14	7.14	7.14	7.14	7.14	7.14	7.14	7.14	7.14		0.0314
		Weighted	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23		
11	15	Depreciation	6.67	6.67	6.67	6.67	6.67	6.67	6.67	6.67	6.67	6.67	6.67	6.67	6.67	6.67	6.67	0.0032
		Weighted	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.00	0.00	
		Total weights																1.0000
Total Weighted Percentages			10.43	10.43	10.43	10.43	10.43	10.37	9.84	8.76	7.16	5.28	3.43	1.89	0.84	0.26	0.00	99.98
Total Dollar Value of Depreciation for Cohort of $100,000			10,430	10,430	10,430	10,430	10,430	10,370	9,840	8,760	7,160	5,280	3,430	1,890	840	260	20	100,000

Table G.2b

Truncated Normal Retirement Pattern and Geometric Depreciation Pattern

Sub-cohort	Life		Percentage Reduction by Age															Weight from Retirement Fraction
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
1	5	Depreciation	48.11	27.24	14.72	7.21	2.7											0.0032
		Weighted	0.15	0.09	0.05	0.02	0.01											
2	6	Depreciation	41.28	26.19	16.14	9.43	4.96	1.99										0.0314
		Weighted	1.3	0.82	0.51	0.3	0.16	0.06										
3	7	Depreciation	36.15	24.74	16.59	10.76	6.61	3.64	1.51									0.0762
		Weighted	2.76	1.89	1.26	0.82	0.5	0.28	0.12									
4	8	Depreciation	32.15	23.22	16.52	11.5	7.73	4.9	2.78	1.19								0.1273
		Weighted	4.09	2.96	2.1	1.46	0.98	0.62	0.35	0.15								
5	9	Depreciation	28.95	21.77	16.19	11.84	8.46	5.83	3.79	2.2	0.96							0.1692
		Weighted	4.9	3.68	2.74	2	1.43	0.99	0.64	0.37	0.16							
6	10	Depreciation	26.33	20.43	15.71	11.94	8.92	6.5	4.57	3.02	1.78	0.79						0.1854
		Weighted	4.88	3.79	2.92	2.22	1.65	1.2	0.85	0.54	0.33	0.15						
7	11	Depreciation	24.15	19.22	15.18	11.88	9.17	6.96	5.15	3.67	2.46	1.47	0.66					0.1692
		Weighted	4.09	3.25	2.57	2.01	1.55	1.18	0.87	0.62	0.42	0.25	0.11					
8	12	Depreciation	22.3	18.11	14.63	11.72	9.3	7.28	5.59	4.19	3.02	2.05	1.24	0.56				0.1273
		Weighted	2.84	2.31	1.86	1.49	1.18	0.93	0.71	0.53	0.38	0.26	0.16	0.07				
9	13	Depreciation	20.71	17.12	14.07	11.5	9.32	7.48	5.91	4.59	3.48	2.53	1.73	1.06	0.48			0.0762
		Weighted	1.58	1.31	1.07	0.88	0.71	0.57	0.45	0.35	0.27	0.19	0.13	0.08	0.04			
10	14	Depreciation	19.34	16.21	13.54	11.24	9.27	7.59	6.14	4.9	3.84	2.93	2.15	1.48	0.91	0.42		0.0314
		Weighted	0.61	0.51	0.43	0.35	0.29	0.24	0.19	0.15	0.12	0.09	0.07	0.05	0.03	0		
11	15	Depreciation	18.13	15.39	13.02	10.97	9.18	7.64	6.3	5.14	4.13	3.26	2.51	1.85	1.29	0.79	0.37	0.0032
		Weighted	0.06	0.05	0.04	0.04	0.03	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.00	0.00	0.00	
		Total weights																1.0000
Total Weighted Percentages			27.26	20.65	15.55	11.59	8.5	6.09	4.2	2.76	1.69	0.95	0.48	0.2	0.07	0.00	0.00	100.00
Total Dollar Value of Depreciation for Cohort of $100,000			27,260	20,650	15,550	11,590	8,500	6,090	4,200	2,760	1,690	950	480	200	70	10	0	100,000

