EE 212 Principles of Macroeconomics (SECTION 046402)

Lecture #6

26 January 2012

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Measuring National Output and National Income

1. Gross Domestic Product

Overview

Final Goods and Services

Exclusion of Used Goods and Paper Transactions

Exclusion of Output Produced Abroad by Domestically Owned Factors of Production

2. Calculating GDP

The Sum of Value-Added Approach

The Expenditure Approach

The Income Approach

3. Nominal versus Real GDP

Calculating Real GDP

Calculating the GDP Deflator

The Problems of Fixed Weights

4. Limitations of the GDP Concept

GDP and Social Welfare

The Underground Economy

Gross National Income per Capita

5. Applications

Account 1. Domestic Product

(Millions of Baht)

	2001	2002	2003	2004	2005	2006r	2007r	2008r	2009p
Net Domestic Product at Factor Cost	3,861,229	4,072,166	4,417,872	4,921,445	5,397,524	5,961,509	6,552,883	7,052,673	6,865,578
Provision for Consumption of Fixed Capital	759,455	790,921	824,216	868,249	927,456	995,880	1,079,373	1,169,742	1,265,666
Indirect Taxes	537,994	614,613	714,187	777,210	857,811	927,927	938,971	916,428	966,907
Less : Subsidies	25,176	27,057	38,906	77,428	89,898	40,377	46,030	58,377	56,600
Gross Domestic Product at Market Prices	**5,133,502**	**5,450,643**	**5,917,369**	**6,489,476**	**7,092,893**	**7,844,939**	**8,525,197**	**9,080,466**	**9,041,551**
Private Consumption Expenditure	2,941,012	3,119,979	3,385,602	3,711,286	4,060,414	4,379,070	4,555,199	4,999,605	4,993,302
General Government Consumption Expenditure	581,117	603,891	636,002	720,595	843,649	925,987	1,039,270	1,120,842	1,213,928
Gross Domestic Fixed Capital Formation	1,181,315	1,243,188	1,424,194	1,681,824	2,049,823	2,203,967	2,249,651	2,492,332	2,181,821
Change in Inventories	55,774	54,146	53,281	56,766	180,344	15,939	3,889	152,272	-261,315
Exports of Goods and Services	3,380,750	3,499,004	3,886,566	4,587,868	5,218,079	5,777,554	6,259,581	6,941,526	6,180,052
Less : Imports of Goods and Services	3,047,574	3,134,265	3,485,272	4,272,713	5,297,474	5,503,772	5,544,488	6,708,781	5,226,526
Statistical Discrepancy	41,108	64,700	16,996	3,850	38,058	46,194	-37,905	82,670	-39,711
Expenditure on Gross Domestic Product	**5,133,502**	**5,450,643**	**5,917,369**	**6,489,476**	**7,092,893**	**7,844,939**	**8,525,197**	**9,080,466**	**9,041,551**

USA's GDP on Expenditure

Unit : US$ bn	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
US: GDP: sa: Private Consumption Expenditure (IMF)	7,149	7,439	7,804	8,285	8,819	9,301	9,772	10,036	9,866	10,246
US: GDP: sa: Government Consumption Expenditure (IMF)	1,524	1,640	1,757	1,860	1,978	2,093	2,218	2,381	2,412	2,498
US: GDP: sa: Gross Fixed Capital Formation (IMF)	2,022	1,978	2,069	2,276	2,514	2,692	2,723	2,626	2,213	2,234
US: GDP: sa: Changes in Inventories (IMF)	(38)	12	16	65	50	60	29	(41)	(161)	67
US: GDP: sa: Exports of Goods and Services (IMF)	1,028	1,003	1,041	1,180	1,305	1,471	1,662	1,847	1,583	1,840
US: GDP: sa: Imports of Goods and Services (IMF)	1,399	1,430	1,545	1,799	2,028	2,240	2,375	2,556	1,975	2,357
US: Gross Domestic Product (GDP): Seasonally Adjusted (sa) (IMF)	**10,286**	**10,642**	**11,142**	**11,868**	**12,638**	**13,377**	**14,029**	**14,292**	**13,939**	**14,527**
US: GDP: sa: Net Primary Factor From Abroad (IMF)	52	49	69	91	97	72	123	169	152	189
US: GDP: sa: Consumption of Fixed Capital (IMF)	1,256	1,305	1,354	1,433	1,541	1,661	1,768	1,854	1,866	1,875
US: GDP: sa: Net Current Transfers from Abroad (IMF)	(73)	(74)	(81)	(97)	(115)	(102)	(126)	(138)	(138)	(152)
US: GDP: sa: Gross National Income (IMF)	**10,441**	**10,714**	**11,194**	**11,967**	**12,815**	**13,692**	**14,164**	**14,463**	**14,014**	**14,715**
US: GDP: sa: Gross Saving (IMF)	1,696	1,561	1,553	1,724	1,903	2,196	2,048	1,908	1,597	1,820

Table 1. Balance Sheet of National Income and Expenditure at Current Market Prices

(Millions of Baht)

