Chapter 18

The Cost Accounting for Increasing or Decreasing Deficits and Debts

1. Introduction

This chapter clarifies the essence of 'GDP-based' data as a bridge between the literature and the *EES* and *HEU*. 'GDP-based' data replace three equality of income=output=expenditure in the SNA (1993) by GDP. GDP does not satisfy three equality of income=output=expenditure advocated by the founders, Meade and Stone, while the author's income, *Y*, satisfies this equality, where $Y = C + S = W + P$ holds.

Why is it possible for a researcher to convert *Y* to GDP? Empirically, the author finds: the growth rate of GDP equals the growth rate of Y, where $g_{GDP} = g_Y$ always holds by year and over years. For reason and foundation, see BOX A-1, Appendix, 'List for absorbing intermittent statistics data into purely endogenous.' This List clarifies SNA mechanics organically soaking into its whole system and, shows a case of Tanzania, 1990-2012 generally, consistently, and accurately.

The Cost Accounting for Deficit and Debt (CADs) as major subject in this chapter, most importantly, condenses hyperbola philosophy with theory and practice. And, even philosophy is measured numerically, algebraically, and geometrically.

This chapter is composed of twenty page text and several G20 figures derived from Family I to Family XII. Families I to XII include the author's new findings found in Nov 2014. In detail, conception of Family was indispensably born in Oct-Nov 2014, after the author had warm communications with Publication staff, IMF, Washington, D. C., in Oct; thankful for repeating discussions with IMF staff, and naming of "Family" was presented by the Editor in Chief of BAP, Toronto. The following chapter-framework had been constructed in my one week dreams, in particular during 14 hour direct flight from Washington to Tokyo, on 26 Oct, 2014.

(1) Introduction: Starting with two GDP streams, comparing GDP generalized in the literature with the author's GDP-based data.

(2) Methodology by Family I to Family VII: Causes in the real assets of the SNA

Families, I to III, explain the contents of GDP-based data. Families, IV to IX, deepen essential data by item. Families, X to XII, step into deficit and debit and also by sector (the G and PRI sectors).

(3) Empirics: Effectives and results and implications to new discoveries
This section uses three sorts of Groups; G65, G20, and G7, with several selected data by country. The author is much obliged to editors and staff of BAP, Toronto.

(4) Comments on the current stream of related literature

(5) Concluding remarks

Concretely to Introduction: two streams of GDP framework/system and comparison of GDP framework in the literature and GDP-based in the *EES* and the *HEU*. What items are most essential as a bridge between the two streams?

First of all, of course, GDP is most important since the literature relies on GDP and its growth rate. All the conceivable items are compared with GDP and, GDP growth rate is compared with the ratio of each item to GDP.

Second, differently from the literature, the author advocates that the macro level is essential rather than the micro level. The author admires Paul Samuelson in the late 1930's and early 1940's. If macro data were available at that time, Samuelson must have created his own data analysis. The SNA data by country are arranged after the 2nd world war, by the UN, IMF, OECD, and Eurostat.

Third, background to choose database: IMF and the World Bank, sisters, were created by Keynes' (1944, one year before the end of war) noble spirit that human never repeats war by recovering economic systems without war. The author had continuously applied his several models to respective database of the UN, IMF, OECD, ILO, and Eurostat. Then in 1974, the author decided to use IMF data when he accepted Stew Myers' (30 April 1974 on MS graduation date) advice to set up a new data system. The author's empirics were incidentally most fitted for IMF database at that time. This is a whole background why the author bravely visited Publication DATA department, IMF, 16 to 26 Oct 2014.

Back again to the Macro level: How can we establish data for the macro level? Macro data become complete once individual utility is converted to

macro from micro function. The macro idea of Samuelson was realized when the relative ratio of consumer goods/services to producer goods/services, cooperatively under the market principles that holds since three thousand years ago when money was born as the unique exchange rate of goods/services. The author repeatedly advocates: Money quality=money quantity=1.0000000, where the absolute/relative price level equals one and the rate of substitution elasticity between capital and labor is also one. These conditions have been proved empirically using KEWT databases series, officially starting 2007. Figures for G20 countries uses KEWT database V9.15, 1960/90 to 2012, updated.

As a result, GDP-based date can be completely connected with the macro level data with the micro level data.

The author here defines GDP-based data as follows:

1. Presumption: GDP contains indirect taxes. GDP includes net income from abroad, economic capital consumption, and direct taxes, where total taxes are composed of indirect and direct taxes, where subsidies are each minus taxes.
2. GDP produces two definitions; GDP and 'consolidated' GDP, where 'consolidate' expresses GDP after reducing gross to net. Each country statistics office has its own characteristics: For example, Cabinet Office, Government of Japan, follows gross instead of consolidated, where plus and minus equal amounts are overlapped by table. Thus, the author distinguishes GDP with consolidated GDP. Without this distinct, the author cannot express his original framework for GDP-based data. Note: experts of IMF staff, of course, each know the concept of 'consolidated' GDP. A problem in the literature is that 'consolidated' GDP remains unsolved and just shown statistics actual data. If purely endogenous data are connected with purely endogenous data, then, new framework had been born in the past.
3. Framework for GDP-based data is originally here equal to the sum of GDP less the sum of net income from abroad, economic capital consumption, and direct taxes. A key point here is to exclude direct taxes from GDP. It implies that GDP-based data is the amount after redistribution of total taxes.
4. Difference between purely endogenous system in the *EES* and GDP-based here: Calculation of redistribution differs between the above two systems. *Purely endogenous system* in the *EES*: just before and after redistribution of taxes produces government and private incomes/expenditures/output.

GDP-based system in the *HEU*: just before and after redistribution of taxes produces household's income and corporate enterprise income.

Nevertheless, common general character still holds between the two, *Purely endogenous system* in the *EES* and *GDP-based system* in the *HEU*: macro and micro levels never contradict each other. Therefore, *GDP-based system* supports *Purely endogenous system* and also, *Purely endogenous system* reinforces. Both systems march together cooperatively and peacefully, as win-win relationship between the two.

5. What is the common goal or target of the two common systems? This is most important to human being. Human must be happy not only spiritually but also money-making in reality, although the *EES* and the *HEU* have politics-neutral and spirituality-neutral. The target is people-oriented policy; of, by, and for people by country. What is the measure for people? This target is to sustainable consumption and consumption per capital or increasing consumption and consumption per capital and furthermore, the increase in real wage rate. In reality, the adverse goes on globally. Why is it so? What is definite obstacle? Macro level is happy only when consumption and wage share increases at the micro level by country.

6. Definite obstacle: Productivity at the macro level is calculated by using value-added and, non-value-added is neglected. By solely taking into consideration non-value-added, productivity gets out of disorder. The author's discussions during the *IAS* Conference, Savannah, on 13 to 15 Oct 2014 aim at this crucial problem. Framework of the Break-Even Point (BEP) of the above discussions is separately clarified in another chapter of the *HEU*. Drucker, Peter, a genius advocator of life-time employment system in his life work, had been suggesting Japan mangers and business leaders not to throw away Japan's historical life-time employment system. Today's serious obstacle in Japanese economy: full-employment but shortage of skilled workers, unhappy long decrease in the real wage rate over years. The obstacle is solved by introducing the BEP that adds non-value-added to value-added. And the profits-maximization is guaranteed by fixed non-value-added. The obstacle ironically realizes minimum profits at the macro and micro levels.

7. Robust BEP equation framed at the macro and micro levels:

The BEP equation, Eq. 1 or Eq. 2 reversed:

$$\mathrm{bep_X} = \frac{\mathrm{BEP_X}}{\mathrm{X}} = \frac{1-(z+(1-\mathrm{L_{TIME}}\cdot \mathrm{w_X}))}{\mathrm{L_{TIME}}\cdot \mathrm{w_X}} = \frac{1-v}{f} \quad \textbf{(Eq. 1)}$$

$$\mathrm{bep_X} = 1 - \frac{z/(1-z)}{\mathrm{L_{TIME}}(1-\alpha)} \qquad \textbf{(Eq. 2)}$$

(1). What are implicated in the **Eq. 1** and **Eq. 2**? Eq. 1 and Eq. 2 constitute cores of an integrated structure of the BEP. Is there any difference between Eq. 1 and Eq. 2?

(2). $\mathrm{w_X} = \mathrm{W/X}$ is stressed in Eq. 1 while the relative share of capital or labor, $\alpha = \mathrm{P/Y}$ or $(1-\alpha) = \mathrm{W/Y}$, in Eq. 2. It means: $(1-\alpha) = \mathrm{W/Y}$ and $(1-\alpha) = \mathrm{W/Y}$ are not shown at the same time in an equation; an alternative holds between the two equations. Therefore, Eq. 1 and Eq. 2 have each significant implication. Eq. 1 and Eq. 2 are able to answer any questions from citizens, people, enterprises, households, leaders, decision-makers, policy-makers, countries, and societies. For example, what level is better between life-employment system or, part-time system? This is a unique question raised by Peter Drucker (19Nov 1909−Nov 2005) in his life-time work.

(3). Hidden parameters behind the BEP equation: The relative share of capital equals the product of the capital-output ratio and the rate of return: $\alpha = \Omega \cdot r$. Connected with six aspects in the *EES* and its KEWT database and also, unique Axiom of the capital-output ratio, $\Omega = \Omega^* = \Omega_0$.

8. **Summing up**: The *EES* and the *HEU* hold under perfect competition without any regulation. Helped by the market principles, GDP-based system now holds with full-employment, no inflation/deflation, and sustainable wage rate increase over years. GDP-based system now holds without shortage of employees and workers, fairly loving employers, employees, and workers. A Utopia economy is not fairy story but empirics proves its reality, although the style and patterns differ by each country's culture and civilization by area/region. Leaders closer to Nature shall guide us in the near future, towards correct roads and paths by country.

2. Methodology by Family I to Family XII: Causes in the real assets of the SNA

Are causes connected with effectiveness, efficiency, and results in the literature? No; it is next to impossible. Why not? Then, what is required condition(s)? Again, No; it is next to impossible. Suppose causes=results, as seen in the *EES* and the *HEU*. Then, sufficient conditions=necessary conditions, where both sides overlap by nature. When causes=results prevails then, ultimately laissez-faire policy prevails. Laissez-faire policy-oriented is directly connected with six aspects neutral as GDP nominal growth=0-neutral, money-neutral, deficit=0-neutral, relative share-neutral, politics-neutral, and spirituality-neutral.

This section briefly explains Family, item, and key equations, by using three diagrams; **Diagram 1-1**, **1-2**, **2**, and **3**.

First, the author explains the contents of Families.[1] Hyperbola philosophy is measured by hyperbola-functions in the *EES* and the *HEU*. Hyperbola-functions measure the Yin and Yang principles numerically. Of course, the author's hyperbola-functions did not produce in the *EES* and *HEU*, without preservation of the Yin and Yang principle born in Olden China.

Diagram 3 selected eight key equations absorbed into Family, I, II, ... , X, XI, and XII. These key equations are expressed by algebraically and also algebraically. Thus, these are so called hyperbola-functions in this section.

"Notations and Definitions" in the *EES*, 1st and 2nd edition, are put into the *HEU*. Diagram 3 is most important key equations. Readers are just able to refer to Diagram 3. Motto to the *HEU*; simpler the better and shorter the better is. KEWT series, from 1.07 (2007) to 9.15 (latest one), had not born without these key equations. Eight key equations support new discoveries/new fact findings in the *HEU*. For the near future, eight key equations work as mother of the bridge between GDP-based with all the literature in economics and econometrics. For "Notations and Definitions" used in the CADs, see the end.

[1] Programming in the Excel belongs to intellectual property so that the author protects it with thirty-one copy-rights and two software patents, cooperatively with Better Advances Press, Toronto.

Diagram 1-1 Titles (1-2) of Families for data, I, II, ... , to XI, XII

Families	titles of figures (1-2)
I, II, III	Fig. P&A-1 by G20: GDP-based of Family I-II-III
	Fig. P&A-2 by G20: GDP-based of Family I-II-III
	Fig. P&A-3 by G20: GDP-based of Family I-II-III
	Fig. Euro-4 by G20: GDP-based of Family I-II-III
	Fig. E&EastE-5 by G20: GDP-based of Family I-II-III
	Fig. Rest-6 by G20: GDP-based of Family I-II-III
IV	Fig. P&A-7 by G20: GDP-based real Wages
	Fig. P&A-8 by G20: GDP-based real Wages
	Fig. P&A-9 by G20: GDP-based real Wages
	Fig. Euro-10 by G20: GDP-based real Wages
	Fig. E&EastE-11 by G20: GDP-based real Wages
	Fig. Rest-12 by G20: GDP-based real Wages
V	Fig. P&A-13 by G20: GDP-based Wages, ac-en
	Fig. P&A-14 by G20: GDP-based Wages, ac-en
	Fig. P&A-15 by G20: GDP-based Wages, ac-en
	Fig. Euro-16 by G20: GDP-based Wages, ac-en
	Fig. E&EastE-17 by G20: GDP-based Wages, ac-en
	Fig. Rest-18 by G20: GDP-based Wages, ac-en
VI	Fig. P&A-19 by G20: GDP-based Profits
	Fig. P&A-20 by G20: GDP-based Profits
	Fig. P&A-21 by G20: GDP-based Profits
	Fig. Euro-22 by G20: GDP-based Profits
	Fig. E&EastE-23 by G20: GDP-based Profits
	Fig. Rest-24 by G20: GDP-based Profits
VII	Fig. P&A-25 by G20: GDP-based Net Investments
	Fig. P&A-26 by G20: GDP-based Net Investments
	Fig. P&A-27 by G20: GDP-based Net Investments
	Fig. Euro-28 by G20: GDP-based Net Investments
	Fig. E&EastE-29 by G20: GDP-based Net Investments
	Fig. Rest-30 by G20: GDP-based Net Investments