Table G.2c

Truncated Normal Retirement Pattern and Delayed Depreciation Pattern

Sub-cohort	Life		Percentage Reduction by Age															Weight from Retirement Fraction
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
1	5	Depreciation	2.44	3.81	6.79	15.53	71.43											0.0032
		Weighted	0.01	0.01	0.02	0.05	0.23											
2	6	Depreciation	1.96	2.8	4.33	7.57	16.67	66.67										0.0314
		Weighted	0.06	0.09	0.14	0.24	0.52	2.1										
3	7	Depreciation	1.64	2.21	3.13	4.79	8.23	17.5	62.5									0.0762
		Weighted	0.12	0.17	0.24	0.36	0.63	1.33	4.76									
4	8	Depreciation	1.41	1.82	2.43	3.43	5.19	8.79	18.1	58.82								0.1273
		Weighted	0.18	0.23	0.31	0.44	0.66	1.12	2.3	7.49								
5	9	Depreciation	1.23	1.54	1.98	2.64	3.7	5.55	9.26	18.52	55.55							0.1692
		Weighted	0.21	0.26	0.34	0.45	0.63	0.94	1.57	3.13	9.4							
6	10	Depreciation	1.1	1.34	1.67	2.14	2.84	3.95	5.87	9.65	18.8	52.63						0.1854
		Weighted	0.2	0.25	0.31	0.4	0.53	0.73	1.09	1.79	3.48	9.76						
7	11	Depreciation	0.99	1.18	1.44	1.79	2.29	3.02	4.18	6.16	9.98	18.96	50					0.1692
		Weighted	0.17	02	0.24	0.3	0.39	0.51	0.71	1.04	1.69	3.21	8.45					
8	12	Depreciation	0.9	1.06	1.26	1.54	1.9	2.42	3.19	4.38	6.41	10.26	19.05	47.62				0.1273
		Weighted	0.11	0.13	0.16	0.2	0.24	0.31	0.41	0.56	0.82	1.31	2.42	6.06				
9	13	Depreciation	0.83	0.96	1.13	1.34	1.63	2.01	2.55	3.34	4.57	6.63	10.48	19.06	45.45			0.0762
		Weighted	0.06	0.07	0.09	0.1	0.12	0.15	0.19	0.25	0.35	0.51	0.8	1.45	3.46			
10	14	Depreciation	0.76	0.87	1.01	1.19	1.42	1.71	2.11	2.67	3.49	4.74	6.83	10.67	19.02	43.5		0.0314
		Weighted	0.02	0.03	0.03	0.04	0.04	0.05	0.07	0.08	0.11	0.15	0.21	0.34	0.6	1.37		
11	15	Depreciation	0.17	0.8	0.92	1.07	1.25	1.49	1.79	2.21	2.79	3.62	4.9	7	10.82	18.9	41.7	0.0032
		Weighted	0	0	0	0	0	0	0.01	0.01	0.01	0.01	0.02	0.02	0.03	0.1	0.13	
		Total weights																1.0000
Total Weighted Percentages			1.16	1.45	1.88	2.57	4	7.25	11.1	14.35	15.86	14.94	11.91	7.87	4.1	1.43	0.13	100.00
Total Dollar Value of Depreciation for Cohort of $100,000			1,160	1,450	1,880	2,570	4,000	7,250	11,100	14,350	15,860	14,940	11,910	7,870	4,100	1,430	130	100,000

Figure G.1
Survival of Capital Stock Using Beta-decay Depreciation: *L-x/L-$x*

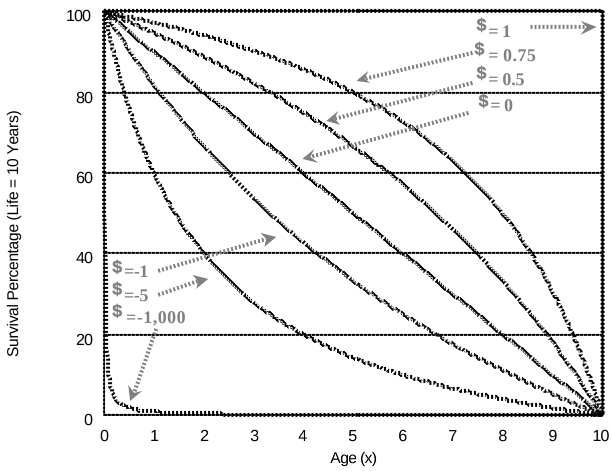


Figure G.2
Geometric Decay Function, Life = 10 Years, Infinite vs. with Redistribution