	2001	2002	2003	2004	2005	2006r	2007r	2008r	2009p
Private Consumption Expenditure	2,941,012	3,119,979	3,385,602	3,711,286	4,060,414	4,379,070	4,555,199	4,999,605	4,993,302
General Government Consumption Expenditure	581,117	603,891	636,002	720,595	843,649	925,987	1,039,270	1,120,842	1,213,928
Gross Fixed Capital Formation	1,181,315	1,243,188	1,424,194	1,681,824	2,049,823	2,203,967	2,249,651	2,492,332	2,181,821
Change in Inventories	55,774	54,146	53,281	56,766	180,344	15,939	3,889	152,272	-261,315
Expenditure on Consumption and Gross Capital Formation	**4,759,218**	**5,021,204**	**5,499,079**	**6,170,471**	**7,134,230**	**7,524,963**	**7,848,009**	**8,765,051**	**8,127,736**
Plus : Exports of Goods and Services	3,380,750	3,499,004	3,886,566	4,587,868	5,218,079	5,777,554	6,259,581	6,941,526	6,180,052
Exports of Goods	*2,802,530*	*2,837,663*	*3,233,116*	*3,822,802*	*4,406,673*	*4,838,242*	*5,212,208*	*5,831,086*	*5,155,054*
Exports of Services	*578,220*	*661,341*	*653,450*	*765,066*	*811,406*	*939,312*	*1,047,373*	*1,110,440*	*1,024,998*
Expenditure on Gross Domestic Product and Imports	**8,139,968**	**8,520,208**	**9,385,645**	**10,758,339**	**12,352,309**	**13,302,517**	**14,107,590**	**15,706,577**	**14,307,788**
Less : Imports of Goods and Services	3,047,574	3,134,265	3,485,272	4,272,713	5,297,474	5,503,772	5,544,488	6,708,781	5,226,526
Imports of Goods	*2,691,579*	*2,719,439*	*3,077,529*	*3,764,009*	*4,733,420*	*4,803,918*	*4,773,127*	*5,845,352*	*4,485,935*
Imports of Services	*355,995*	*414,826*	*407,743*	*508,704*	*564,054*	*699,854*	*771,361*	*863,429*	*740,591*
Expenditure on Gross Domestic Product	**5,092,394**	**5,385,943**	**5,900,373**	**6,485,626**	**7,054,835**	**7,798,745**	**8,563,102**	**8,997,796**	**9,081,262**
Plus : Statistical Discrepancy	41,108	64,700	16,996	3,850	38,058	46,194	-37,905	82,670	-39,711
Gross Domestic Product, (GDP)	**5,133,502**	**5,450,643**	**5,917,369**	**6,489,476**	**7,092,893**	**7,844,939**	**8,525,197**	**9,080,466**	**9,041,551**
Less : Indirect Taxes less Subsidies	512,818	587,556	675,281	699,782	767,913	887,550	892,941	858,051	910,307
Provision for Consumption of Fixed Capital	759,455	790,921	824,216	868,249	927,456	995,880	1,079,373	1,169,742	1,265,666
Plus : Net Factor Income Payment from the Rest of the World	-133,539	-188,437	-242,933	-291,032	-344,014	-316,810	-311,204	-323,601	-352,513
Net National Product at Factor Cost or National Income	**3,727,690**	**3,883,729**	**4,174,939**	**4,630,413**	**5,053,510**	**5,644,699**	**6,241,679**	**6,729,072**	**6,513,065**

Table 6. Consumption Expenditure at Current Market Prices

(Millions of Baht)

	2001	2002	2003	2004	2005	2006r	2007r	2008r	2009p
Private Consumption Expenditure	**2,941,012**	**3,119,979**	**3,385,602**	**3,711,286**	**4,060,414**	**4,379,070**	**4,555,199**	**4,999,605**	**4,993,302**
Food and Non-alcoholic	750,156	801,296	894,012	1,001,957	1,138,376	1,295,914	1,414,240	1,646,069	1,674,197
Alcoholic Beverages, Tobacco and Narcotic	190,970	195,006	202,133	210,271	221,733	241,191	251,943	259,466	260,645
Clothing and Footwear	323,271	332,425	335,008	332,851	343,685	351,879	356,295	371,241	354,767
Housing, Water, Electricity, Gas and Other Fuels	269,362	276,629	289,107	306,661	324,518	350,825	359,912	374,537	395,304
Furnishings, Households Equipment and Routine Maintenance of the House	204,347	216,422	234,562	256,149	274,016	287,850	307,600	333,389	305,539
Health	210,002	214,475	232,457	252,956	276,295	298,433	310,088	327,968	346,416
Transport	421,851	465,664	540,561	614,107	679,518	757,851	760,273	822,735	778,024
Communication	49,642	55,459	60,775	63,819	65,918	64,599	67,674	68,676	66,965
Recreation and Culture	204,804	219,191	229,248	263,803	278,348	278,838	264,106	280,400	263,206
Education	32,861	34,728	36,254	38,651	41,062	44,517	46,719	48,596	51,027
Restaurants and Hotels	285,123	301,323	298,065	339,200	364,136	427,745	461,468	509,446	503,057
Miscellaneous Goods and Services	176,833	204,027	228,506	250,143	267,745	273,075	304,996	339,226	351,200
Expenditure of Residents Abroad	104,138	113,680	99,123	148,982	128,767	142,444	145,165	137,312	120,378
Less : Expenditure of Non-residents in the Country	282,348	310,346	294,209	368,264	343,703	436,091	495,280	519,456	477,423
General Government Consumption Expenditure	**581,117**	**603,891**	**636,002**	**720,595**	**843,649**	**925,987**	**1,039,270**	**1,120,842**	**1,213,928**
General Administration	140,000	141,257	153,292	184,607	210,873	230,976	245,203	271,404	284,254
Defence	90,525	90,082	98,043	103,118	95,747	103,870	118,076	130,223	145,842
Justice and Police	59,949	62,390	67,762	78,297	100,253	107,601	117,744	126,658	138,861
Education and Research	195,108	206,321	224,936	249,521	278,881	314,186	362,156	388,711	420,264
Health Services	69,963	68,581	63,404	69,763	93,578	100,873	115,921	123,210	130,573
Special Welfare Services	4,246	5,120	5,940	6,919	7,015	10,051	13,669	14,708	16,440
Transport and Communication Facilities	10,169	16,220	9,387	13,186	37,677	37,268	44,179	39,640	48,938
Other Services	11,157	13,920	13,238	15,184	19,625	21,162	22,322	26,288	28,756
Consumption Expenditure	**3,522,129**	**3,723,870**	**4,021,604**	**4,431,881**	**4,904,063**	**5,305,057**	**5,594,469**	**6,120,447**	**6,207,230**