Diagram 1-2 Titles (2-2) of Families for data, I, II, ... , XI, XII

Families	titles of figures (2-2)
VIII	Fig. P&A-31 by G20: GDP-based Taxes
	Fig. P&A-32 by G20: GDP-based Taxes
	Fig. P&A-33 by G20: GDP-based Taxes
	Fig. Euro-34 by G20: GDP-based Taxes
	Fig. E&EastE-35 by G20: GDP-based Taxes
	Fig. Rest-36 by G20: GDP-based Taxes
VIIII	Fig. P&A-37 by G20: GDP-based Rate of return to capital
	Fig. P&A-38 by G20: GDP-based Rate of return to capital
	Fig. P&A-39 by G20: GDP-based Rate of return to capital
	Fig. Euro-40 by G20: GDP-based Rate of return to capital
	Fig. E&EastE-41 by G20: GDP-based Rate of return to capital
	Fig. Rest-42 by G20: GDP-based Rate of return to capital
X	Fig. P&A-43 by G20: GDP-based GDP growth rate and deficit/GDP in Family X
	Fig. P&A-44 by G20: GDP-based GDP growth rate and deficit/GDP in Family X
	Fig. P&A-45 by G20: GDP-based GDP growth rate and deficit/GDP in Family X
	Fig. Euro-46 by G20: GDP-based GDP growth rate and deficit/GDP in Family X
	Fig. E&EastE-47 by G20: GDP-based GDP growth rate and deficit/GDP in Family X
	Fig. Rest-48 by G36: GDP-based GDP growth rate and deficit/GDP in Family X
Comparison	Fig. 49 Comparison of four core ratios: the US, Japan, China, and Singapore
III, IV,	Fig. 50 Comparison of four core ratios: Euro Area, the UK, Norway, Sweden
VIIII	Fig. 51 Comparison of the same four countries by core ratio: gGDP=gY, gCPI, gWreal, and rate of return to capital
	Fig. 52 Comparison of the same four countries by core ratio: gGDP=gY, gCPI, gWreal, and rate of return to capital
Cross	Fig. 53-1 Cross section analysis for 65 countries, 1990-2012, measure-broadly
Section	Fig. 53-2 Cross section analysis for 65 countries, 1990-2012, measure-moderately
X	Fig. 53-3 Cross section analysis for 65 countries, 1990-2012, measure-narrowly
	Fig. 54-1 Cross section analysis for 17 Pacific & Asia area and 14 Euro area, 1990-2012, measure-moderately
	Fig. 54-2 Cross section analysis for 15 Europe & East Europe and 19 Rest area, 1990-2012, measure-moderately
X, XI,	Fig. 55 Cross section Debt & Deficit: for G20, 1990-2012, measure-broadly
VIIII	Fig. 56 Cross section Debt & Deficit: for G7, 1990-2012, measure-broadly
	Fig. 57-1 Tine Series Debt & Deficit: for G7, 1990-2012, measure-broadly
	Fig. 57-2 Time Series Debt & Deficit: for G7, 1990-2012, measure-broadly
XII	Fig. 58 Cross section, G20: rate of technology (flow) vs. growth rate of TFP (stock), By the G sector, 1990-2012
	Fig. 59 Cross section, G7: rate of technology (flow) vs. growth rate of TFP (stock), By the PRI sector, 1990-2012
	Fig. 60 Cross section, G20: Essential connections and combinations among four items, By the G sector, 1990-2012
	Fig. 61 Cross section, G20: Essential connections and combinations among four items, By the PRI sect., 1990-2012
	Fig. 62 Cross section, G7: Essential connections and combinations among four items, By the G sector, 1990-2012
	Fig. 63 Cross section, G7: Essential connections and combinations among four items, By the PRI sector, 1990-2012

Diagram 2 Contents of Families for data, I, II, ... , XI, XII

Family for data	number of items	contents of Families for data; by item and using KEWT series								
Family I	12	Imports	Income fro	Stas. Depre	indirect tax	Total Taxes	G Taxes	Direct Taxe	Less 3items	Consol. GDP
		Wages	Profits	% indire/dire Taxes						
Family II	8	GDP	Con.GDP/GD	**Consol. GDP**	Income fro	Stas. Depre	Direct Taxe	Wages	Profits	
Family III	9	GDP	ΔGDP	**gGDP**	Y=GDP(N/G)	ΔY	gY	GDP-Y	ΔGDP-ΔY	gGDP-gY
Family IV	9	Wac(nomi)	ΔWac(nom	gWac(nomi	CPI	gCPI	gWreal	Wreal(t)	ΔWreal	Wreal(t+1)
Family V	9	W	ΔW	gW	W=(1-α)Y	ΔWen	gWen	Wac-en	ΔWac-en	gW(ac-en)
Family VI	9	P Opera.Surp	ΔP	gP	P en=Y-W	ΔPen	gPen	Pac-en	ΔPac-en	gP(ac-en)
Family VII	9	I net(ac)	ΔI net	gI net	I net(en)	ΔI net(en)	gI net(en)	I net(ac-en)	ΔI net(ac-en)	gI net(ac-en)
Family VIII	9	TAX(ac)	ΔTAX(ac)	gTAX(ac)	TAX(en)	ΔTAX(en)	gTAX(en)	TAX(ac-en)	ΔTAX(ac-en	gTAX(ac-en)
Family VIII	10	DEP	I NET	(%) DEP/INE	TAX	SUBS	(%)SUBS/TA	K	P/K	P/K
		(%) (P-P)/K								
Family X	4	SG-IG	GDP	% to GDP	**gGDP=gY**					
	Note:	LONG' data, 1960-2012; while 'Short' data, 1990-2012, whose source *IFS Yearbook* s, IMF ovrt years.								
Family XI	5	Dd=(SG-IG)/Y	r*-gY*	D/Y	r*=a/W	D/Y if no growth				
Family XII	6	G sector:	g(G)TFP(st	g(G)A(flow	r(G)	x(G)=gY/r(	v(g)=r/(r-gY)			
	6	PRI sector:	g(PRI)TFP(	g(PRI)A(flo	r(PRI)	x(PRI)=gY/	v(PRI)=r/(r-gY)			

Diagram 3 Key equations in six aspects-neutral and under the market principles

RRR=0: $g_{Y(nomical)}$ = rate of inflation or deflation (i. e., minus inflation).

1. Money-neutral: $x = \alpha/(i \cdot \beta^*)$ since the coefficient between the rate of return and the growth rate of output. $r^* = \left(\frac{\alpha}{i \cdot \beta^*}\right) g_Y^*$.
2. valuation ratio, $v^* = \frac{V^*}{K} = \frac{r^*}{r^* - g_Y^*}$
3. Technology-neutral: $\left(\frac{rho}{r}\right)\left(\frac{C}{GDP}\right) = 13.301c^2 - 22.608c + 10.566$ is principally used by country. Exceptionally, $\left(\frac{rho}{r}\right)\left(\frac{C}{GDP}\right) = 1.8638c^2 - 2.4547c + 1.758$ is used for several saving-oriented countries.
4. Relative share-neutral: The relative share of capital, $\alpha = \Pi/Y$: $(1-\alpha) = \frac{c}{(rho/r)}$ and, $\frac{K}{L} = \frac{(\alpha/(1-\alpha))}{(r/w)}$ or $k = \frac{w \cdot \Omega}{1 - r \cdot \Omega}$.
5. Differently, $\alpha = 1 - \frac{\frac{C}{GDP}}{\frac{rho}{r}}$. $\left(\frac{r}{w}\right) = \frac{\frac{\alpha}{1-\alpha}}{\frac{K}{L}}$. $w = \frac{W}{L} = \frac{r}{\left(\frac{r}{w}\right)}$.
6. $g_w = g_y + g_{(1-\alpha)}(1 + g_y)$ since $g_{(1-\alpha)} = g_w - g_y$.
7. Axiom of $\Omega = \Omega^* = \Omega_0$ reinforces above equation, with fixed $\alpha = \Omega^* \cdot r^*$.

3. Empirics:
Effectives and results and implications to new discoveries

This section uses three sorts of Groups[2]; G65, G20, and G7, with two typical time series of (1) the US, Canada, Japan and, (2) the UK, Sweden, and Demark. Look at the US: The author is delighted to find a fact why US$ is continuously worthy of key currency after stop conversion gold, 1973. The UK shows high growth among developed/matured countries. Why? Readers will deepen respective ideas and interpretations.

For Euro Area, the author's viewpoint differs from the current interpretation. All the current economic analyses have to rely on GDP growth and actual data. This is all right. Serious problem is grim reality that commenters globally do not tough '*purely endogenous*' data (once more, see Tanzania, 2006-2009, in Appendix) solely by using the real assets in the SNA.

The author never blames this fact but only harmonizes both sides by presenting GDP-based data that explains in this chapter. Then, Euro Area weighted average data, 1999-2012, obtained from *IFS Yearbook*s, IMF, is hopeful and bright even the current situation apparently seems to be pessimistic.

Remember: ten year national debt yield in the financial markets reflects a fact that the country does not produce earning power and no others. Even under these circumstances, if economic/social policies are taken stably and moderately, people are safe and no doubt.

Sweden shows another successful policy example after experiencing complicated roads: high indirect country similarly to other Scandinavian countries with high direct tax burden. Why? Denmark is number one country in the world for education-oriented policies. Why? Figures here will tell you the truth or simple fact.

For 65 country data, see PART III Data, 228 tables and 65figures after PART II. The real assets in the SNA tell us; please get out of GDP and GDP growth competition; please do not complete each other but least/minimum net investment will produce maximized earnings and profits, where the business principle is maximized; and please take it easy even in rapidly decreasing population countries, where technology is independent from population.

Furthermore and ultimately, cooperatively help each other; please think of others; and instant, in a short run, and in a long run will be simultaneously attained not in dream but in reality.

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[2] The author is much obliged to Dr. Yisheng Huang, BAP Toronto. He is one of the author's colleagues and friends.