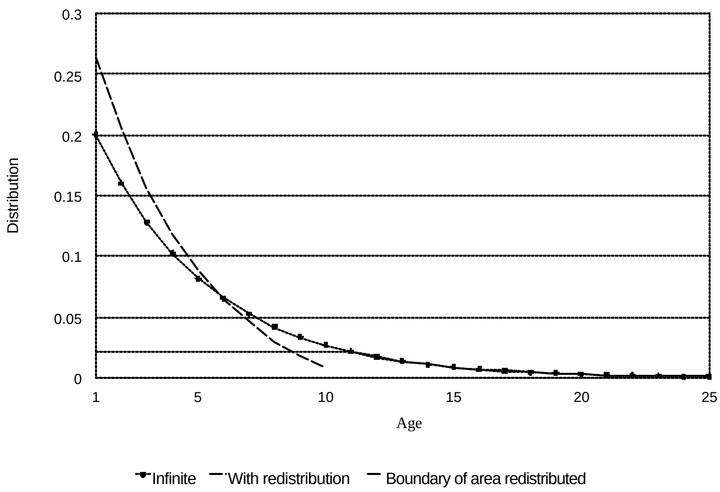


Table G.3

Geometric Depreciation of a Sub-cohort of Assets with a Service Life (*L*) of 10 Years and d = 2/*L*

Age (x)	Value of Depreciation Function D = $d(1-d)^{X-1}$ for Asset of Age x Years	Shifted D: Values in Column 2 Shifted Down by Depreciation at Age 11 (i.e. Column 2 - 0.021475)	Proportional Distribution of Shifted D: Individual Values in Column 3 Divided by the Column Total
1	2	3	4
1	0.2	0.178525	0.263359
2	0.16	0.138525	0.204351
3	0.128	0.106525	0.157145
4	0.1024	0.080925	0.11938
5	0.08192	0.060445	0.089168
6	0.065536	0.044061	0.064999
7	0.052429	0.030954	0.045663
8	0.041943	0.020468	0.030195
9	0.033554	0.012080	0.01782
10	0.026844	0.005369	0.00792
11	0.021475	0.000000	0
12	0.01718	Sum = 0.677877	Sum = 1.000000
13	0.013744		
14	0.010995		
15	0.008796		
16	0.007037		
17	0.005629		
18	0.004504		
19	0.003603		
20	0.002882		

G.3 BEA-type Geometric Depreciation Methodology

AS WITH THE CURRENT MEASURES, estimates of net stock and depreciation are derived using the perpetual inventory method: accumulated past gross investment is reduced by the cumulative value of depreciation. The initial calculations are performed in real terms and current dollar values are estimated by reflation. The asset lives and price indices used are the same as those used in the current measures.

The BEA-type methodology for estimating geometric depreciation and net stocks differs from that used to calculate the current measures in several important respects.

The BEA-type methodology uses rates of depreciation derived from studies of actual price-age profiles of used assets. These studies show that depreciation is close to geometric for most assets, but whereas the current geometric measures use a double-declining-balance rate for all types of assets, the BEA-type geometric measures use a rate of 1.65 for machinery and equipment and 0.9 for structures.

Also, as noted previously, the current methodology breaks a cohort of investments into sub-cohorts based on an assumed retirement pattern, calculates the depreciation for each sub-cohort based on its own service life, and redistributes the "tail" of the infinite distribution for each sub-cohort. Under the BEA-type methodology, the geometric pattern of depreciation is assumed to take retirements into account and hence the retirement pattern and the division of a cohort of investment into sub-cohorts in not necessary. The "tail" of the distribution is covered under the BEA-type methodology by allowing the calculation of the declining-balance to continue for a period of years equal to five times the service life of the asset. At this point, the remaining value of the asset is close enough to zero that it can be ignored.

Since the BEA-type geometric methodology does not use the concept of a retirement pattern separate from depreciation and uses the same depreciation profile for all investments in a cohort, it is not possible to derive measures of gross stocks and discards corresponding to the BEA-type geometric measures.

G.4 Comparisons

IN SUMMARY, the difference between using the BEA-type methodology rather than the current measures is to dramatically reduce the amounts deducted as depreciation, thereby yielding much higher levels of capital stock in existence. As can be seen from Tables G.5 and G.6, the rates of depreciation are much lower with the BEA-type method than in the current geometric measures.

Table G.4 summarizes the resulting growth rates for the two methodologies. As can be seen, the growth rate for all assets over the period 1982 to 1990 under the BEA-type methodology is over half as much again (153 percent) as the growth rate for the current methodology, and over the period 1991 to 1998, it is double. For structures, the differences are even more dramatic. Over the period 1982 to 1998, the rate of growth for structures using the BEA-type methodology is over twice what it is under the current methodology and for the period 1991 to 1998 it is over three times the current rate.