GDP forecast down to 1.8% reflecting flood impact

Research by: Chaiyachoke Suwisuttangkul , KimEng – May Bank (Thailand)

September number pressure mainly from severe flood disruption

- The overall Thai September economic numbers slowed in most major categories, especially in the consumer, export and tourism sectors, pressured mainly by the severe flood crisis and the slowdown in global economies.
- Consumers saw the private consumer index (PCI) slowing from +5.4% yoy in August to 5.0% yoy in September (-1.6% mom), depressed by lower agricultural revenue after floods damaged many farm areas.
- The investment sector saw the PII expand well at +8.5% yoy, slightly down 0.3% mom.
- However, the September business confidence Index fell significantly from 52.2 points to 48.5 points reflecting the negative future investment outlook.
- The foreign sector saw September export numbers grow 18.4% yoy for a significant decline from +28.4% yoy in August due to shrinking electronics exports along with the slowdown in global economies, while the import sector grew continuously by +42.6% yoy from +45.9% yoy in August.
- Tourism saw a seasonal slowdown with 23.5% yoy growth (1.5mn arrivals) vs 35.7% yoy growth in August. This led to a small current account surplus of just US$0.4bn, lower than market estimates of US$1.1bn.

Last quarter's economic numbers tend to slump

- From the prolonged flood crisis and the suspension of many industrial manufacturing, especially in auto parts and electronics, with a 2-month estimated rehabilitation, will halt any product launches before a return to normal operations in 1Q12.
- Hence, we believe a significant slump in the Thai economy in the rest of the year in the consumer, investment, export and tourism sectors, the main Thai economic drivers, cannot be avoided. We project the Thai GDP will fall 2.8% yoy vs 4.5% yoy expansion in 3Q11.

GDP revision to 1.8% with 2012 maintained at 3.5%

- The most severe floods in past 50 years are impacting the consumer, investment and export sectors.
- We have revised down our 2011 GDP forecast from 3.3% to 1.8% (providing the government can drain all floodwater by the end of November with limited damage in the east), and have kept our 2012 GDP unchanged at 3.5% vs the BoT estimate of 2.6% and 4.1%, respectively.
- However, we believe the BoT will cut their 2011 GDP forecast downward, as well, at the 30 November MPC meeting as flooding impact becomes more severe and with the also rising negative signals from the economic numbers.

Table 1: Thailand economic growth forecast revisions for 2011 and 4Q11

	2011F			4Q11F		
	New	Old	Change	New	Old	Change
Private consumption expenditure	1.86 %	3.07 %	-1.21 %	-1.20 %	3.50 %	-4.70 %
General government consumption expenditure	1.59 %	1.71 %	-0.12 %	1.50 %	2.00 %	-0.50 %
Gross fixed capital formation	4.36 %	6.26 %	-1.90 %	-1.80 %	6.00 %	-7.80 %
Exports of goods and services	7.11 %	10.93 %	-3.82 %	-7.41 %	7.19 %	-14.60 %
Imports of goods and services	8.83 %	12.93 %	-4.10 %	-6.75 %	8.91 %	-15.66 %
Gross Domestic Product	1.80 %	3.30%	-1.50 %	-2.82%	3.00%	-5.82 %

Source: KELIVE estimates.

Table 2: Thailand economic growth forecast (yearly and quarterly)

	Quarterly GDP				Full Year	Full Year
	1Q11	2Q11	3Q11F	4Q11F	2011F	2012F
Private consumption expenditure	3.28 %	2.75 %	2.75 %	-1.20 %	1.86 %	3.50 %
General government consumption expenditure	1.78 %	1.00 %	2.00 %	1.50 %	1.59 %	4.10 %
Gross fixed capital formation	9.26 %	4.12 %	5.90 %	-1.80 %	4.36 %	6.50 %
Exports of goods and services	16.02 %	11.81 %	9.00 %	-7.41 %	7.11 %	6.24 %
Imports of goods and services	16.82 %	14.90 %	11.69 %	-6.75 %	8.83 %	7.52 %
Gross Domestic Product	3.17%	2.55%	4.51%	-2.82%	1.80 %	3.51 %

Source: NESDB reports and KELIVE estimates.