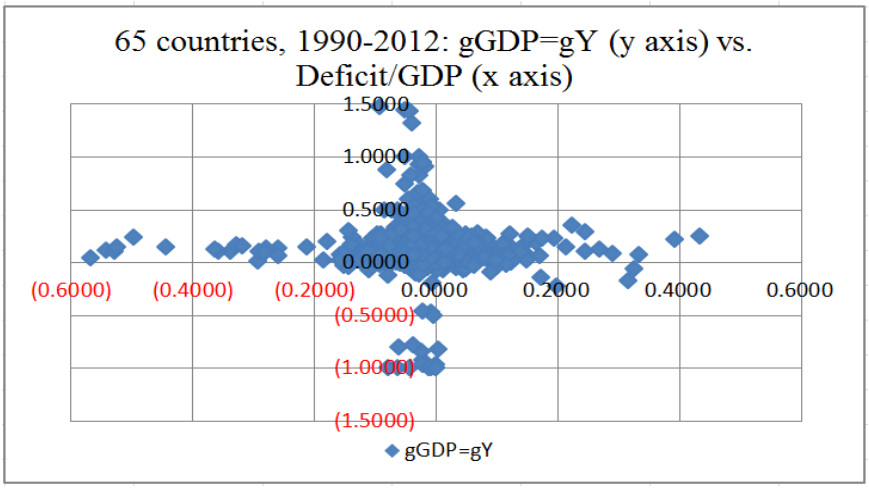


Fig. 1 Cross section analysis for 65 countries, 1990-2012, measure-broadly

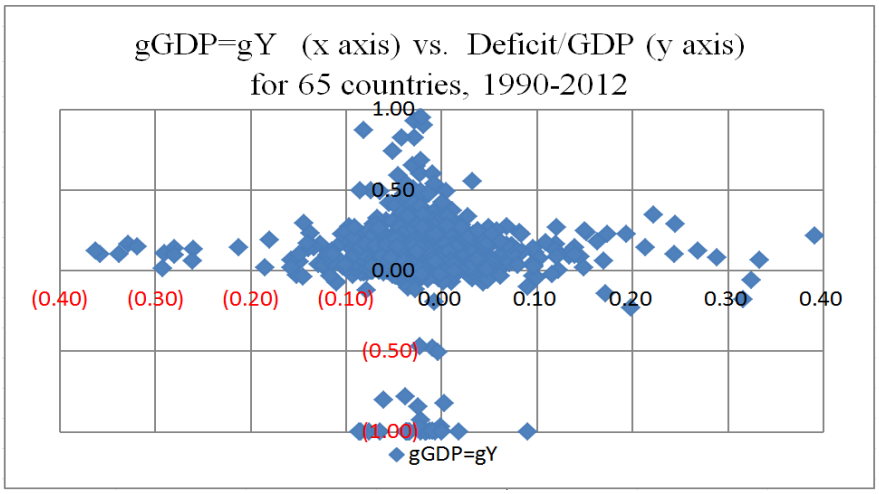


Fig. 2 Cross section analysis for 65 countries, 1990-2012, measure-moderately

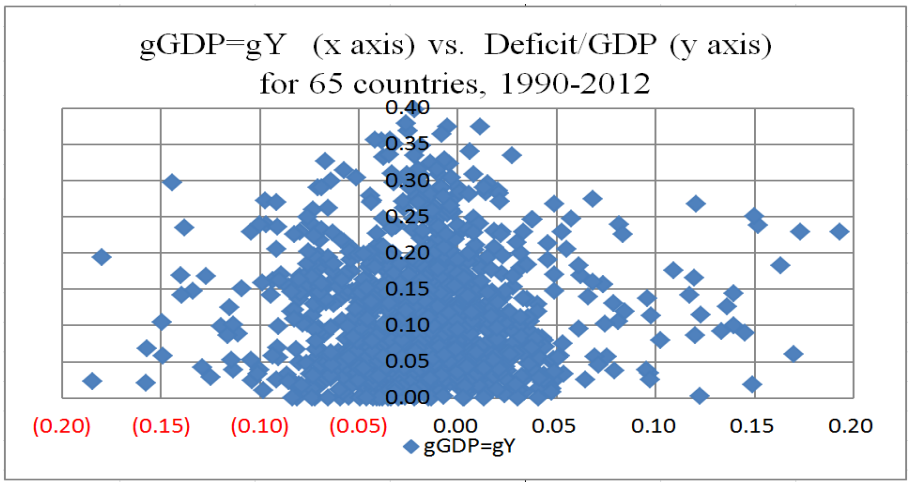


Fig. 3 Cross section analysis for 65 countries, 1990-2012, measure-narrowly

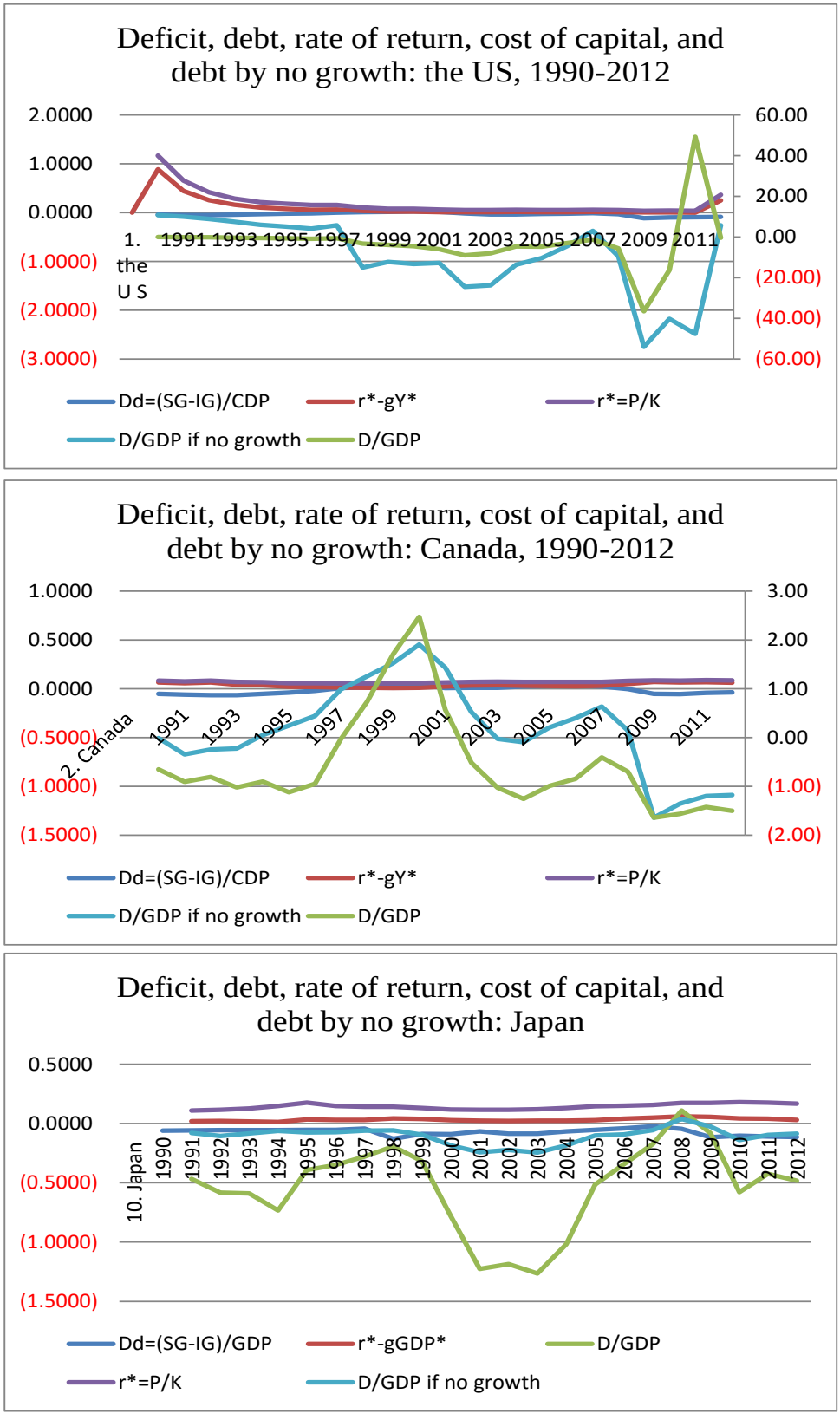


Fig. 4 Time series of G7 (1-4): Debt/GDP *vs*. Deficit/GDP

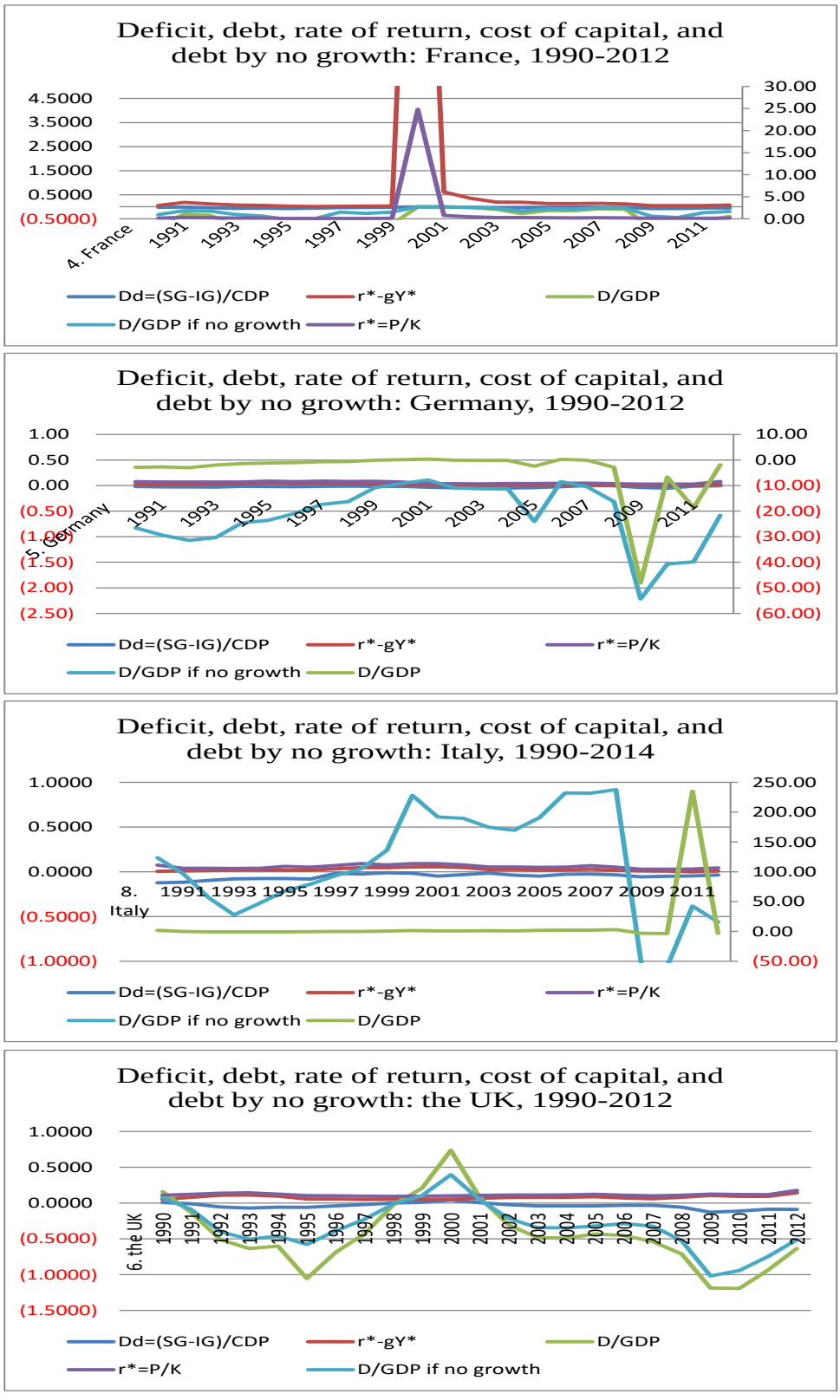


Fig. 5 Time series of G7 (2-4): Debt/GDP *vs.* Deficit/GDP

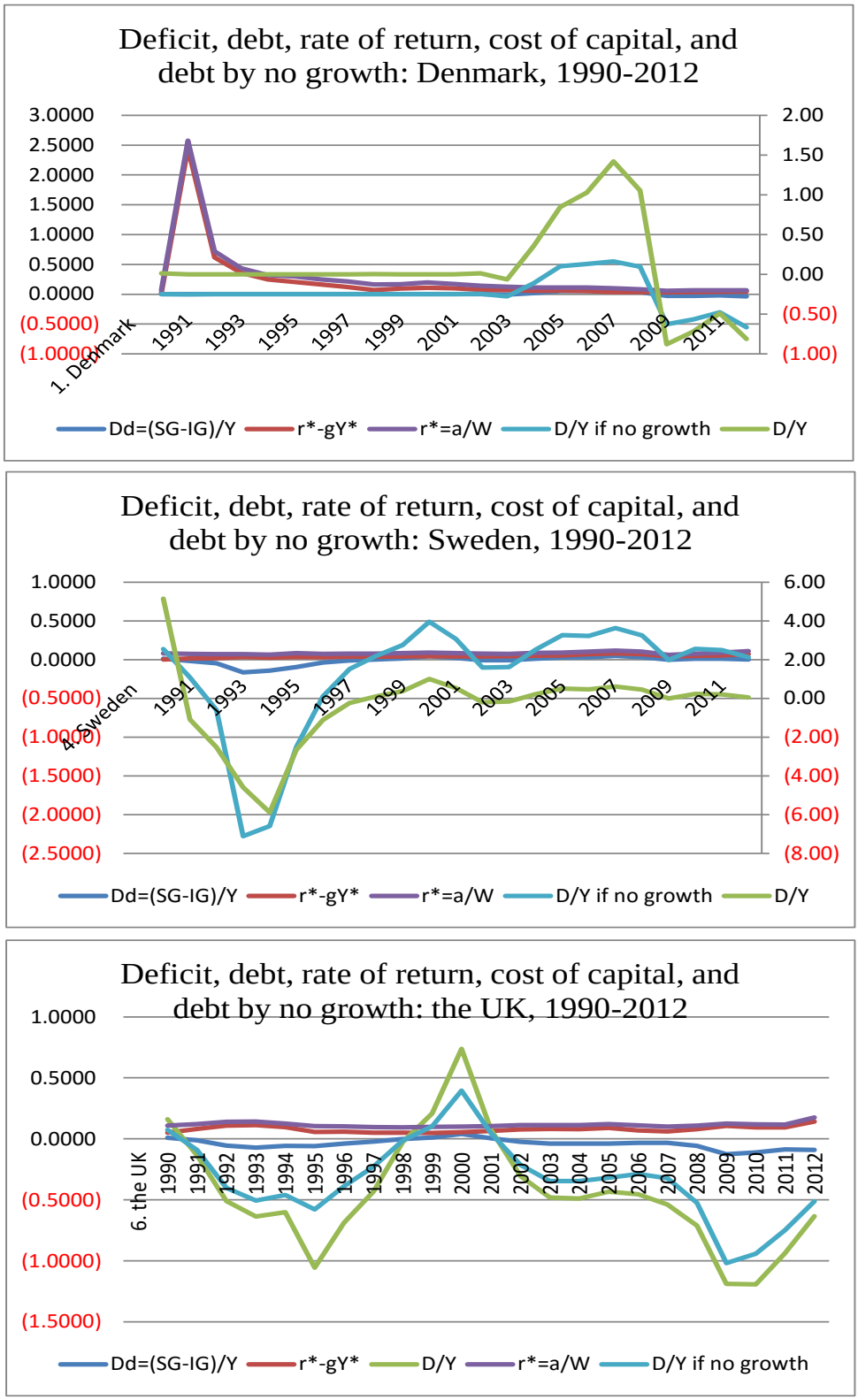


Fig. 6 Time series of G7 (3-4): Debt/GDP *vs*. Deficit/GDP

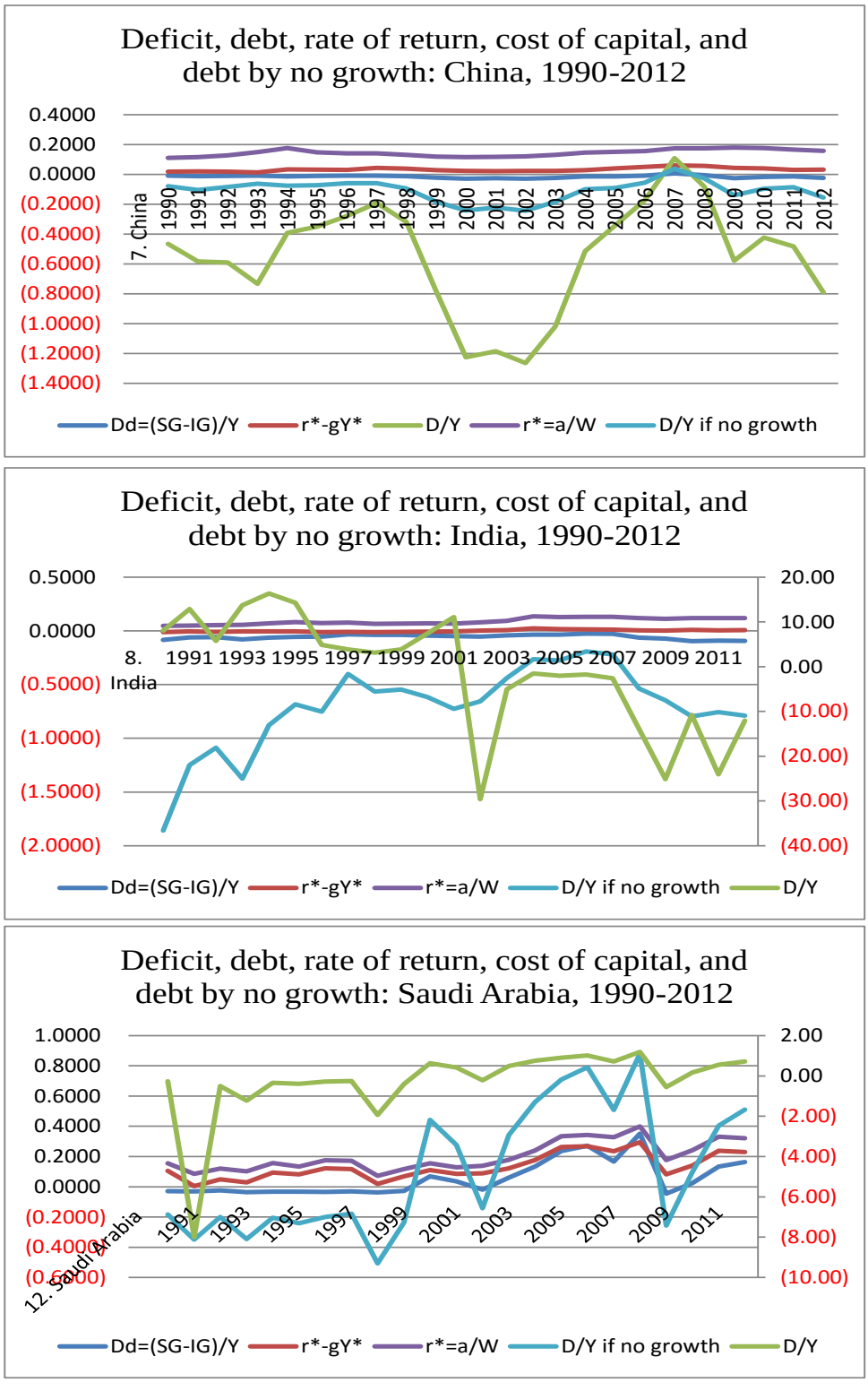


Fig. 7 Time series of G7 (4-4): Debt/GDP *vs.* Deficit/GDP

Note: Saudi Arabia has no market system yet, but the market principles work well.

New discoveries, algebraically and geometrically by Family

D-1 Absolute priority to individual ideas:

Individual ideas differ by person. Faces and shape of voice differs by person and among 6 billion people in the world. We respect individual's each personality and never accept even some ideas advocated by others.