Table G.4

Average Growth Rates of Net Capital Stock (Geometric Depreciation), Current Measures and BEA-type Methodology

Period	Current Measures			BEA-type Methodology		
	All Assets	Structures	Equipment	All Assets	Structures	Equipment
1982-98	1.5	1.1	2.9	2.6	2.3	3.5
1982-90	1.9	1.4	3.3	2.9	2.7	3.8
1991-98	1.1	0.6	2.4	2.2	1.9	3.1

Table G.5

Depreciation Rates with Service Life of 15 Years

Age	Current Methodology			BEA-type Methodology
	Straight-line Depreciation Pattern	Delayed Depreciation Pattern	Geometric Depreciation Pattern	Geometric Depreciation Pattern
1	6.95	3.61	18.80	11.00
2	6.95	3.89	15.72	9.79
3	6.95	4.21	13.11	8.71
4	6.95	4.58	10.90	7.75
5	6.95	5.00	9.01	6.90
6	6.95	5.49	7.40	6.14
7	6.95	6.06	6.03	5.47
8	6.95	6.73	4.86	4.87
9	6.88	7.37	3.86	4.33
10	6.65	7.79	3.00	3.85
11	6.25	7.92	2.28	3.43
12	5.68	7.70	1.69	3.05
13	4.98	7.14	1.21	2.72
14	4.17	6.28	0.84	2.42
15	3.31	5.22	0.55	2.15
16	2.49	4.06	0.34	1.92
17	1.74	2.94	0.20	1.70
18	1.12	1.95	0.11	1.52
19	0.65	1.16	0.05	1.35
20	0.33	0.60	0.02	1.20
21	0.13	0.24	0.01	1.07
22	0.03	0.05	0.00	0.95

Table G.6
Depreciation Rates with Service Life of 36 Years

Age	Current Methodology			BEA-type Methodology
	Straight-line Depreciation Pattern	Delayed Depreciation Pattern	Geometric Depreciation Pattern	Geometric Depreciation Pattern
1	2.90	0.74	8.17	2.50
2	2.90	0.78	7.60	2.44
3	2.90	0.81	7.07	2.38
4	2.90	0.86	6.58	2.32
5	2.90	0.90	6.11	2.26
6	2.90	0.95	5.68	2.20
7	2.90	1.00	5.27	2.15
8	2.90	1.06	4.88	2.09
9	2.90	1.12	4.52	2.04
10	2.90	1.19	4.19	1.99
11	2.90	1.27	3.87	1.94
12	2.90	1.35	3.57	1.89
13	2.90	1.45	3.30	1.85
14	2.90	1.56	3.03	1.80
15	2.90	1.68	2.79	1.75
16	2.90	1.82	2.56	1.71
17	2.90	1.98	2.34	1.67
18	2.90	2.16	2.14	1.63
19	2.89	2.38	1.95	1.59
20	2.88	2.60	1.77	1.55
21	2.86	2.82	1.60	1.51
22	2.83	3.02	1.44	1.47
23	2.79	3.21	1.29	1.43
24	2.73	3.39	1.16	1.40
25	2.66	3.54	1.03	1.36
26	2.58	3.66	0.91	1.33
27	2.48	3.75	0.80	1.29
28	2.38	3.80	0.70	1.26
29	2.26	3.82	0.61	1.23

Table G.6 (cont'd)

Age	Current Methodology			BEA-type Methodology
	Straight-line Depreciation Pattern	Delayed Depreciation Pattern	Geometric Depreciation Pattern	Geometric Depreciation Pattern
30	2.14	3.80	0.53	1.20
31	2.01	3.74	0.46	1.17
32	1.87	3.64	0.39	1.14
33	1.72	3.50	0.33	1.11
34	1.58	3.34	0.28	1.08
35	1.43	3.14	0.23	1.06
36	1.28	2.92	0.19	1.03
37	1.14	2.68	0.15	1.00
38	1.00	2.43	0.12	0.98
39	0.86	2.18	0.10	0.96
40	0.74	1.92	0.08	0.93
41	0.62	1.67	0.06	0.91
42	0.52	1.43	0.05	0.89
43	0.42	1.20	0.03	0.86
44	0.34	0.99	0.02	0.84
45	0.27	0.79	0.02	0.82
46	0.20	0.62	0.01	0.80
47	0.15	0.47	0.01	0.78
48	0.11	0.35	0.00	0.76
49	0.07	0.24	0.00	0.74
50	0.05	0.16	0.00	0.72
51	0.03	0.09	0.00	0.71
52	0.01	0.04	0.00	0.69
53	0.00	0.02	0.00	0.67
54	0.00	0.00	0.00	0.65

Similarly, comparing the levels of capital stock produced by the two methodologies, total assets under the current measures amount to 587 billion dollars in 1998, but under the BEA-type measures, it reaches 1,445 billion dollars — about 2.5 times as large (see Figures G.3 to G.5).