Chart 4: Consumer confidence index

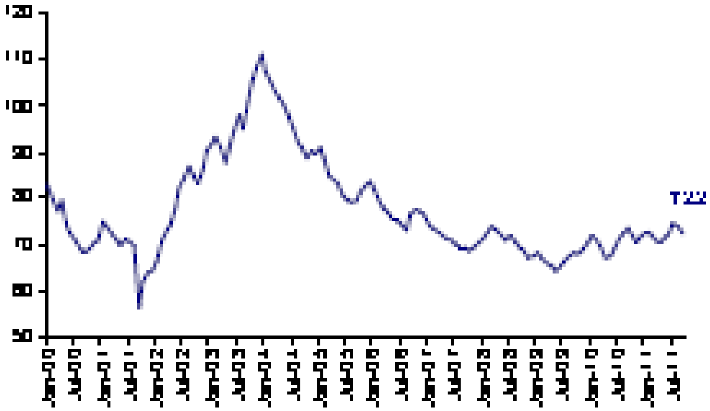


Chart 5: Business sentiment index

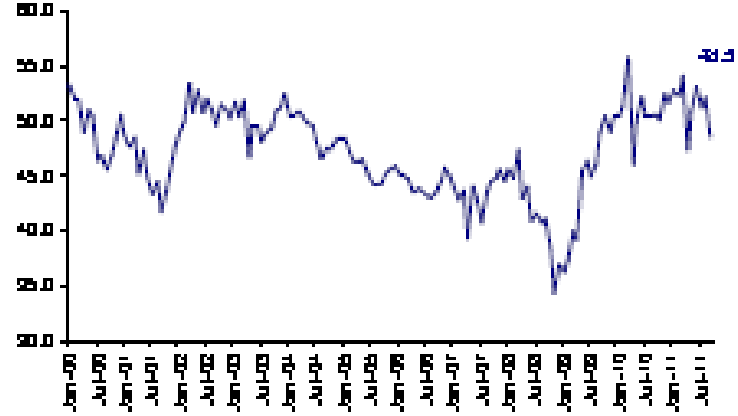


Chart 9: Unemployment rate (%)

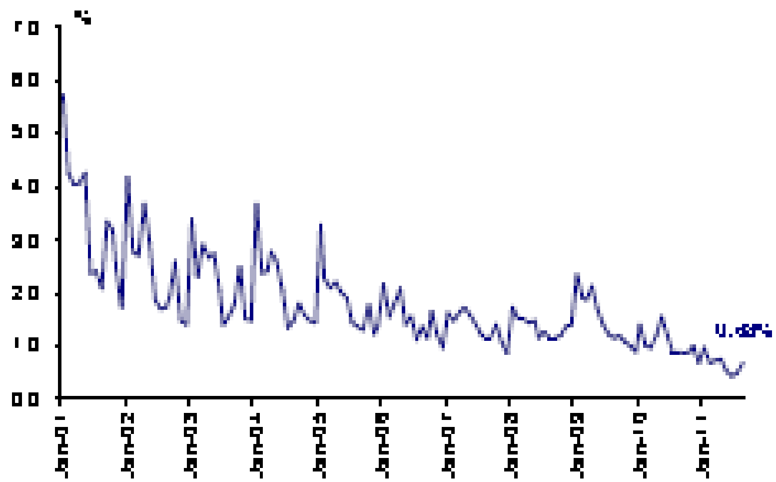
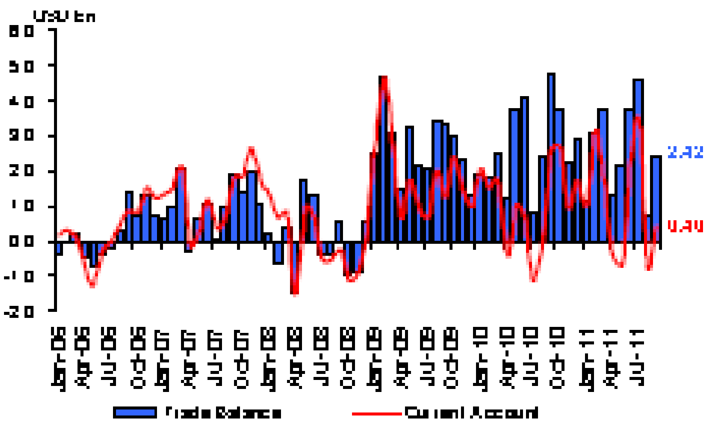
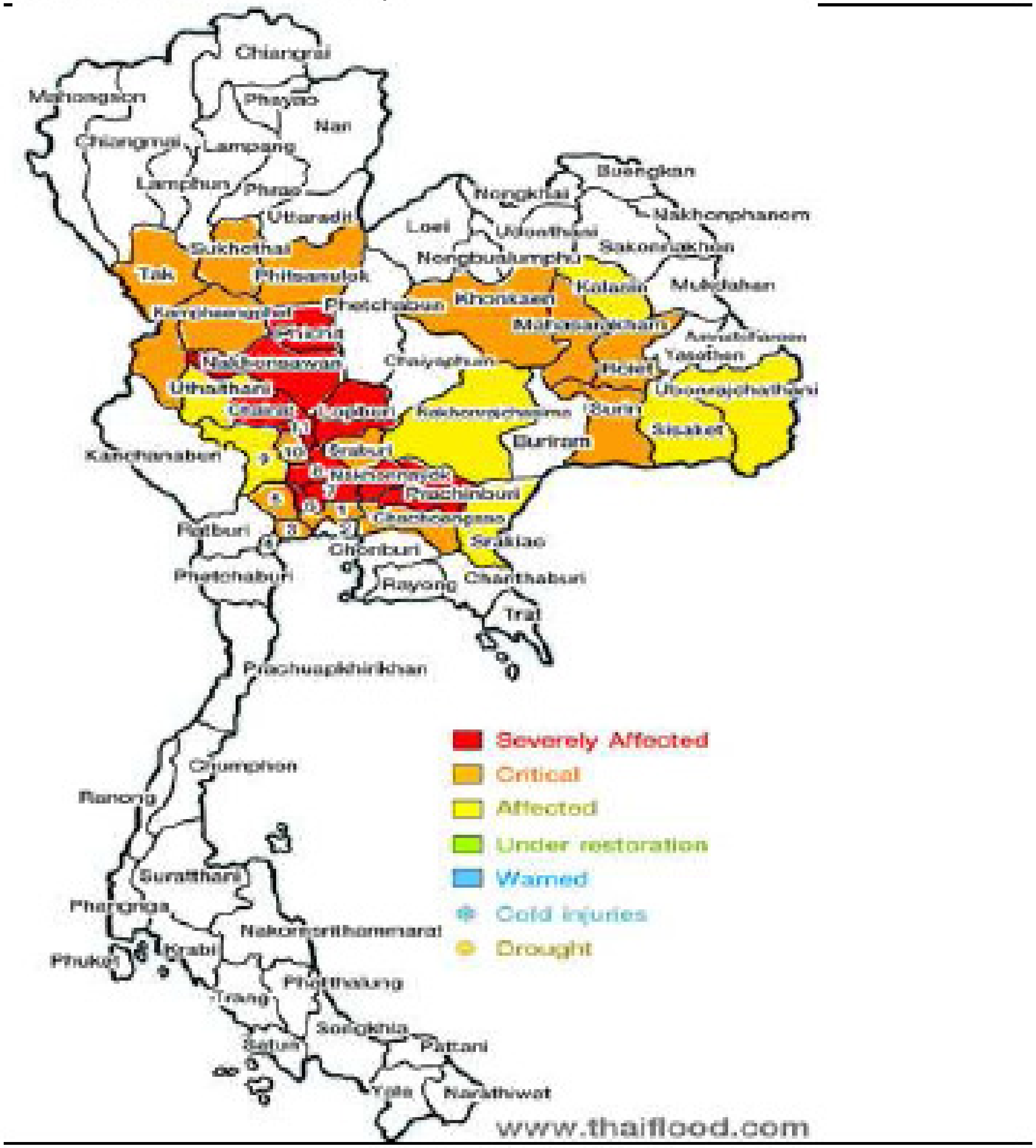