D-2 Absolute priority to female ideas:

Female ideas are a base for eternal peace by country in the world, due to woman's destined birth ability to succeed ancestors to future descendants. We respect this ability: This is another expression of 60-60 year stabilization in a long run and makes all the countries peaceful.

D-3 Absolute priority to Nature ideas:

Nature corresponds with God, Heaven, and numerous God & Buddha in the case of Japanese culture and civilization. Nature is oneness. Oneness connects all the people harmoniously and cooperatively with each other; not fighting but acting love. World peace is always designed by Nature for human life-time ascetic practices.

D-4 Absolute priority to economic/social mechanics:

The market principles by goods/services prevail just like next to Nature. Price level, however, does not integrate all the prices and, never present vital causes-effects measured by using the real assets. And, price level always holds; instantly, in a short run, and in a long run but, goods and services each need some production periods, e.g., 3o days or 60 days. These two limits are unavoidable by nature and beyond space and time.

D-5 Absolute priority to economic/social mechanics:

Policies and strategies have respective unique roles. Role of policies is organic organizations (proving closer to Nature) ever consistent as a whole system. Strategies vertically reinforce economic/social policies. Policies hold vertically and horizontally while strategies vertically and are easy to connect with the market principles. Policies are Mother while strategies are Father and family support world peacefully.

D-6 Absolute priority to economic/social mechanics:

The macro level is a base for organic organizations, macro and micro. First macro starts and then simultaneously micro follows. Macro presents the balance sheet and the profit/loss statement in the SNA (1993). Micro presents households and corporate enterprises.

D-7 Absolute priority to economic/social mechanics:

The financial and market assets in the SNA is the reverse side of the real assets in the SNA (1993). It implies: we cannot control the real assets by managing financial/market assets. The *EES* and the *HEU* have six aspect-neutral including politics-neutral but, here we need a few key sentences. Perceive the essence of real assets. Do not yield to wrong temptation, for people and democracy by country. We must be closer to Nature in our decision-making. Democracy has been brought up for our descendants as human being.

D-8 Absolute priority to economic/social mechanics:

Data, individual and private, and public, are vital in human life today. Databases are important for researchers to study life-time goal and target. It is a fact that we use statistics or actual (external and exogenous) data and estimated, forecasted, mathematical or econometrical data including probability, differential/integral, and new technological methods, besides conventional economics that needs numerous assumptions by model and system.

However, the Cost Accounting for Deficit and Debt (CADs) in the *HEU* clarifies a new path that actual data is unitedly connected with purely endogenous data. It implies that actual data must be a base and standard for endogenous data. What data must be a core in economic and social data under spirituality-neutral as one of six aspect-neutral? Of course, GDP is always in today's economies by country. The KEWT proves this invaluable finding. The author calls it GDP-based under six neutrals or simply, 'GDP-based.' 'GDP-based' prevails in every database as it is and without any processing. Therefore, all the data remain unchanged in the *HEU*, compared with the *EES*, 1st and 2nd. Just we need to follow some calculation between actual and endogenous data by using a new concept of Family. Families I, II, and III solely present GDP-based device. Other nine Families present each key items for GDP-based.

Now more specifically in classification and minimum notations:

D-9 A unique Cobb-Douglas production function (the C-D), GDP=TFP, L, K:

Purely endogenous data perfectly holds by totally relying on the author's Cobb-Douglas production function (the C-D pf). The C-D pf in the literature needs various assumptions, continuously and discretely. First of all, the C-D pf assumes that the relative share of income, $\alpha = P/GDP$, reaches a convergence when some inequality turns equality, as proved by recursive

programming. Actually, the literature does not measure the value of *alpha* or, more accurately, cannot measure *alpha*, by country and by sector (the G and PRI sectors). And, we say that *alpha* determines Gini coefficient or the rate of poverty yet, how to? GDP-based and purely endogenous answer and all of these continuous questions and, execute and solve difficulties by pertinent plan-do-see or learning by doing.

D-10 Labor/population, L:

Does 'Labor and population,' L, differ from capital, K? L expresses quality and quantity and cannot be divided into quality and quantity, while K is divided into quality and quantity. Is this true academically scientifically? No. Why? Back again; due to delicate character of the C-D pf., as above Q&A 9. Further, L is related to human capital, see Q&A 14.

D-11 Capital, flow and stock:

Capital is most difficult to measure among major data-items. Why? Reason or foundation is beyond solution in the literature. The *EES* and *HEU* solved this problem by Axiom of constant capital-output ratio, which was mathematically solved in 1970 by Samuelson, with a method for averaged capital-output ratio over time.

D-12 Technological progress, slow and stock, $g_{(flow)}$ and g_{TFP}:

The literature estimate (not measure) both but, separately. 'Endogenous' in the literature is not perfect at all. The *EES* and *HEU* solved this problem, first and simultaneously by measuring $g_{(flow)}$ and g_{TFP}, which are consistent with all the variables and parameters, hundreds and thousands.

D-13 Utility measure, macro, (rho/r) with the propensity to consume, c=C/GDP; no more at the micro level:

Macro is a base for micro. Macro utility measures the relative discount rate of consumer goods/services to producer goods/services, (rho/r). Then, without estimating micro utility, a whole system work perfectly and consistently measured.

D-14 Human capital and education:

The EES and *HEU* do not measure human capital. Human capital is absorbed into human education. Human education profoundly reinforces $g_{(flow)}$ and g_{TFP}, as vertical fundamental strategy.

New Discoveries in GDP-based by Family

D-15 Family IV: The real wage rate increasing/decreasing:

Rate of poverty is definitely solved by goal of Families II and III, together with resultant deflation/inflation.

D-16 Family V: The nominal wage rate, statistics/actual and purely endogenous.

If the real wage rate shows minus, policies are wrong. Also, the difference between both data is always small.

D-17 Family VI:

Profits in actual and returns in purely endogenous are commonly measured by country, with each prescription.

D-18 Family VII:

Growth rates in net investments in both data are usually zero. Profits maximized with minimum net investment.

D-19 Family VIII:

Taxes, indirect and direct, determine the size of government or an economy, no by policy but by purely endogenously. Com=pare growth rates in both sides.

D-20 Family IX:

Clarify essence of subsidies and economic depreciation. Axiom, constant $\Omega = \Omega^* = \Omega_0$, produces the rate of return, $r = P/K$.

Rate of poverty is definitely solved by goal of Families II and III, together with resultant deflation/inflation.

$r = r^* = r_0$ under a fixed share of L and K in the C-D pf is measured and maximized in the market principles.

D-21 Family X:

Deficit=0 produces Profits MAX in micro and returns MAX in macro with net investment MIN. These are uniformly connected with hyperbola-philosophy.

Democracy level, for, of, and by people, is examined under six aspect-neutrals and the market principles.

D-22 Family XI:

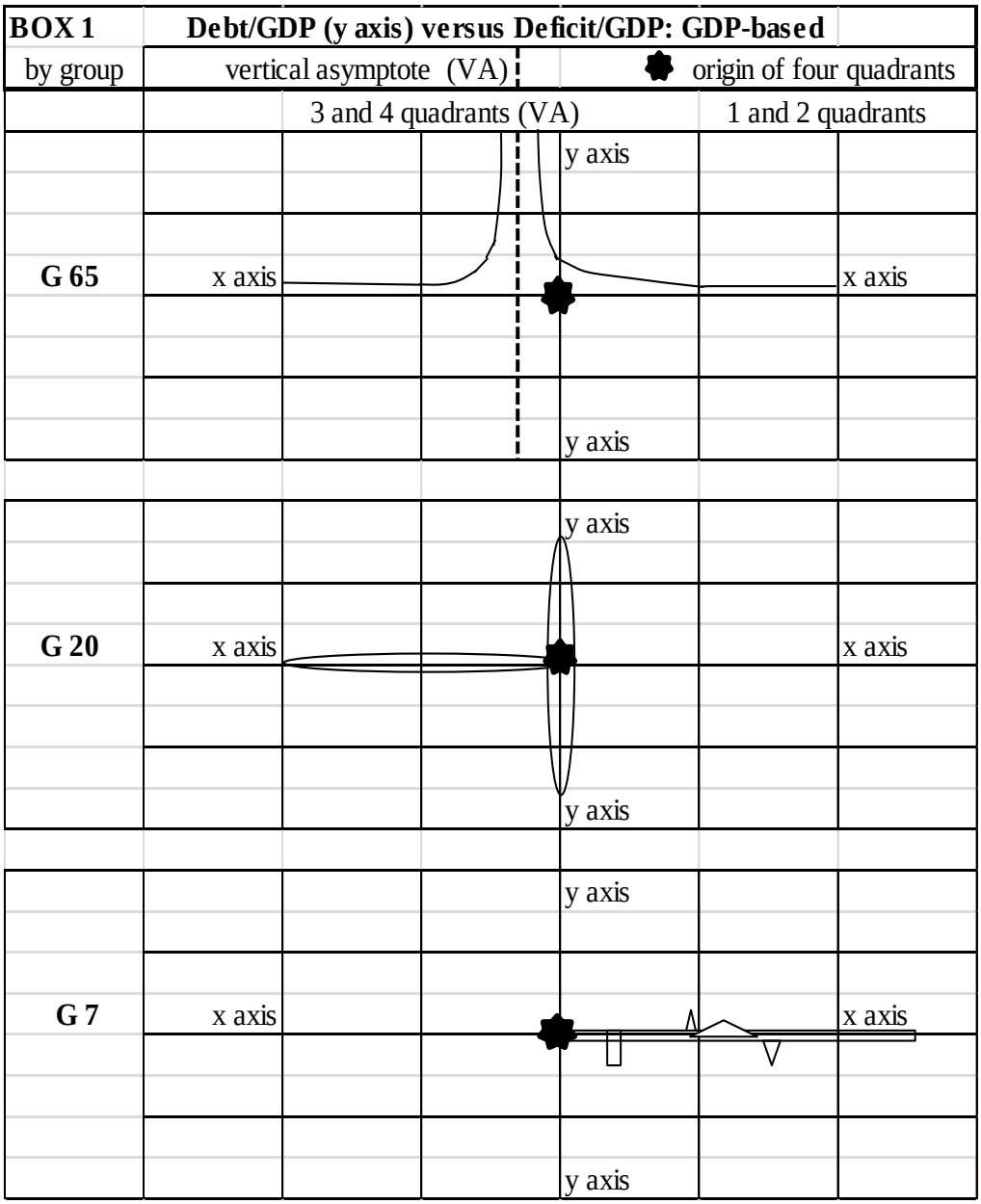
Deficit (flow) and debt (stock) are thoroughly tested in Family XI. List of figures shows key items selected.

D-23 Family XII:

The Cost Accounting for Deficit and Debt (CADs): Extended to the G and PRI sectors, beyond space and time and globally.

The G and PRI sectors each measures the same core items and, served for goals of Families harmoniously.

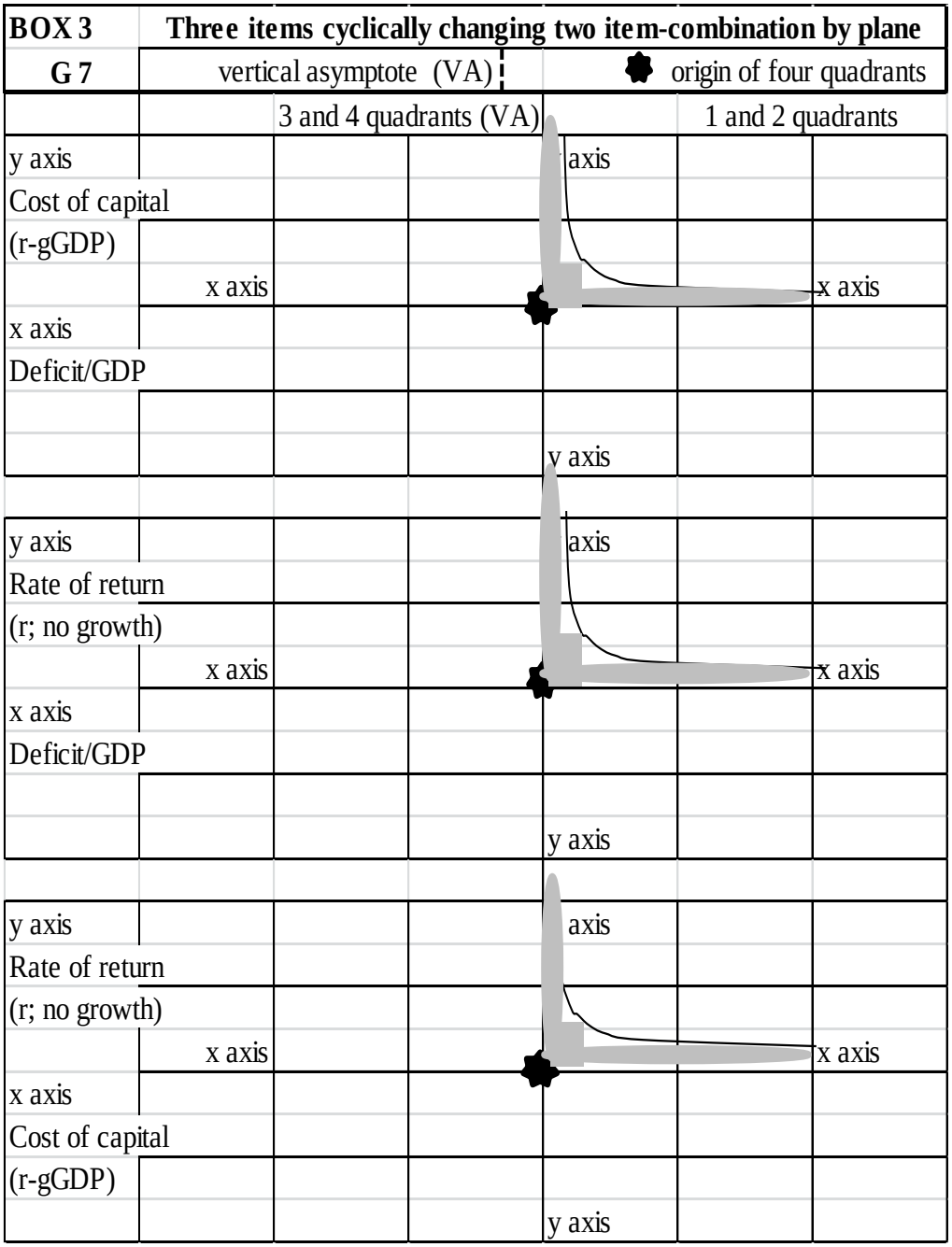
BOX 1 Cross section G65: Debt/GDP versus. Deficit/GDP



BOX 2 Cross section G20: Debt/GDP versus. Deficit/GDP

BOX 2	**Three items cyclically changing two item-combination by plane**					
C 20	vertical asymptote (VA)			origin of four quadrants		
		3 and 4 quadrants (VA)			1 and 2 quadrants	
y axis				y axis		
Cost of capital						
(r-gGDP)						
	x axis					x axis
x axis						
Deficit/GDP						
				y axis		
y axis				y axis		
Rate of return						
(r; no growth)						
	x axis					x axis
x axis						
Deficit/GDP						
				y axis		
y axis				y axis		
Rate of return						
(r; no growth)						
	x axis					x axis
x axis						
Cost of capital						
(r-gGDP)						
				y axis		

BOX 3 Cross section G7: Debt/GDP versus. Deficit/GDP



Notes to BOXES 1, 2 and 3**:**

1. When Debt/GDP under no GDP-growth (using the rate of return) is compared with Debt/GDPGDP-growth, patterns of shapes becomes swell out and well converge.
2. In short, GDP-growth differs by country. The above reflects the difference by Group.

