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1. Introduction

• Two main issues in 2008 SNA implementation

- **1**. The capitalization of R&D expenditures
 - R&D expenditures in Korea account for more than 4% of GDP
- 2. The capitalization of weapons systems purchased
 - 10% of national budget is spent on national defense
- Capitalization of R&D and weapons systems may have a considerable impact on GDP

2. The Capitalization of R&D expenditures

The changes in R&D treatment

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	industry A	industry B	R&D	GFCF		industry A	industry B	R&D	GFCF
industry A	а	е	i		industry A	а	е	i	
industry B	b	f	j		industry B	b	f	j	
R&D	с	g	k	0	R&D				c+g+k
VA	d	h	-		VA	c+d	g+h	k+l	
Output	a+b+c+d	e+f+g+h	i+j+k+l		Output	a+b+c+d	e+f+g+h	i+j+k+l	

• Capitalization of R&D will increase GDP and GFCF

• Estimating R&D output

1. Put together all the items forming R&D output

+/-	Items	Data Sources
+	labor cost, operating cost	Survey of R&D
-	cost for S/W produced on own account	Survey of R&D
+	purchase of R&D services by businesses specializing R&D	Survey of R&D
+	cost for capital services	Input-Output Table
+	other taxes on production	Tax data

* Survey of R&D is conducted annually by Ministry of Science, ICT and Future Planning on an annual basis

2. The output is produced through a cost approach

• Estimating GFCF using R&D output

1. To produce GFCF from R&D activities a production balance can be used

output + imports = intermediate consumption + final consumption + gross fixed capital formation + changes in inventories + exports

2. The above formula can be modified for calculating GFCF

gross fixed capital formation = (output + imports) – (intermediate consumption + final consumption + changes in inventories + exports)

* To make the output at market prices taxes on products are added
* Net purchase from other institutional sectors is added

3. Put together all the items forming GFCF

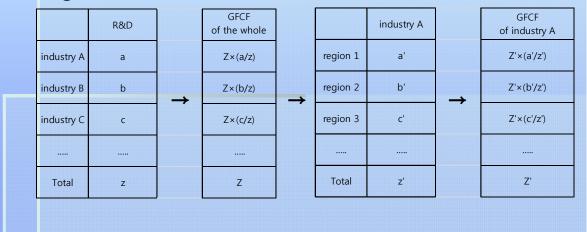
	+/-	Items	Data Sources
	+	output	produced in the previous process
	+	taxes on products	Tax data
	+	net imports(imports-exports)	Input-Output Table
_	+	net purchase from other institutional sectors	Survey of R&D
	-	intermediate consumption	produced in the previous process (purchase of R&D services by businesses specializing R&D)

4. GFCF of each institutional sector is produced

* Final consumption and changes in inventory in R&D activities are considered as 0

5. Allocation of GFCF to regions

- GFCF of government and NPISHs is allocated to the region where the output took place
- GFCF of corporations is allocated to industries, first, and then the share of each industry is allocated to regions



3. The Capitalization of Weapons Systems

The changes in the treatment of WS

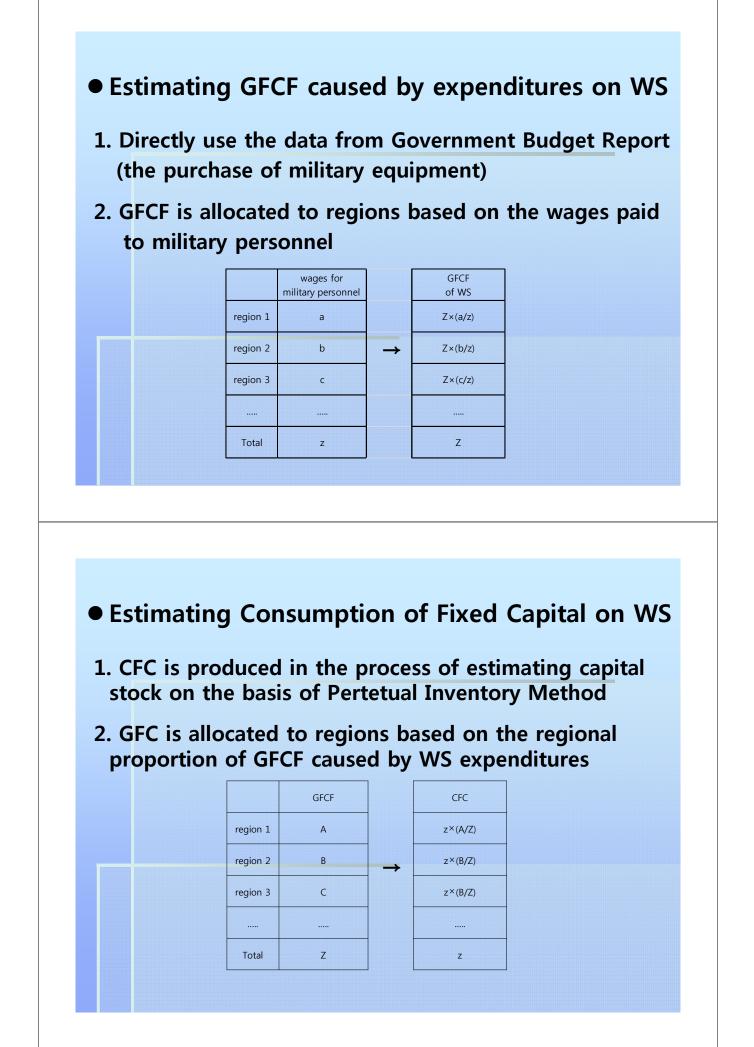
< 1993 SNA >

< 2008 SNA >

		industry A	manufacturing of WS	Government	GFCF		industry A	manufacturing of WS	Government	GFCF
industr	ry A	а	с	е		industry A	а	с	е	
manufac of V				c+d		manufacturing of WS				c+d
Govern	ment					Government				
VA		b	d	f		VA	b	d	f+z	
Outp	ut	a+b	c+d	e+(c+d)+f		Output	a+b	c+d	e+f+z	

* z = consumption of fixed capital formation

Capitalization of R&D will increase GDP by the amount of Consumption of Fixed Capital on WS



4. The Result

• Capitalizing R&D and WS causes regional GDP in 2010 to rise by 3.9%

1. With the capitalization of R&D RGDP increases by 3.6%

2. With the capitalization of WS RGDP increases by 0.3%

		2008	2009	2010	2011	2012
	Aftrer rebasement (a)	1,105.7	1,151.4	1,265.1	1,330.9	1,377.0
Regional GDP	Before rebasement (b)	1,028.5	1,065.7	1,172.7	1,241.6	1,275.0
	Base-up(a/b)	7.5	8.0	7.9	7.2	8.0
Increase of GDP by R&D	Amount (c)	32.3	36.1	42.2	44.8	51.9
capitalization	Increase rate (c/b)	3.1	3.4	3.6	3.6	4.1
Increase of GDP by weapons	Amount (d)	2.8	3.2	3.3	3.5	3.8
system	Increase rate (d/b)	0.3	0.3	0.3	0.3	0.3