Chart 7: Trade balance and current account balance



Source : BoT

Chart 1: Thailand flood map



Source: www.thaiflood.com

2. Calculating GDP

The Income Approach

Net National Product =

National Income =

GDP, GNP, NNP and National Income, 2007

	Dollars (Billions)
GDP	**13,841.3**
Plus: Receipts of factor income from the rest of the world	+ 817.5
Less: Payments of factor income to the rest of the world	– 721.8
Equals: **GNP**	**13,937.1**
Less: Depreciation	– 1,686.6
Equals: **Net national product (NNP)**	**12,250.5**
Less: Statistical discrepancy	– 29.4
Equals: **National income**	**12,221.1**

Note: Numbers may not add exactly because of rounding.
Source: U.S. Department of Commerce, Bureau of Economic Analysis.

Table 3. Gross National Product and National Income at Current Market Prices by Economic Activities

(Millions of Baht)

	2001	2002	2003	2004	2005	2006r	2007r	2008r	2009p
Agriculture	**468,905**	**514,257**	**615,854**	**668,808**	**728,093**	**844,614**	**910,125**	**1,049,743**	**1,036,586**
Agriculture, Hunting and Forestry	357,979	406,809	506,623	561,857	623,738	736,623	812,075	955,710	931,907
Fishing	110,926	107,448	109,231	106,951	104,355	107,991	98,050	94,033	104,679
Non-Agriculture	**4,664,597**	**4,936,386**	**5,301,515**	**5,820,668**	**6,364,800**	**7,000,325**	**7,615,072**	**8,030,723**	**8,004,965**
Mining and Quarrying	126,232	135,851	154,606	175,350	222,617	257,148	278,935	315,273	306,529
Manufacturing	1,715,926	1,836,083	2,061,572	2,235,573	2,461,294	2,748,707	3,037,691	3,163,683	3,087,741
Electricity, Gas and Water Supply	166,683	175,595	191,006	210,903	220,410	238,889	248,125	262,027	278,108
Construction	154,493	165,719	174,699	194,466	214,004	234,458	249,263	259,223	246,076
Wholesale and Retail Trade; Repair of Motor Vehicles, Motorcycles and Personal and Household Goods	856,098	866,332	888,016	970,806	1,042,043	1,116,528	1,206,866	1,288,332	1,272,556
Hotels and Restaurants	289,175	309,622	299,567	334,222	346,865	386,063	416,758	440,173	439,720
Transport, Storage and Communications	427,049	449,278	457,169	492,530	519,623	569,261	626,456	645,300	647,319
Financial Intermediation	151,360	170,036	202,257	233,719	264,896	286,220	308,915	354,619	368,831
Real Estate, Renting and Business Activities	163,862	171,751	177,848	188,243	198,521	208,810	214,925	216,681	215,839
Public Administration and Defence; Compulsory Social Security	222,161	244,783	262,272	295,885	326,051	349,981	374,043	399,094	416,087
Education	202,318	211,278	221,191	248,876	280,978	316,829	360,446	384,444	414,924
Health and Social Work	104,825	107,654	106,836	116,695	135,224	150,013	163,924	168,839	177,188
Other Community, Social and Personal Service Activities	77,118	84,949	96,654	115,178	123,743	128,680	119,513	123,353	123,912
Private Households with Employed Persons	7,297	7,455	7,822	8,222	8,531	8,738	9,212	9,682	10,135
Gross Domestic Product, (GDP)	**5,133,502**	**5,450,643**	**5,917,369**	**6,489,476**	**7,092,893**	**7,844,939**	**8,525,197**	**9,080,466**	**9,041,551**
Plus : Net Factor Income Payment from the Rest of the World	-133,539	-188,437	-242,933	-291,032	-344,014	-316,810	-311,204	-323,601	-352,513
Gross National Product, (GNP)	**4,999,963**	**5,262,206**	**5,674,436**	**6,198,444**	**6,748,879**	**7,528,129**	**8,213,993**	**8,756,865**	**8,689,038**
Less : Indirect Taxes less Subsidies	512,818	587,556	675,281	699,782	767,913	887,550	892,941	858,051	910,307
Provision for Consumption of Fixed Capital	759,455	790,921	824,216	868,249	927,456	995,880	1,079,373	1,169,742	1,265,666
National Income, (NI)	**3,727,690**	**3,883,729**	**4,174,939**	**4,630,413**	**5,053,510**	**5,644,699**	**6,241,679**	**6,729,072**	**6,513,065**
Per Capita GDP (Baht)	**81,697**	**85,947**	**92,485**	**100,564**	**108,955**	**119,635**	**129,089**	**136,585**	**135,144**
Per Capita GNP (Baht)	**79,572**	**82,975**	**88,688**	**96,054**	**103,671**	**114,804**	**124,377**	**131,718**	**129,875**
Per Capita NI (Baht)	**59,324**	**61,239**	**65,252**	**71,755**	**77,628**	**86,081**	**94,512**	**101,216**	**97,351**
Population (1,000 Heads)	62,836	63,419	63,982	64,531	65,099	65,574	66,041	66,482	66,903