4. Comments on the current stream of related literature

The current stream of related literature (see References at the end) mostly focuses the rate of unemployment, trend of GDP growth, the rate of inflation or deflation, income inequality, and increase in both investments and consumption. These are pointless mixture of items and it is difficult to clarify each prescription consistently as a whole system. Why?

One reason is that there is no strict distinction between financial policy, market policy, fiscal policy, and real-assets policy. And, fiscal policy is wrongly included in financial policy instead of real-assets policy. From the author's viewpoint, financial and market policies are neutral, which implies wasting time. Is it possible for decision-makers to control the rate of unemployment and the rate of deflation? Within half a year, it seems to work. Definitely, answer is No. Why?

5. Concluding remarks

Return back to the origin of accounting and the SNA, and think of Drucker, Kneoppel, and Vatter, algebraically and geometrically with the two dimension plane. Instantly and regardless of the length of time and globally, static and dynamic balances hold and this fact is proved empirically by GDP-based data for G65, G20, and G7. Our economic world is bright as empirics of growth and distribution prove in KEWT database series.

Drucker, Peter, F. (1939). *The end of Economic Man: The Origin of Totalitarianism*. New York: John Day Co. 271p.

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Drucker, Peter, F. (2002). *Managing in the Next Society*. New York: St. Martin's Press. 321p.

Kneoppel, C. E. (1933). *Profit Engineering: Applied Economics in Making Business Profitable*. New York: McGraw-Hill. xvi, 326p.

Kneoppel, C. E. and E. G. Seybold. (1937). *Managing for Profit: Working Method for Profit Planning*. New York & London: McGraw-Hill. xvi, 343p.

Vatter, W. J. (1947; 1969). *The Fund Theory of Accounting and Its Implications for Financial Reports. Chicago: The University of Chicago Press*. 141p.

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I am very happy to be able to contact with pertinent persons by section, IMF. Without the current and historical DATA, IMF, my work on 'purely endogenous' model/system would not exist. Publication DATA and its staff are benefactors. Those days are memorial to my life-work starting in 1950 when I published "Records for devaluation of fixed assets after severe inflation for several years since 1945". On 17 Oct 2014, Jim Beardow, Senior Communications Officer, Communication Department, met me shaking hands with me. This occurred, I believe, Nature/God helped me to study IMF DATA, luckily. Then, I met Jittapat, Sirison, Information Management Assistant, Statistics Department. In early 2015, Jittapat became a partner of my work/researches at IMF. Jittapat has been a key person to introduce me to proper researchers, IMF.

Murto Wickens, an expert in various statistics and methods, to my understanding, helped me and reflected Jim's intention most deeply and I never forget his goodwill in the future. 11-11:30 am on 22 Oct 2014, I met Claudia Dziobek, Manager, with Murto; I conveyed to her my exciting thankfulness to learn IMF DATA. I promised her to meet her when a good timing comes fortunately, after the *HEU* publication in 2015. Furthermore, I had chances to see and learn more from two Japanese researchers, (1) Junji Ueda, Advisor, Fiscal Affairs Department, and (2) Joji Ishikama for the balance of payments; I learned comparative standards of data between Japan and all the other countries more objectively. When Jittapat is busy with meetings, Lily Seo kindly acted as an agent of Jittapat.

We enjoyed three days, 13, 14, and 15 Oct 2014, attending *International Atlantic Economic* Conference, Savannah, where Katherine Virgo, members, and attendants had beautiful discussions among different aspect researchers. And, Boulier, Brayan, the University of Washington, Washington, D. C. dared to share time in his university room for the author on 23 Oct 2014. The author has long been out of behavioral science under spirituality-neutral as one of six aspects-neutral but, now strange to say, the author was connected with delicate key points in behavior science which the author has not touched.

Of course, without the Excel software, GDP-based system would not have been born. Human society has step by step developed various techniques and methodologies, good or bad. Both the good and bad are required for the development of human sciences.

Appendix Connect GDP-based with Purely endogenous: Comparing Tanzania with Ukraine, 1990-2012, updated

This Appendix proves even if actual data is available only intermittently and/or except for some short periods/years, actual data is able to express pertinent continuity. An example is Tanzania, where *IFS Yearbook*s, IMF, does publish no data from 2006 to 2009. The author has accumulated these countries, mainly those in Africa, for experiments and not published until today but, now it is possible to publish all the country data IMF publishes insufficiently, after measuring the author's GDP-based data.

It implies that all the data are connected with each other, actual and purely endogenous, just like oneness of data sources. This must be a new discovery or fact finding. In the *EES*, 1st and 2nd, the author empirically clarified that data window-dressing of original data presented from each country is instantly found in KEWT data by country, partly due to double-booking system. Data window-dressing is a case that data are available while no data is another case.

Why does *intermittent data* disappear and why is these data reborn accurately, by country? This is because purely endogenous data are available in any country or, *intermittent data* are replaced *by* purely endogenous data, consistently as a whole system.

Appendix also presents Ukraine as an excellent case of actual data fulfilment and compares Ukraine with Tanzania. Note: GDP-based connects actual with purely endogenous data, indifferently from data adjustments in Appendix.

Further, Appendix suggests: economists and researchers are safely involved in their respective analysis by model/system and, scientifically in two dimensional planes. Readers shall confirm this suggestion by calculating possible adjustments in Appendix, where risk-aversion is guaranteed completely.

Tanzania and Ukraine have the same three page tables using Family I to Family IX. A key point for comparison is the first one page table for 'List' to absorb *intermittent* statistics data into purely endogenous data, with Data sources and Notes. The List suggests processes to change statistics (ac) data to endogenous (en) data.

Typically, the following relationships are preserved.

Actual/statistics data with assumptions by model:

1. Difference between actual and endogenous, $\text{Item}_{\text{ac}-\text{en}}$, is not always zero, according to country' specific situation.
2. Differences of $\text{Item}_{\text{ac}-\text{en}}$, differ by country and is never repeating over years.
3. Differences of $\text{Item}_{\text{ac}-\text{en}}$, never contradict with the following differences in purely endogenous.

Purely endogenous (en) data under no assumption:

1. Differences between actual and endogenous, $\text{Item}_{\text{ac}-\text{en}}$, are always zero.
2. Differences of $\text{Item}_{\text{ac}-\text{en}}$, commonly obey every unique result.
3. Differences of $\text{Item}_{\text{ac}-\text{en}}$, are always compatible with the above 3 in *ac* data.

BOX A-1 List for absorbing intermittent statistics data into purely endogenous

Endogenous	c=C/Y	W=(1-α)Y	P=Y-W	Y	I(NET)=S-BC	BOP=S-I	S=BOP+I	C=Y-S	WG=CG=YG	CPRI	TAX
19. Tanzania											
1990	1.1174	437	310	748	489	(489.0)	0.0	748	179	568	748
1991	1.1178	571	407	978	583	(583.0)	0.0	978	205	772	978
1992	1.1373	681	552	1233	501	(501.0)	0.0	1233	222	1011	1233
1993	1.1461	837	716	1553	745	(745.0)	0.0	1553	280	1273	1553
1994	1.1240	1187	882	2069	1259	(1259.0)	0.0	2069	310	1759	2069
1995	1.1018	1661	1058	2718	1133	(1133.0)	0.0	2718	408	2311	2718
1996	1.0515	2377	1014	3391	201	(201.0)	0.0	3391	509	2882	3391
1997	1.0351	3095	1138	4233	472	(472.0)	0.0	4233	423	3810	4233
1998	1.0656	3385	1629	5014	981	(981.0)	0.0	5014	501	4513	5014
1999	1.0568	4002	1788	5790	883	(883.0)	0.0	5790	579	5211	5790
2000	1.0016	5177	1364	6542	463	(463.0)	0.0	6542	654	5887	6542
2001	0.9982	5938	1509	7447	400	(400.0)	0.0	7447	745	6702	7447
2002	0.9540	7339	1150	8489	161	(161.0)	0.0	8489	849	7640	8489
2003	0.9638	8184	1426	9610	137	(137.0)	0.0	9610	961	8649	9610
2004	0.9736	9317	1811	11129	390	(390.0)	0.0	11129	445	10684	11129
2005	0.9800	10531	2197	12728	663	(663.0)	0.0	12728	509	12219	12728
2006	0.9800	11268	2351	13619	959	(959.0)	0.0	13619	545	13074	13619
2007	0.9800	12057	2515	14572	1094	(1094.0)	0.0	14572	583	13989	14572
2008	0.9800	12901	2691	15592	1028	(1028.0)	0.0	15592	624	14968	15592
2009	0.9800	13804	2880	16684	976	(976.0)	0.0	16684	667	16016	16684
2010	0.9800	17064	3560	20624	930	(930.0)	0.0	20624	825	19799	20624
2011	0.9800	18258	3809	22067	1456	(1456.0)	0.0	22067	883	21184	22067
2012	0.9800	21036	4388	25424	1586	(1586.0)	0.0	25424	1017	24407	25424

Data sources:

International Financial Statistics yearbooks, IMF., solely.

The author confirms that the UN's statistics data do not show several essential data in the SNA (1993, 2010), by country. The author arranged for consistency by year and over years and has full responsibility on data adjustments for the bridge setting between statistics data and purely endogenous data of the *EES*, 2nd edition, 2014.

Notes:

Developing countries in South America and Africa each present the SNA data and external data to Publication DATA, IMF. Yet, IMF staff respect those data of each country's, from which the author could modestly learn during discussions with the staff, IMF, Washington, D. C. in Oct 2014. (for detail, see Acknowledgements above).

All the countries in the world have each own culture by country and civilization by area/region. The author sets six aspects, as shown separately and repeatedly in the *EES* and the *HEU*. Particularly, national taste is independent of technological progress. It implies that each country is fair and open-oriented in human life by people and country. Young decision-makers to national policies can safely and happily learn, research, and execute country's economy.

Table Tanzania-1 (Families I to IX)

Purely endogenous case consistently with general case

	Imports	Income Abro	Stas. Depre	indirect tax	Total Taxes	G Taxes	Direct Taxe	Less 3items	Consol. GDP	Wages	Profits	% of InDi Ta
19. Tanzania												
1990	311	(509)	583	31	179	43	84	158	673	437	310	0.3740
1991	365	(560)	501	37	205	43	110	51	1036	571	407	0.3359
1992	539	(378)	745	54	222	40	138	505	865	681	552	0.3930
1993	823	(372)	1259	83	280	50	174	1061	664	837	716	0.4764
1994	1003	(775)	1133	101	310	47	232	590	1709	1187	882	0.4357
1995	1254	(561)	201	126	408	61	305	(55)	3075	1661	1058	0.4145
1996	1204	218	472	121	509	76	381	1071	2697	2377	1014	0.3190
1997	1208	(16)	981	122	423	42	475	1440	3264	3095	1138	0.2566
1998	1565	(5)	883	158	501	50	563	1441	4130	3385	1629	0.2806
1999	1704	278	463	172	579	58	650	1390	5042	4002	1788	0.2645
2000	152	(1044)	400	15	654	65	734	90	7179	5177	1364	0.0209
2001	171	(1080)	161	17	745	74	836	(83)	8358	5938	1509	0.0207
2002	166	(975)	137	17	849	85	953	115	9317	7339	1150	0.0176
2003	2173	819	390	219	961	96	1079	2288	8390	8184	1426	0.2032
2004	273	(1596)	663	28	445	18	1249	315	12050	9317	1811	0.0220
2005	329	(2013)	959	33	509	20	1428	374	13768	10531	2197	0.0232
2006	425	(2452)	1094	42	545	22	1528	170	14962	11268	2351	0.0278
2007	534	(2787)	1028	53	583	23	1635	(124)	16315	12057	2515	0.0326
2008	770	(3379)	976	77	624	25	1750	(653)	17978	12901	2691	0.0440
2009	641	(3317)	930	64	667	27	1872	(515)	19052	13804	2880	0.0342
2010	787	(4193)	1456	79	825	33	2315	(423)	23338	17064	3560	0.0340
2011	1080	(5111)	6337	108	883	35	2477	3702	20817	18258	3809	0.0436
2012	1135	(5999)	1500	113	1017	41	2853	(1645)	29894	21036	4388	0.0398

	GDP	Con.GDP/GD	Consol. GDP	Income fro	Stas. Depre	Direct Taxe	Wages	Profits
19. Tanzania								
1990	831	0.8098	673	(0.7565)	0.8667	0.1247	0.8828	0.2286
1991	1086	0.9533	1036	(0.5408)	0.4838	0.1060	0.7499	0.1942
1992	1370	0.6313	865	(0.4374)	0.8615	0.1600	1.1323	0.2933
1993	1726	0.3849	664	(0.5599)	1.8957	0.2624	1.8573	0.4811
1994	2299	0.7435	1709	(0.4537)	0.6629	0.1359	0.9615	0.2490
1995	3021	1.0182	3075	(0.1824)	0.0654	0.0992	0.7021	0.1818
1996	3768	0.7158	2697	0.0809	0.1750	0.1411	0.9987	0.2587
1997	4703	0.6939	3264	(0.0050)	0.3006	0.1456	1.0302	0.2668
1998	5571	0.7414	4130	(0.0012)	0.2138	0.1362	0.9642	0.2497
1999	6433	0.7839	5042	0.0551	0.0918	0.1289	0.9120	0.2362
2000	7268	0.9876	7179	(0.1455)	0.0557	0.1023	0.7238	0.1875
2001	8275	1.0101	8358	(0.1292)	0.0193	0.1000	0.7077	0.1833
2002	9432	0.9878	9317	(0.1046)	0.0147	0.1023	0.7237	0.1874
2003	10678	0.7857	8390	0.0977	0.0465	0.1285	0.9098	0.2356
2004	12366	0.9745	12050	(0.1325)	0.0550	0.1036	0.7336	0.1900
2005	14142	0.9736	13768	(0.1462)	0.0697	0.1037	0.7649	0.1596
2006	15132	0.9887	14962	(0.1639)	0.0731	0.1022	0.7531	0.1571
2007	16191	1.0076	16315	(0.1708)	0.0630	0.1002	0.7390	0.1542
2008	17325	1.0377	17978	(0.1880)	0.0543	0.0973	0.7176	0.1497
2009	18537	1.0278	19052	(0.1741)	0.0488	0.0983	0.7245	0.1511
2010	22915	1.0184	23338	(0.1797)	0.0624	0.0992	0.7312	0.1525
2011	24519	0.8490	20817	(0.2455)	0.3044	0.1190	0.8771	0.1830
2012	28249	1.0582	29894	(0.2007)	0.0502	0.0954	0.7037	0.1468