Figure G.3

Net Capital Stock, All Industries, Structures

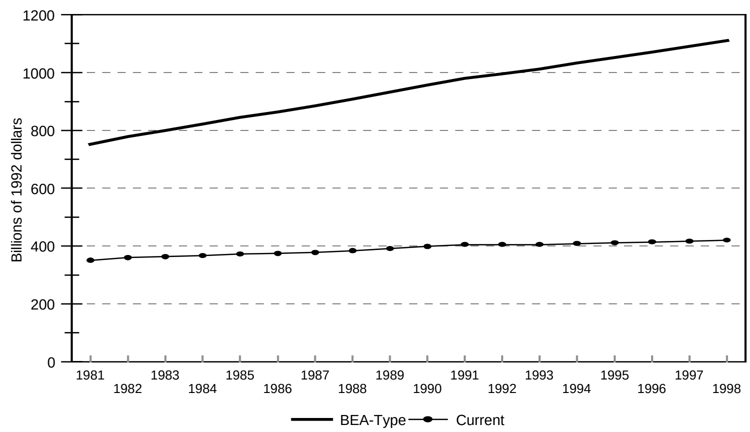


Figure G.4

Net Capital Stock, All Industries, Equipment

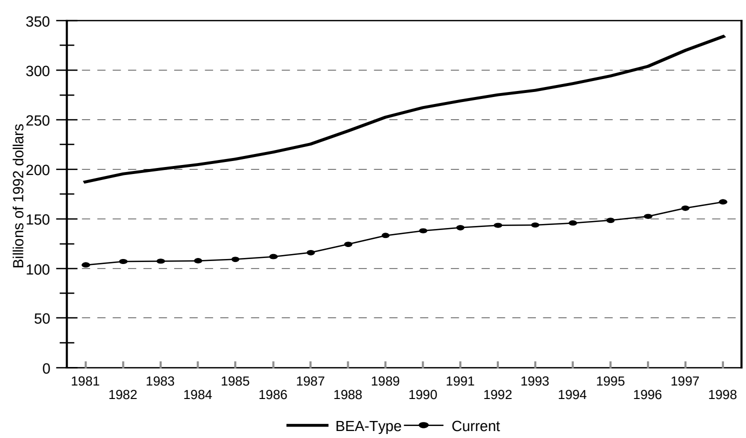
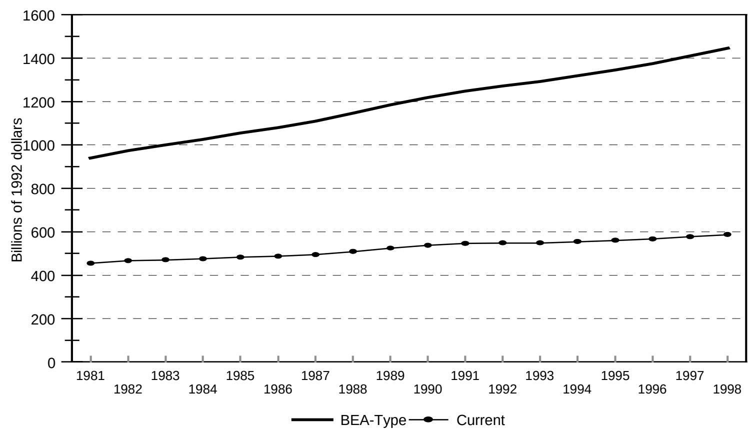


Figure G.5

Net Capital Stock, All Industries, Total



Notes

1 Excerpts from *Canadian Net Capital Stock Estimates and Depreciation Profiles: A Comparison Between the Existing Series and a Test Series Using the U.S. (BEA) Methodology*, P. Koumanakos, R. Landry, K. Huang and S. Wood., Statistics Canada, 1999.

2 For a complete explanation of the Statistics Canada methodology, see Statistics Canada (1994a).

3 Katz and Herman (1997), and Fraumeni (1997).

4 The Capital and Repair Expenditures Survey was extensively revised in 1985 and 1987 to satisfy data requirements for the estimation of capital stocks.