National income: total income earned by households

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National Income, Personal Income, Disposable Personal Income, and Personal Saving, 2007

	Dollars (Billions)
National income	**12,221.1**
Less: Amount of national income not going to households	– 561.6
Equals: **Personal income**	11,659.5
Less: Personal income taxes	– 1,482.5
Equals: **Disposable personal income**	10,177.0
Less: Personal consumption expenditures	– 9,734.2
Personal interest payments	–262.8
Transfer payments made by households	–137.1
Equals: **Personal saving**	42.9
Personal saving as a percentage of disposable personal income:	0.4%

Note: Numbers may not add exactly because of rounding.
Source: U.S. Department of Commerce, Bureau of Economic Analysis.

USA's GDP and National Income

Unit : US$ bn	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
US: GDP: sa: Private Consumption Expenditure (IMF)	7,149	7,439	7,804	8,285	8,819	9,301	9,772	10,036	9,866	10,246
US: GDP: sa: Government Consumption Expenditure (IMF)	1,524	1,640	1,757	1,860	1,978	2,093	2,218	2,381	2,412	2,498
US: GDP: sa: Gross Fixed Capital Formation (IMF)	2,022	1,978	2,069	2,276	2,514	2,692	2,723	2,626	2,213	2,234
US: GDP: sa: Changes in Inventories (IMF)	(38)	12	16	65	50	60	29	(41)	(161)	67
US: GDP: sa: Exports of Goods and Services (IMF)	1,028	1,003	1,041	1,180	1,305	1,471	1,662	1,847	1,583	1,840
US: GDP: sa: Imports of Goods and Services (IMF)	1,399	1,430	1,545	1,799	2,028	2,240	2,375	2,556	1,975	2,357
US: Gross Domestic Product (GDP): Seasonally Adjusted (sa) (IMF)	**10,286**	**10,642**	**11,142**	**11,868**	**12,638**	**13,377**	**14,029**	**14,292**	**13,939**	**14,527**
US: GDP: sa: Net Primary Factor From Abroad (IMF)	52	49	69	91	97	72	123	169	152	189
US: GDP: sa: Consumption of Fixed Capital (IMF)	1,256	1,305	1,354	1,433	1,541	1,661	1,768	1,854	1,866	1,875
US: GDP: sa: Net Current Transfers from Abroad (IMF)	(73)	(74)	(81)	(97)	(115)	(102)	(126)	(138)	(138)	(152)
US: GDP: sa: Gross National Income (IMF)	**10,441**	**10,714**	**11,194**	**11,967**	**12,815**	**13,692**	**14,164**	**14,463**	**14,014**	**14,715**
US: GDP: sa: Gross Saving (IMF)	1,696	1,561	1,553	1,724	1,903	2,196	2,048	1,908	1,597	1,820

Account 2. National Income

(Millions of Baht)

	2001	2002	2003	2004	2005	2006r	2007r	2008r	2009p
Compensation of Employees	1,602,367	1,671,353	1,786,334	1,927,134	2,072,848	2,259,116	2,449,250	2,606,362	2,662,311
Income from Unincorporated Enterprises	1,441,558	1,494,876	1,657,843	1,912,299	1,981,136	2,078,729	2,313,606	2,598,155	2,409,062
Income from Property	233,654	231,019	240,884	220,416	333,963	481,961	499,104	508,969	494,859
Savings of Corporations and Government Enterprises	314,184	338,879	303,380	337,337	338,358	462,139	625,031	640,147	623,000
Direct Taxes on Corporations	159,117	183,756	233,304	285,049	369,307	414,031	442,728	513,048	457,219
Corporate Transfer Payments	12,451	12,576	14,163	15,987	17,572	17,434	18,274	19,077	20,856
General Government Income from Property and Entrepreneurship	57,285	60,747	68,419	62,675	87,574	106,292	92,264	77,690	90,674
Less : Interest on the Public Debt	60,234	74,734	88,537	82,970	91,237	98,254	103,796	116,193	117,244
Less : Interest on Consumers' Debt	32,692	34,743	40,851	47,514	56,011	76,749	94,782	118,183	127,672
National Income	**3,727,690**	**3,883,729**	**4,174,939**	**4,630,413**	**5,053,510**	**5,644,699**	**6,241,679**	**6,729,072**	**6,513,065**
Net Domestic Product at Factor Cost	3,861,229	4,072,166	4,417,872	4,921,445	5,397,524	5,961,509	6,552,883	7,052,673	6,865,578
Net Factor Income Payment from the Rest of the World	-133,539	-188,437	-242,933	-291,032	-344,014	-316,810	-311,204	-323,601	-352,513
Net National Product at Factor Cost	**3,727,690**	**3,883,729**	**4,174,939**	**4,630,413**	**5,053,510**	**5,644,699**	**6,241,679**	**6,729,072**	**6,513,065**

National Income, 2007

	Billions of Dollars	Percentage of National Income
National Income	12,221.1	100.0
Compensation of employees	7,874.2	64.4
Proprietors' income	1,042.6	8.5
Rental income	65.4	0.5
Corporate profits	1,598.2	13.1
Net interest	602.6	4.9
Indirect taxes minus subsidies	961.4	7.9
Net business transfer payments	94.2	0.8
Surplus of government enterprises	–14.5	–0.1

Note: Numbers may not add exactly because of rounding.
Source: U.S. Department of Commerce, Bureau of Economic Analysis.