	GDP	ΔGDP	gGDP	Y=GDP(N/G	ΔY	gY	GDP-Y	ΔGDP-ΔY	gGDP-gY
19. Tanzania									
1990	831	256	0.3077	831	256	0.3077	0	0	0.0000
1991	1086	284	0.2611	1086	284	0.2611	0	0	0.0000
1992	1370	356	0.2596	1370	356	0.2596	0	0	0.0000
1993	1726	573	0.3323	1726	573	0.3323	0	0	0.0000
1994	2299	722	0.3139	2299	722	0.3139	0	0	0.0000
1995	3021	747	0.2474	3021	747	0.2474	0	0	0.0000
1996	3768	936	0.2484	3768	936	0.2484	0	0	0.0000
1997	4703	868	0.1845	4703	868	0.1845	0	0	0.0000
1998	5571	862	0.1547	5571	862	0.1547	0	0	0.0000
1999	6433	835	0.1299	6433	835	0.1299	0	0	0.0000
2000	7268	1006	0.1384	7268	1006	0.1384	0	0	0.0000
2001	8275	1157	0.1399	8275	1157	0.1399	0	0	0.0000
2002	9432	1246	0.1321	9432	1246	0.1321	0	0	0.0000
2003	10678	1688	0.1580	10678	1688	0.1580	0	0	0.0000
2004	12366	1777	0.1437	12366	1777	0.1437	0	0	0.0000
2005	14142	990	0.0700	14142	990	0.0700	0	0	0.0000
2006	15132	1059	0.0700	15132	1059	0.0700	0	0	0.0000
2007	16191	1133	0.0700	16191	1133	0.0700	0	0	0.0000
2008	17325	1213	0.0700	17325	1213	0.0700	0	0	0.0000
2009	18537	4378	0.2362	18537	4378	0.2362	0	0	0.0000
2010	22915	1604	0.0700	22915	1604	0.0700	0	0	0.0000
2011	24519	3730	0.1521	24519	3730	0.1521	0	0	0.0000
2012	28249	(28249)	(1.0000)	28249	(28249)	(1.0000)	0	0	0.0000

Table Tanzania-2 (Families I to IX)

Purely endogenous case consistently with general case

	Wac(nomi)	ΔWac(nom	gWac(nom	CPI	gCPI	gWreal	Wreal(t)	ΔWreal	Wreal(t+1)
19. Tanzania									
1990	437	134	0.3059	**29.8**	0.3607	(0.0548)	*437287*	(23984)	413303
1991	571	110	0.1933	38.3	0.2852	(0.0920)	413303	(38009)	375294
1992	681	156	0.2287	46.7	0.2193	0.0094	375294	3527	378821
1993	837	350	0.4186	58.5	0.2527	0.1659	378821	62837	441659
1994	1187	474	0.3988	77.9	0.3316	0.0672	441659	29681	471340
1995	1661	716	0.4313	55.2	0.2837	0.1476	471340	69582	540921
1996	2377	718	0.3021	66.8	0.2101	0.0920	540921	49752	590673
1997	3095	290	0.0937	77.6	0.1617	(0.0680)	590673	(40158)	550516
1998	3385	617	0.1821	87.5	0.1276	0.0545	550516	30021	580536
1999	4002	1175	0.2937	94.4	0.0789	0.2148	580536	124696	705233
2000	5177	761	0.1469	**100**	0.0593	0.0876	705233	61785	767018
2001	5938	1401	0.2359	105.1	0.0510	0.1849	767018	141848	908865
2002	7339	845	0.1151	109.94	0.0461	0.0691	908865	62785	971651
2003	8184	1134	0.1385	114.75	0.0438	0.0948	971651	92089	1063740
2004	9317	1213	0.1302	119.56	0.0419	0.0883	1063740	93945	1157685
2005	10531	737	0.0700	124.77	0.3106	(0.2406)	1157685	(278550)	879135
2006	11268	789	0.0700	133.82	0.0725	(0.0025)	879135	(2227)	876908
2007	12057	844	0.0700	143.22	0.0702	(0.0002)	876908	(214)	876694
2008	12901	903	0.0700	157.94	0.1028	(0.0328)	876694	(28737)	847957
2009	13804	3260	0.2362	177.12	0.1214	0.1147	847957	97277	945234
2010	17064	1194	0.0700	189.86	0.0719	(0.0019)	945234	(1823)	943411
2011	18258	2778	0.1521	213.95	0.1269	0.0252	943411	23813	967224
2012	21036	(21036)	(1.0000)	248.18	0.1600	(1.1600)	967224	(1121971)	(154747)
	W	**ΔW**	**gW**	W=(1-α)Y	**ΔWen**	**gWen**	**Wac-en**	**ΔWac-en**	**gW(ac-en)**
19. Tanzania									
1990	594	183	0.3077	594	183	0.3077	0	0	0.0000
1991	777	203	0.2611	777	203	0.2611	0	0	0.0000
1992	979	254	0.2596	979	254	0.2596	0	0	0.0000
1993	1234	410	0.3323	1234	410	0.3323	0	0	0.0000
1994	1643	516	0.3139	1643	516	0.3139	0	0	0.0000
1995	2159	534	0.2474	2159	534	0.2474	0	0	0.0000
1996	2693	669	0.2484	2693	669	0.2484	0	0	0.0000
1997	3362	620	0.1845	3362	620	0.1845	0	0	0.0000
1998	3983	616	0.1547	3983	616	0.1547	0	0	0.0000
1999	4599	597	0.1299	4599	597	0.1299	0	0	0.0000
2000	5196	719	0.1384	5196	719	0.1384	0	0	0.0000
2001	5915	827	0.1399	5915	827	0.1399	0	0	0.0000
2002	6742	891	0.1321	6742	891	0.1321	0	0	0.0000
2003	7633	1206	0.1580	7633	1206	0.1580	0	0	0.0000
2004	8840	1691	0.1913	8840	1691	0.1913	0	0	0.0000
2005	10531	737	0.0700	10531	737	0.0700	0	0	0.0000
2006	11268	789	0.0700	11268	789	0.0700	0	0	0.0000
2007	12057	844	0.0700	12057	844	0.0700	0	0	0.0000
2008	12901	903	0.0700	12901	903	0.0700	0	0	0.0000
2009	13804	3260	0.2362	13804	3260	0.2362	0	0	0.0000
2010	17064	1194	0.0700	17064	1194	0.0700	0	0	0.0000
2011	18258	2778	0.1521	18258	2778	0.1521	0	0	0.0000
2012	21036	(21036)	(1.0000)	21036	(21036)	(1.0000)	0	0	0.0000
	P Opera.Sur	**ΔP**	**gP**	P en=Y-W	**ΔPen**	**gPen**	**Pac-en**	**ΔPac-en**	**gP(ac-en)**
19. Tanzania									
1990	154	47	0.3077	154	47	0.3077	0	0	0.0000
1991	201	53	0.2611	201	53	0.2611	0	0	0.0000
1992	254	66	0.2596	254	66	0.2596	0	0	0.0000
1993	319	106	0.3323	319	106	0.3323	0	0	0.0000
1994	426	134	0.3139	426	134	0.3139	0	0	0.0000
1995	559	138	0.2474	559	138	0.2474	0	0	0.0000
1996	698	173	0.2484	698	173	0.2484	0	0	0.0000
1997	871	161	0.1845	871	161	0.1845	0	0	0.0000
1998	1032	160	0.1547	1032	160	0.1547	0	0	0.0000
1999	1191	155	0.1299	1191	155	0.1299	0	0	0.0000
2000	1346	186	0.1384	1346	186	0.1384	0	0	0.0000
2001	1532	214	0.1399	1532	214	0.1399	0	0	0.0000
2002	1746	231	0.1321	1746	231	0.1321	0	0	0.0000
2003	1977	312	0.1580	1977	312	0.1580	0	0	0.0000
2004	2289	(93)	(0.0404)	2289	(93)	(0.0404)	0	0	0.0000
2005	2197	154	0.0700	2197	154	0.0700	0	0	0.0000
2006	2351	165	0.0700	2351	165	0.0700	0	0	0.0000
2007	2515	176	0.0700	2515	176	0.0700	0	0	0.0000
2008	2691	188	0.0700	2691	188	0.0700	0	0	0.0000
2009	2880	680	0.2362	2880	680	0.2362	0	0	0.0000
2010	3560	249	0.0700	3560	249	0.0700	0	0	0.0000
2011	3809	579	0.1521	3809	579	0.1521	0	0	0.0000
2012	4388	(4388)	(1.0000)	4388	(4388)	(1.0000)	0	0	0.0000

Table Tanzania-3 (Families I to IX)

Purely endogenous case consistently with general case

	I net(ac)	ΔI net	gI net	I net(en)	ΔI net(en)	gI net(en)	I net(ac-en	ΔI net(ac-en)	gI net(ac-en)	
19. Tanzania										
1990	489	94	0.1922	489	94	0.1922	0	0	0.0000	
1991	583	(82)	(0.1407)	583	(82)	(0.1407)	0	0	0.0000	
1992	501	244	0.4870	501	244	0.4870	0	0	0.0000	
1993	745	514	0.6899	745	514	0.6899	0	0	0.0000	
1994	1259	(126)	(0.1001)	1259	(126)	(0.1001)	0	0	0.0000	
1995	1133	(932)	(0.8226)	1133	(932)	(0.8226)	0	0	0.0000	
1996	201	271	1.3483	201	271	1.3483	0	0	0.0000	
1997	472	509	1.0784	472	509	1.0784	0	0	0.0000	
1998	981	(98)	(0.0999)	981	(98)	(0.0999)	0	0	0.0000	
1999	883	(420)	(0.4757)	883	(420)	(0.4757)	0	0	0.0000	
2000	463	(63)	(0.1361)	463	(63)	(0.1361)	0	0	0.0000	
2001	400	(239)	(0.5975)	400	(239)	(0.5975)	0	0	0.0000	
2002	161	(24)	(0.1491)	161	(24)	(0.1491)	0	0	0.0000	
2003	137	253	1.8467	137	253	1.8467	0	0	0.0000	
2004	390	273	0.7000	390	273	0.7000	0	0	0.0000	
2005	663	296	0.4465	663	296	0.4465	0	0	0.0000	
2006	959	135	0.1408	959	135	0.1408	0	0	0.0000	
2007	1094	(66)	(0.0603)	1094	(66)	(0.0603)	0	0	0.0000	
2008	1028	(52)	(0.0506)	1028	(52)	(0.0506)	0	0	0.0000	
2009	976	(46)	(0.0471)	976	(46)	(0.0471)	0	0	0.0000	
2010	930	526	0.5656	930	526	0.5656	0	0	0.0000	
2011	1456	130	0.0893	1456	130	0.0893	0	0	0.0000	
2012	1586	(1586)	(1.0000)	1586	(1586)	(1.0000)	0	0	0.0000	
	TAX actual	ΔTAX	gTAX	YG=(YG/Y)Y	ΔTAX(en)	gTAX(en)	TAX(ac-en	ΔTAX(ac-en	gTAX(ac-en)	
19. Tanzar	**NA**									
1990	179	26	0.1442	179	26	0.1442	0	0	0.0000	
1991	205	17	0.0809	205	17	0.0809	0	0	0.0000	
1992	222	58	0.2596	222	58	0.2596	0	0	0.0000	
1993	280	31	0.1102	280	31	0.1102	0	0	0.0000	
1994	310	97	0.3139	310	97	0.3139	0	0	0.0000	
1995	408	101	0.2474	408	101	0.2474	0	0	0.0000	
1996	509	(85)	(0.1677)	509	(85)	(0.1677)	0	0	0.0000	
1997	423	78	0.1845	423	78	0.1845	0	0	0.0000	
1998	501	78	0.1547	501	78	0.1547	0	0	0.0000	
1999	579	75	0.1299	579	75	0.1299	0	0	0.0000	
2000	654	91	0.1384	654	91	0.1384	0	0	0.0000	
2001	745	104	0.1399	745	104	0.1399	0	0	0.0000	
2002	849	112	0.1321	849	112	0.1321	0	0	0.0000	
2003	961	(516)	(0.5368)	961	(516)	(0.5368)	0	0	0.0000	
2004	445	64	0.1437	445	64	0.1437	0	0	0.0000	
2005	509	36	0.0700	509	36	0.0700	0	0	0.0000	
2006	545	38	0.0700	545	38	0.0700	0	0	0.0000	
2007	583	41	0.0700	583	41	0.0700	0	0	0.0000	
2008	624	44	0.0700	624	44	0.0700	0	0	0.0000	
2009	667	158	0.2362	667	158	0.2362	0	0	0.0000	
2010	825	58	0.0700	825	58	0.0700	0	0	0.0000	
2011	883	134	0.1521	883	134	0.1521	0	0	0.0000	
2012	1017	(1017)	(1.0000)	1017	(1017)	(1.0000)	0	0	0.0000	
	DEP	I NET	(%) DEP/IN	TAX	SUBS	(%)SUBS/T	K	P/K	Π/K	(%) (P-Π)/K
19. Tanzania										
1990	583	489	1.1922	179		#DIV/0!	659	0.2334	0.2334	0.0000
1991	501	583	0.8593	205		#DIV/0!	1242	0.1619	0.1619	0.0000
1992	745	501	1.4870	222		#DIV/0!	1743	0.1455	0.1455	0.0000
1993	1259	745	1.6899	280		#DIV/0!	2488	0.1284	0.1284	0.0000
1994	1133	1259	0.8999	310		#DIV/0!	3747	0.1136	0.1136	0.0000
1995	201	1133	0.1774	408		#DIV/0!	4880	0.1146	0.1146	0.0000
1996	472	201	2.3483	509		#DIV/0!	5081	0.1373	0.1373	0.0000
1997	981	472	2.0784	423		#DIV/0!	5553	0.1568	0.1568	0.0000
1998	883	981	0.9001	501		#DIV/0!	6534	0.1579	0.1579	0.0000
1999	463	883	0.5243	579		#DIV/0!	7417	0.1606	0.1606	0.0000
2000	400	463	0.8639	654		#DIV/0!	7880	0.1708	0.1708	0.0000
2001	161	400	0.4025	745		#DIV/0!	8280	0.1850	0.1850	0.0000
2002	137	161	0.8509	849		#DIV/0!	8441	0.2069	0.2069	0.0000
2003	390	137	2.8467	961		#DIV/0!	8578	0.2305	0.2305	0.0000
2004	663	390	1.7000	445		#DIV/0!	8968	0.2553	0.2553	0.0000
2005	959	663	1.4465	509		#DIV/0!	9631	0.2281	0.2281	0.0000
2006	1094	959	1.1408	545		#DIV/0!	10590	0.2220	0.2220	0.0000
2007	1028	1094	0.9397	583		#DIV/0!	11684	0.2153	0.2153	0.0000
2008	976	1028	0.9494	624		#DIV/0!	12712	0.2117	0.2117	0.0000
2009	930	976	0.9529	667		#DIV/0!	13688	0.2104	0.2104	0.0000
2010	1456	930	1.5656	825		#DIV/0!	14618	0.2435	0.2435	0.0000
2011	6337	1456	4.3520	883		#DIV/0!	16074	0.2370	0.2370	0.0000
2012	1500	1586	0.9458	1017		#DIV/0!	22411	0.1958	0.1958	0.0000

Table Ukraine-1 (Families I to IX)

General case consistently with purely endogenous

	Imports	Income Abro	Stas. Depre	indirect tax	Total Taxes	G Taxes	Direct Taxe	Less 3items	Consol. GD	Wages	Profits	% of InDi Ta
9. Ukraine												
1993	0.4	0.0	(1)	0	1	0	1	(0)	8	0	8	0.0593
1994	4.6	(0.1)	(12)	1	2	0	2	(11)	23	8	15	0.4259
1995	27.3	(0.9)	(54)	5	9	2	7	(48)	103	51	52	0.5566
1996	39.3	(1.0)	(81)	7	13	2	11	(72)	153	94	60	0.5358
1997	40.8	(1.2)	(94)	7	15	3	12	(83)	176	106	70	0.4854
1998	45.3	(2.1)	(101)	8	16	3	13	(89)	192	174	18	0.4906
1999	63.7	(3.5)	(127)	11	21	4	17	(113)	244	218	26	0.5428
2000	97.6	(5.1)	(165)	17	27	5	22	(148)	318	276	42	0.6375
2001	109.9	(3.60)	(201)	19	32	6	27	(178)	382	339	43	0.5980
2002	114.5	(3.20)	(223)	20	36	6	29	(196)	422	368	54	0.5634
2003	147.5	(3.10)	(264)	26	42	7	35	(232)	500	436	64	0.6131
2004	193.1	(3.40)	(342)	34	55	10	45	(300)	645	507	138	0.6217
2005	223.6	(5.00)	(436)	39	70	12	58	(384)	825	732	94	0.5627
2006	269.2	(8.70)	(536)	47	86	15	71	(473)	1017	916	101	0.5496
2007	364.4	(3.30)	(717)	64	114	20	94	(627)	1347	1207	140	0.5618
2008	520.6	(8.7)	(939)	92	150	26	124	(824)	1772	1609	164	0.6101
2009	438.9	(19.0)	(896)	77	145	25	119	(795)	1709	1505	204	0.5340
2010	580.9	(3.7)	(1079)	102	171	30	141	(941)	2024	1786	238	0.5962
2011	779	(18.8)	(1080)	137	209	37	172	(927)	2243	1992	251	0.6574
2012	388.1	*(20.0)*	(1081)	68	225	40	185	(915)	2335	1875	460	0.3038

	GDP	Con.GDP/GD	**Consol. GDP**	Income fro	Stas. Depre	Direct Taxe	Wages	Profits
9. Ukraine								
1993	8	0.4561	3	1.3154	(0.4092)	0.2861	0.0171	0.9829
1994	12	(1.6722)	(20)	(2.1180)	0.5980	(0.0781)	0.3558	0.6442
1995	55	1.3704	75	0.3615	(0.7270)	0.0952	0.4938	0.5062
1996	82	1.7222	140	0.0848	(0.5799)	0.0758	0.6115	0.3885
1997	93	1.7742	166	0.0555	(0.5654)	0.0736	0.6045	0.3955
1998	103	1.5781	162	0.1717	(0.6207)	0.0827	0.9052	0.0948
1999	130	1.5382	201	0.1979	(0.6327)	0.0849	0.8923	0.1077
2000	170	1.6384	279	0.1224	(0.5917)	0.0797	0.8694	0.1306
2001	204	1.7461	357	0.0606	(0.5626)	0.0748	0.8872	0.1128
2002	226	1.6715	377	0.1100	(0.5898)	0.0781	0.8720	0.1280
2003	267	1.5668	419	0.1858	(0.6308)	0.0833	0.8720	0.1280
2004	345	1.5803	545	0.1768	(0.6266)	0.0826	0.7856	0.2144
2005	442	1.6253	718	0.1431	(0.6082)	0.0803	0.8866	0.1134
2006	544	1.5292	832	0.2121	(0.6435)	0.0854	0.9006	0.0994
2007	721	1.5494	1117	0.2036	(0.6425)	0.0842	0.8961	0.1039
2008	948	1.8970	1799	(0.0193)	(0.5223)	0.0688	0.9076	0.0924
2009	913	1.6648	1520	0.1113	(0.5891)	0.0784	0.8806	0.1194
2010	1083	1.6497	1786	0.1310	(0.6040)	0.0791	0.8825	0.1175
2011	1317	1.6115	2122	0.0485	(0.5089)	0.0810	0.8879	0.1121
2012	1419	2.6309	3734	(0.3801)	(0.2894)	0.0496	0.8029	0.1971

	GDP	**ΔGDP**	**gGDP**	**Y=GDP(N/G**	**ΔY**	**gY**	**GDP-Y**	**ΔGDP-ΔY**	**gGDP-gY**
9. Ukraine									
1993	8	5	0.6000	7	4	0.6000	1	0	0.0000
1994	12	43	3.5417	11	38	3.5417	1	4	0.0000
1995	55	27	0.4954	49	24	0.4954	5	3	0.0000
1996	82	12	0.1460	73	11	0.1460	8	1	0.0000
1997	93	9	0.0985	84	8	0.0985	9	1	(0.0000)
1998	103	28	0.2710	92	25	0.2710	10	3	0.0000
1999	130	40	0.3044	117	36	0.3044	13	4	0.0000
2000	170	34	0.2005	153	31	0.2005	17	3	0.0000
2001	204	22	0.1058	184	19	0.1058	20	2	0.0000
2002	226	42	0.1838	203	37	0.1838	23	4	0.0000
2003	267	78	0.2911	241	70	0.2911	27	8	0.0000
2004	345	96	0.2793	311	87	0.2793	35	10	0.0000
2005	442	103	0.2326	397	92	0.2326	44	10	0.0000
2006	544	177	0.3243	490	159	0.3243	54	18	0.0000
2007	721	227	0.3155	649	205	0.3155	72	23	0.0000
2008	948	(35)	(0.0367)	853	(31)	(0.0367)	95	(3)	0.0000
2009	913	169	0.1854	822	152	0.1854	91	17	0.0000
2010	1083	234	0.2161	974	211	0.2161	108	23	0.0000
2011	1317	103	0.0781	1185	93	0.0781	132	10	0.0000
2012	1419	(1419)	(1.0000)	1277	(1277)	(1.0000)	142	(142)	0.0000

Table Ukraine-2 (Families I to IX)

General case consistently with purely endogenous

	Wac(nomi	ΔWac(nor	gWac(nom	CPI	gCPI	gWreal	Wreal(t)	ΔWreal	Wreal(t+1)
9. Ukraine									
1993	0.14	8	58.1290	80.33	0.0438	58.0852	*0.14*	8	8
1994	8	43	5.3170	89.05	0.1086	5.2084	8	42	50
1995	51	43	0.8503	77.62	(0.1284)	0.9786	50	49	98
1996	94	13	0.1359	82.11	0.0577	0.0782	98	8	106
1997	106	67	0.6309	85.61	0.0427	0.5882	106	62	169
1998	174	44	0.2528	89.49	0.0453	0.2074	169	35	204
1999	218	59	0.2706	93.25	0.0419	0.2287	204	47	250
2000	276	62	0.2254	92.89	(0.0038)	0.2293	250	57	307
2001	339	29	0.0868	94.10	0.0130	0.0737	307	23	330
2002	368	68	0.1838	95.84	0.0185	0.1653	330	55	385
2003	436	71	0.1632	98.80	0.0309	0.1323	385	51	435
2004	507	225	0.4436	102.73	0.0398	0.4038	435	176	611
2005	732	185	0.2522	93.35	(0.0913)	0.3435	611	210	821
2006	916	291	0.3178	97.81	0.0478	0.2700	821	222	1043
2007	1207	401	0.3323	102.29	0.0458	0.2865	1043	299	1342
2008	1609	(104)	(0.0646)	110.62	0.0814	(0.1460)	1342	(196)	1146
2009	1505	281	0.1869	114.05	0.0329	0.1540	1146	176	1323
2010	1786	206	0.1152	119.21	0.0480	0.0672	1323	89	1411
2011	1992	(117)	(0.0588)	124.65	0.0492	(0.1079)	1411	(152)	1259
2012	1875	(1875)	(1.0000)	129.04	0.0388	(1.0388)	1259	(1308)	(49)
	W	**ΔW**	**gW**	W=(1-α)Y	**ΔWen**	**gWen**	**Wac-en**	**ΔWac-en**	**gW(ac-en)**
9. Ukraine									
1993	0	(7)	(122.9143)	0	4	32.2562	(0)	(11)	(155.1704)
1994	(7)	44	(6.1645)	4	20	5.3019	(11)	24	(11.4664)
1995	37	49	1.3276	24	21	0.8521	13	28	0.4755
1996	86	14	0.1671	45	6	0.1329	41	8	0.0342
1997	100	46	0.4631	51	33	0.6449	49	14	(0.1818)
1998	147	32	0.2211	84	21	0.2528	63	11	(0.0316)
1999	179	63	0.3539	105	28	0.2710	74	35	0.0828
2000	242	74	0.3055	133	30	0.2251	109	44	0.0805
2001	316	13	0.0404	163	14	0.0868	153	(1)	(0.0464)
2002	329	36	0.1096	177	33	0.1838	152	4	(0.0741)
2003	365	63	0.1732	210	34	0.1632	155	29	0.0100
2004	428	208	0.4849	244	108	0.4438	184	99	0.0411
2005	636	113	0.1780	352	89	0.2521	284	24	(0.0741)
2006	749	251	0.3353	441	140	0.3178	308	111	0.0174
2007	1001	632	0.6313	581	193	0.3323	419	439	0.2989
2008	1632	(293)	(0.1797)	774	(51)	(0.0654)	858	(243)	(0.1144)
2009	1339	237	0.1772	724	136	0.1880	615	101	(0.0108)
2010	1576	308	0.1952	860	192	0.2235	716	115	(0.0284)
2011	1884	1115	0.5916	1052	(26)	(0.0251)	832	1141	0.6167
2012									
	P Opera.Sur	**ΔP**	**gP**	P en=Y-W	**ΔPen**	**gPen**	**Pac-en**	**ΔPac-en**	**gP(ac-en)**
9. Ukraine									
1993	3	(16.29)	(4.8441)	7	0.32	0.0486	(3)	(16.61)	(4.8927)
1994	(13)	50.74	(3.9251)	7	17.87	2.5693	(20)	32.86	(6.4944)
1995	38	16.72	0.4422	25	3.66	0.1476	13	13.05	0.2946
1996	55	11.00	0.2018	28	4.75	0.1666	26	6.26	0.0352
1997	66	(50.19)	(0.7659)	33	(24.49)	(0.7368)	32	(25.70)	(0.0291)
1998	15	6.27	0.4083	9	3.89	0.4448	7	2.37	(0.0365)
1999	22	14.78	0.6842	13	7.35	0.5811	9	7.44	0.1030
2000	36	3.82	0.1049	20	0.74	0.0368	16	3.08	0.0681
2001	40	8.11	0.2017	21	5.29	0.2553	19	2.82	(0.0536)
2002	48	5.30	0.1096	26	4.78	0.1838	22	0.52	(0.0741)
2003	54	63.31	1.1808	31	35.79	1.1622	23	27.52	0.0186
2004	117	(35.54)	(0.3039)	67	(21.52)	(0.3232)	50	(14.01)	0.0193
2005	81	1.36	0.0167	45	3.64	0.0807	36	(2.27)	(0.0639)
2006	83	33.22	0.4014	49	18.66	0.3832	34	14.56	0.0183
2007	116	50.25	0.4333	67	11.49	0.1706	49	38.75	0.2627
2008	166	15.35	0.0923	79	19.30	0.2447	87	(3.95)	(0.1523)
2009	182	28.21	0.1554	98	16.29	0.1659	83	11.92	(0.0106)
2010	210	28.06	0.1337	114	18.39	0.1607	95	9.67	(0.0269)
2011	238	498.08	2.0942	133	118.92	0.8953	105	379.16	1.1989
2012									

Table Ukraine-3 (Families I to IX)