USA's GDP on Expenditure

Unit : US$ bn	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
US: GDP: sa: Private Consumption Expenditure (IMF)	7,149	7,439	7,804	8,285	8,819	9,301	9,772	10,036	9,866	10,246
US: GDP: sa: Government Consumption Expenditure (IMF)	1,524	1,640	1,757	1,860	1,978	2,093	2,218	2,381	2,412	2,498
US: GDP: sa: Gross Fixed Capital Formation (IMF)	2,022	1,978	2,069	2,276	2,514	2,692	2,723	2,626	2,213	2,234
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US: GDP: sa: Imports of Goods and Services (IMF)	1,399	1,430	1,545	1,799	2,028	2,240	2,375	2,556	1,975	2,357
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US: GDP: sa: Net Current Transfers from Abroad (IMF)	(73)	(74)	(81)	(97)	(115)	(102)	(126)	(138)	(138)	(152)
US: GDP: sa: Gross National Income (IMF)	**10,441**	**10,714**	**11,194**	**11,967**	**12,815**	**13,692**	**14,164**	**14,463**	**14,014**	**14,715**
US: GDP: sa: Gross Saving (IMF)	1,696	1,561	1,553	1,724	1,903	2,196	2,048	1,908	1,597	1,820

3. Nominal versus Real GDP

Nominal GDP:

Real GDP:

Implicit GDP Deflator:

Economic Growth Rate

Inflation Rate

GDP per Capita

A Three-Good Economy

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Production		Price Per Unit		GDP in Year 1 in Year 1 Prices	GDP in Year 2 in Year 1 Prices	GDP in Year 1 in Year 2 Prices	GDP in Year 2 in Year 2 Prices
	Year 1 Q_1	Year 2 Q_2	Year 1 P_1	Year 2 P_2	P_1 x Q_1	P_1 x Q_2	P_2 x Q_1	P_2 X Q_2
Good *A*	6	11	$0.50	$0.40	$3.00	$5.50	$2.40	$4.40
Good *B*	7	4	0.30	1.00	2.10	1.20	7.00	4.00
Good *C*	10	12	0.70	0.90	7.00	8.40	9.00	10.80
Total					$12.10	$15.10	$18.40	$19.20
					Nominal GDP in year 1			Nominal GDP in year 2

Nominal versus Real GDP

Nominal GDP: year 2 output at year 2 prices = $19.2

Real GDP: year 2 output at year 1 prices = $15.1

Implicit GDP Deflator = (19.2/15.1)*100 = 127.2

Growth Rate = [(19.2 – 15.1) / 15.1]*100 = 27.1%

4. Limitations of the GDP Concept

The Underground Economy

Income form illegal goods and services

- Gambling, drug trafficking, prostitution

Income from legal goods and services not reported to IRS

- Cash transactions
- Self-employed activities

Problems of having a large value of discrepancy

Underground economy

Table 4.1: The Size of the Shadow Economy in 25 East and Central European and Former Soviet Union Countries

No.	Country	Shadow Economy (in % of official GDP) using the MIMIC and Currency Demand Method						
		1999/00	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07
1	Albania	33.4	34.6	35.3	36.1	36.3	37.0	36.0
2	Armenia	46.3	47.8	49.1	50.6	51.2	52.6	52.0
3	Azerbaijan	60.6	61.1	61.3	61.5	61.9	62.3	61.5
4	Belarus	48.1	49.3	50.4	51.2	52.1	53.0	52.2
5	Bosnia and Herzegovina	34.1	35.4	36.7	37.2	38.1	39.0	38.2
6	Bulgaria	36.9	37.1	38.3	39.1	40.0	40.2	39.4
7	Croatia	33.4	34.2	35.4	36.1	37.2	37.3	36.5
8	Czech Republic	19.1	19.6	20.1	20.2	19.8	19.0	18.2
9	Estonia	38.4	39.2	40.1	39.4	38.6	37.2	36.0
10	Georgia	67.3	67.6	68.0	68.2	68.6	69.0	68.2
11	Hungary	25.1	25.7	26.2	26.4	26.1	25.3	24.4
12	Kazakhstan	43.2	44.1	45.2	46.3	47.0	47.3	46.5
13	Kyrgyz Republic	39.8	40.3	41.2	41.9	42.7	43.4	43.0
14	Latvia	39.9	40.7	41.3	40.6	39.8	38.2	37.1
15	Lithuania	30.3	31.4	32.6	31.3	30.4	29.1	28.2
16	Macedonia, FYR	34.1	35.1	36.3	37.3	38.4	39.0	38.3
17	Moldova	45.1	47.3	49.4	50.1	51.2	52.3	51.4
18	Poland	27.6	28.2	28.9	29.2	29.3	27.3	26.5
19	Romania	34.4	36.1	37.4	38.2	38.9	38.3	37.4
20	Russian Federation	46.1	47.5	48.7	49.3	50.1	50.3	49.4
21	Serbia and Montenegro	36.4	37.3	39.1	40.3	41.1	42.1	41.4
22	Slovak Republic	18.9	19.3	20.2	19.6	19.0	18.4	17.4
23	Slovenia	27.1	28.3	29.4	29.0	28.6	27.2	26.4
24	Ukraine	52.2	53.6	54.7	55.6	57.3	58.1	57.3
25	Uzbekistan	34.1	35.7	37.2	38.6	39.8	40.6	39.5
	Unweighted Average	38.1	39.1	40.1	40.5	41.0	40.9	39.9

Source: Own calculations.