General case consistently with purely endogenous

	I net(ac)	ΔI net	gI net	I net(en)	ΔI net(en)	gI net(en)	I net(ac-en	ΔI net(ac-en)	gI net(ac-en)	
9. Ukraine										
1993	84	23	0.2774	**84**	23	0.2774	0	0	0.0000	
1994	107	5	0.0476	**107**	5	0.0476	0	0	0.0000	
1995	112	9	0.0777	**112**	9	0.0777	0	0	0.0000	
1996	121	90	0.7437	**121**	90	0.7437	0	0	0.0000	
1997	210	(37)	(0.1754)	**210**	(37)	(0.1754)	0	0	0.0000	
1998	174	35	0.2045	**174**	35	0.2045	0	0	0.0000	
1999	209	41	0.1956	**209**	41	0.1956	0	0	0.0000	
2000	250	(57)	(0.2287)	**250**	(57)	(0.2287)	0	0	0.0000	
2001	193	36	0.1871	**193**	36	0.1871	0	0	0.0000	
2002	229	7	0.0295	**229**	7	0.0295	0	0	0.0000	
2003	236	104	0.4417	**236**	104	0.4417	0	0	0.0000	
2004	340	103	0.3036	**340**	103	0.3036	0	0	0.0000	
2005	443	126	0.2845	**443**	126	0.2845	0	0	0.0000	
2006	569	112	0.1977	**569**	112	0.1977	0	0	0.0000	
2007	681	198	0.2906	**681**	198	0.2906	0	0	0.0000	
2008	879	(125)	(0.1427)	**879**	(125)	(0.1427)	0	0	0.0000	
2009	754	299	0.3968	**754**	299	0.3968	0	0	0.0000	
2010	1053	325	0.3086	**1053**	325	0.3086	0	0	0.0000	
2011	1378	335	0.2433	**1378**	335	0.2433	0	0	0.0000	
2012										
	TAX(ac)	**ΔTAX(ac)**	**gTAX(ac)**	**TAX(en)**	**ΔTAX(en)**	**gTAX(en)**	**TAX(ac-en)**	**ΔTAX(ac-en**	**gTAX(ac-en)**	
9. Ukraine										
1993		0	#DIV/0!	1	1	0.6000	(1)	(1)	#DIV/0!	
1994		0	#DIV/0!	2	7	3.5417	(2)	(7)	#DIV/0!	
1995		0	#DIV/0!	9	4	0.4954	(9)	(4)	#DIV/0!	
1996		0	#DIV/0!	13	2	0.1460	(13)	(2)	#DIV/0!	
1997		0	#DIV/0!	15	1	0.0985	(15)	(1)	#DIV/0!	
1998		17	#DIV/0!	16	4	0.2710	(16)	12	#DIV/0!	
1999	16.9	7	0.4201	21	6	0.3044	(4)	1	0.1157	
2000	24.0	1	0.0250	27	5	0.2005	(3)	(5)	(0.1755)	
2001	24.6	5	0.2033	32	3	0.1058	(8)	2	0.0975	
2002	29.6	7	0.2331	36	7	0.1838	(6)	0	0.0493	
2003	36.5	9	0.2548	42	12	0.2911	(6)	(3)	(0.0363)	
2004	45.8	30	0.6507	55	15	0.2793	(9)	15	0.3713	
2005	75.6	21	0.2778	70	16	0.2326	6	5	0.0452	
2006	96.6	22	0.2298	86	28	0.3243	10	(6)	(0.0945)	
2007	118.8	51	0.4268	114	36	0.3155	5	15	0.1112	
2008	169.5	(170)	(1.0000)	150	(6)	(0.0367)	19	(164)	(0.9633)	
2009		0	#DIV/0!	145	27	0.1854	(145)	(27)	#DIV/0!	
2010	0	0	#DIV/0!	171	37	0.2161	(171)	(37)	#DIV/0!	
2011	0	0	#DIV/0!	209	16	0.0781	(209)	(16)	#DIV/0!	
2012	0	0	#DIV/0!	225	(225)	(1.0000)	(225)	225	#DIV/0!	
	DEP	I NET	**(%) DEP/IN**	TAX	SUBS	**(%)SUBS/T**	K	P/K	Π/K	**(%) (P-Π)/K**
9. Ukraine										
1993	-1.4	6	**(0.2393)**	0	0.0	**#DIV/0!**	6	0.5642	1.1132	**(0.5490)**
1994	-12	5	**(2.6087)**	0	0.0	**#DIV/0!**	11	(1.2240)	0.6588	**(1.8828)**
1995	-54.3	18	**(2.9431)**	0	0.0	**#DIV/0!**	29	1.3033	0.8559	**0.4474**
1996	-81.4	24	**(3.4565)**	0	0.0	**#DIV/0!**	53	1.0374	0.5421	**0.4953**
1997	-93.7	28	**(3.3754)**	0	0.0	**#DIV/0!**	80	0.8159	0.4139	**0.4020**
1998	-100.5	13	**(7.6484)**	0	0.0	**#DIV/0!**	93	0.1642	0.0936	**0.0705**
1999	-126.9	13	**(9.6429)**	17	0.0	**0.0000**	107	0.2027	0.1186	**0.0841**
2000	-164.9	22	**(7.6378)**	24	1.7	**0.0697**	128	0.2839	0.1559	**0.1279**
2001	-200.6	28	**(7.2471)**	25	7.7	**0.3134**	156	0.2579	0.1330	**0.1250**
2002	-222.6	26	**(8.4897)**	30	8.2	**0.2756**	182	0.2653	0.1429	**0.1225**
2003	-264.2	35	**(7.5121)**	37	8.9	**0.2433**	217	0.2468	0.1417	**0.1050**
2004	-341.7	42	**(8.1377)**	46	9.5	**0.2083**	259	0.4510	0.2568	**0.1941**
2005	-436.4	61	**(7.1835)**	76	10.4	**0.1375**	320	0.2543	0.1408	**0.1135**
2006	-535.5	89	**(6.0115)**	97	10.1	**0.1041**	409	0.2023	0.1191	**0.0832**
2007	-717.4	135	**(5.3287)**	119	14.7	**0.1235**	544	0.2133	0.1239	**0.0894**
2008	-939.4	179	**(5.2542)**	170	0.0	**0.0000**	723	0.2301	0.1091	**0.1209**
2009	-895.7	83	**(10.7308)**	0	0.0	**#DIV/0!**	806	0.2253	0.1218	**0.1035**
2010	-1078.7	95	**(11.3142)**	0	0.0	**#DIV/0!**	901	0.2327	0.1270	**0.1058**
2011	-1079.7	170	**(6.3684)**	0	0.0	**#DIV/0!**	1071	0.2221	0.1240	**0.0981**
2012	-1080.7	(299)	**3.6127**	0	0.0	**#DIV/0!**	1128	0.6524	0.2232	**0.4292**

Notations and definitions for the CADs

Family I	**GDP-BASED** *Notations and Nefinitions (1-2) by Item: GDP-based*
1. Imports	Imports in the SNA (93SNA).
2. Income from abroad	e from Abroad in the SNA. Required for not GD(Domestic)P but GN(National)P.
3. Stas. Depreciation	Statistic/Economic Depreciation or Consumption of Capital (for GDP or GNP).
4. indirect tax	Indirect Taxes contained in GDP, in the SNA.
5. Total Taxes	Total Taxes in the SNA; 4+7.
6. G Taxes	Taxes in the G sector.
7. Direct Taxes	Direct Taxes in the SNA.
8. Less 3items	Three items required for getting 'Consolidated GDP,' after offsetting (net amount).
9. Consol. GDP	Consolidated GDP; net amount, generally accepted by the SNA.
10. Wages	Wages in the SNA.
11. Profits	Profits in the SNA. Note that Profits in the G sector is naturally zero.
12. % indire/dire Taxe	Percentage of Indirect Taxes to Direct Taxes.
Family II	**GDP-BASED**
13. GDP	Gross Domestic Product in the SNA.
14. Con.GDP/GDP	Percentage of Consolidated GDP to GDP.
15. Consol. GDP	Consolidated GDP (from total amount to net amount, see 8. above). Generalized.
16. Income from abro	See 2. above, repeating for calculating Consolidated GDP.
17. Stas. Depreciation	See 3. above, repeating for calculating Consolidated GDP.
18. Direct Taxes	See 7. above, repeating for calculating Consolidated GDP.
19. Wages	See 10. above, repeating for calculating Consolidated GDP.
20. Profits	See 11. above, repeating for calculating Consolidated GDP.
Family III	**GDP-BASED**
21. GDP	See 13. above, for growth rates of GDP and Y (purely endogenous GDP (en)).
22. ΔGDP	Increase/decrease in GDP.
23. gGDP	Growth rate of GDP. Most importantly.
24. Y=GDP(en)	Simply notating; Y equals GDP(en). GDP and GDP(en) include Depreciation.
25. ΔY	Increase/decrease in GDP (en).
26. gY	Growth rate of GDP (en).
27. GDP-Y	Difference between GDP and GDP(en).
28. ΔGDP-ΔY	Increasse/decrease-difference between GDP and GDP(en).
29. gGDP-gY	Growth rate-difference between GDP and GDP(en). New discovery; 0.0000.

Family IV	**WAGES real**
30. Wac(nomi)	See 19. above, repeating for comparing nominal with real adter inflation/deflation.
31. ΔWac(nomi)	Increase/decrease in Wages, actual, nominal.
32. gWac(nomi)	Growth rate of Wages, actual, nominal.
33. CPI	Consumer Price Index
34. gCPI	Rate of change in Consumer Price Index
35. gWreal	Growth rate of Wages, actual, real after infaltion/deflation. Most importantly.
36. Wreal(t)	Wages, actual, real after inflation/deflation.
37. ΔWreal	Increase/decrease in Wages, actual, real after inflation/deflation.
38. Wreal(t+1)	Wages t+1, actual, real after inflation/deflation, to calculate 35. above.
Family V	**WAGES (ac) less (en)**
39. W	See 30 above.
40. ΔW	See 31 above.
41. gW	See 32 above.
42. W=(1-α)Y	Calculate Wages, purely endogenous(en). Alpha is relative share of capital/profits.
43. ΔWen	Increase/decrease in Wages, purely endogenous (en).
44. gWen	Growth rate of Wages, purely endogenous (en).
45. Wac-en	Difference between W(ac) and W(en).
46. ΔWac-en	Increasse/decrease-difference between W(ac) and W(en).
47. gW(ac-en)	Growth rate-difference between W(ac) and W(en).
Family VI	**PROFITS**
48. P Opera.Surplus	See 20 above.
49. ΔP	Increase/decrease in Profits, actual, nominal (ac).
50. gP	Growth rate of Profits, actual, nominal (ac).
51. P en=Y-W	to calculate Profits, purely enddogenous (en).
52. ΔPen	Increase/decrease in Profits, purely endogenous (en).
53. gPen	Growth rate of Profits, purely endogenous (en).
54. Pac-en	Difference between P(ac) and P(en).
55. ΔPac-en	Increase/decrease-difference between P(ac) and P(en).
56. gP(ac-en)	Growth rate-difference between P(ac) and P(en).

Family VII	**INVESTMENT** *Notations and Nefinitions (2-2) by Item: GDP-based*
57. I net(ac)	Calculated by using the balance of payment (BOP), *IFSY*, IMF, by country, see text.
58. ΔI net	Increase/decrease in Net Investments, actual, nominal (ac).
59. gI net	Growth rate of Net Investments, actual, nominal (ac).
60. I net(en)	to calculate Net Investments, purely enddogenous (en).
61. ΔI net(en)	Increase/decrease in Net Investments, purely endogenous (en).
62. gI net(en)	Growth rate of Net Investments, purely endogenous (en).
63. I net(ac-en)	Difference between I net(ac) and I net (en).
64. ΔI net(ac-en)	Increase/decrease-difference between I net (ac) and I net (en).
65. gI net(ac-en)	Growth rate-difference between I net (ac) and I net (en).
Family VIII	**TAXES**
66. TAX(ac)	Externally from *IFS Yearbooks*, IMF.
67. ΔTAX(ac)	Increase/decrease in Taxets, actual, nominal (ac).
68. gTAX(ac)	Growth rate of Taxes, actual, nominal (ac).
69. TAX(en)	Calculated by using the size of economy, where YG=Taxes by country, see in the text.
70. ΔTAX(en)	Increase/decrease in Taxes, purely endogenous (en).
71. gTAX(en)	Growth rate of Taxes, purely endogenous (en).
72. TAX(ac-en)	Difference between TAX(ac) and TAX(en).
73. ΔTAX(ac-en)	Increase/decrease-difference between TAX(ac) and TAX(en).
74. gTAX(ac-en)	Growth rate-difference between TAX(ac) and TAX(en).
Family VIIII	**SUPPLEMENT with CAPITAL**
75. DEP	The same as 3. above.
76. I NET	The same as 57. above.
77. (%) DEP/INET	Percentage of Economic Depreciation to Net Investments. If I net>1.00, growth-oriented.
78. TAX	The same as 66 above.
79. SUBS	Externally from *IFS Yearbooks*, IMF.
80. (%)SUBS/TAX	Percentage of Subsidies to Taxes. Subcidies are minus Taxes and, always be avoided.
81. K	Capital stock, under Axiom of constant Capital-GDP Ratio, $\Omega=\Omega^{*}=\Omega_{0}$, over years.
82. P/K	The Rate of Return (ac), r=P/K, in the macro level.
83. P/K	The Rate of Return (en), r=Π/K, in the macro level, where $r=r^{*}=r_{0,}$ with fixed alpha (en).
84. (%) (P-P)/K	Percentage of 82. to 83 above. If 84.>1.00, Net Investment policy is supreme.

Family X	**DEFICIT (flow) solely; using G65, G20, and G7; Time series and Cross Section**
85. SG-IG	Deficit as definesd by equation. If SG=CG in the G sector, IG (ac) is calculated at once.
86. GDP	The same as 13 or 21.
87. % to GDP	Percentage of Deficit. to GDP. This is case of flow; be compared with case of stock.
88. gGDP=gY	See 29. The same growth rate implies that C+S≠W+P is independent of growth rate.
Family XI	**DEFICIT (flow) and DEBT (stock)**
89. Δd=(SG-IG)/G	Deficit/GDP.
90. r^{*}-gY*	Cost of Capital, where $r-g_Y=r^{*}-g_Y^{*}$ (see 81, abd 83. above).
91. D/GDP	Debt/GDP.
92. r*=α/Ω	to examine calculation of rate of return in the CADs.
93. D/Y if no grow	Net Present Value (NPV) is much accurate, as proved by the literature (see References),
	where Rate of Return (i.e., Growth rate of GDP =0) is used instead of Cost of Capital.
Family XII	**BY SECTOR (G & PRI)**
G sector:	
94. g(G)TFP(stock	Growth rate of Total Factor Productivity (TFPen) as stock. In: the author's PhD theses.
95. g(G)A(flow)	Rate of Technological Progress (en) as flow.
96. r(G)	Rate of Return in the G sector. Almost always minus over years due to defcits and debts.
97. x(G)=gY/r(G)	Coefficient between growth rate of Y and Rate of Return.
98. v(g)=r/(r-gY)	Valuation Ratio, testing assets-bubbles. Phelps(ac) is converted to the author's Phelps(en).
The same: Aggregate/Total economy, government (public) and private (Households & Enterprizes).	
PRI sector:	
99. g(PRI)TFP(sto	Growth rate of Total Factor Productivity (TFPen) as stock. In: the author's PhD theses.
100. g(PRI)A(flow	Rate of Technological Progress (en) as flow.
101. r(PRI)	Rate of Profit/Earning in the PRI sector. Always plus over years due to bysiness principle.
102. x(PRI)=gY/r((	Coefficient between growth rate of Y and Rate of Profit or Earning.
103. v(PRI)=r/(r-gY)	Valuation Ratio, inspecting rapid investments. By applying the author's Phelps(en) at PRI.

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Readers' Notes on

The **C**ost **A**ccounting for Increasing or Decreasing **D**eficits and **D**ebts (**CAD**s)