Source: The Size of the Shadow Economy for 25 Transition Countries over 1999/00 to 2006/07: What do we know?, Friedrich Schneider, Department of Economics, Johannes Kepler University of Linz, A-4040 Linz-Auhof, Austria

Kipf 한국조세연구원
KOREA INSTITUTE OF PUBLIC FINANCE

Underground Economy:
Causes and Size

No-Wook Park
Korea Institute of Public Finance

1

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Average Size of Underground Economy for Developing, Transition and OECD Countries in % of Official GDP

Countries/year	1992/2000	2000/2001	2002/2003
Africa (Developing)	33.9	37.4	41.2
Central and South America (Developing)	34.2	37.7	41.5
Asia (Developing)	20.9	23.4	26.3
Transition Countries	31.5	34.6	37.9
Highly developed OECD Countries	13.2	15.7	16.8
South Pacific Island	31.7	32.6	33.4
Communist Countries	19.4	20.7	21.8
Average over 145 countries	33.6	34.5	35.2

7

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Average Size of Underground Economy for Asia Countries in % of Official GDP

Countries/year	1992/2000	2000/2001	2002/2003
Bangladesh	35.6	36.5	37.7
Cambodia	50.1	51.3	52.4
Hong Kong	16.6	17.1	17.2
Indonesia	19.4	21.8	22.9
Korea	27.5	28.1	28.8
Malaysia	31.1	31.6	32.2
Thailand	52.6	53.4	54.1
Singapore	13.1	13.4	13.7

8

4. Limitations of the GDP Concept

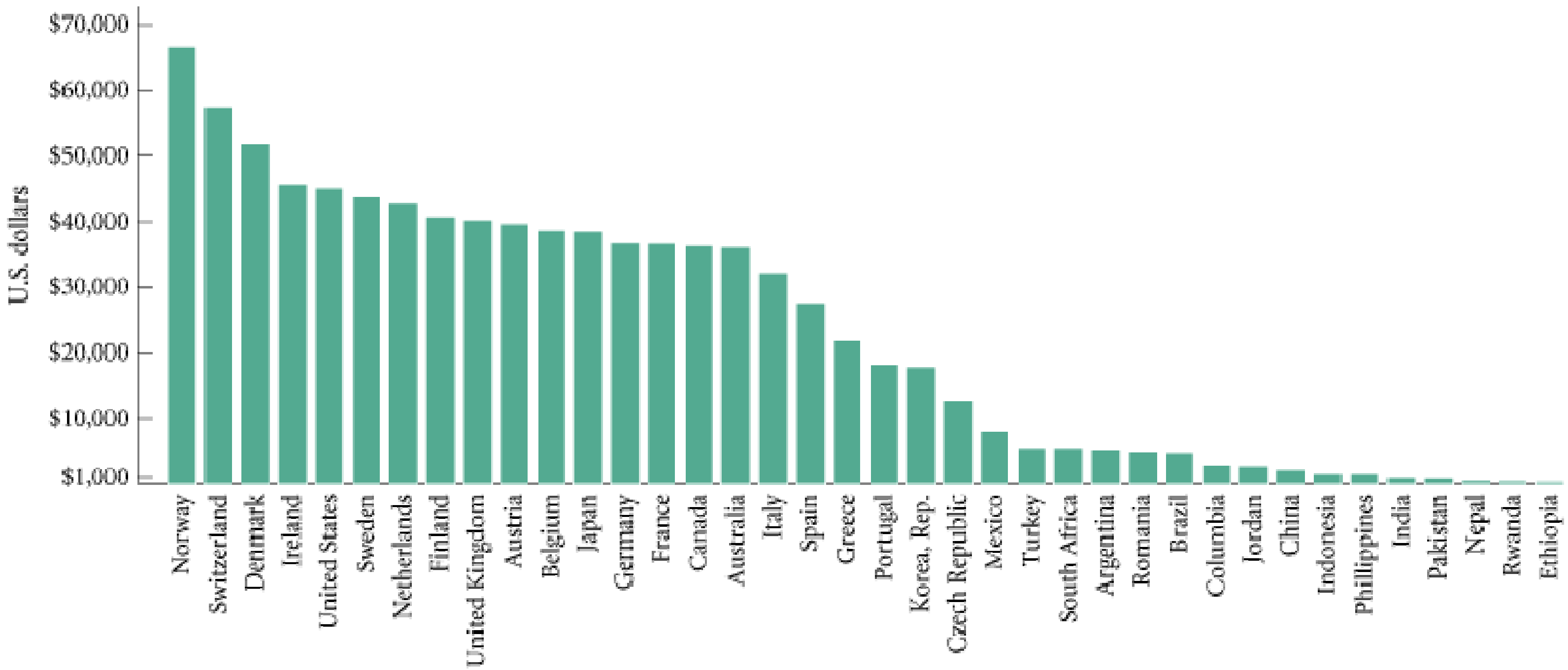
GDP and Social Welfare

Society is better off when crime decreases; however, a decrease in crime is not reflected in GDP.

An increase in leisure time is an increase in social welfare, but not counted in GDP.

Most non-market and domestic activities, such as housework and child care, are not counted in GDP even though they amount to real production.

Externalities of production and consumption (e.g., air pollution, water contamination) are not included in GDP.



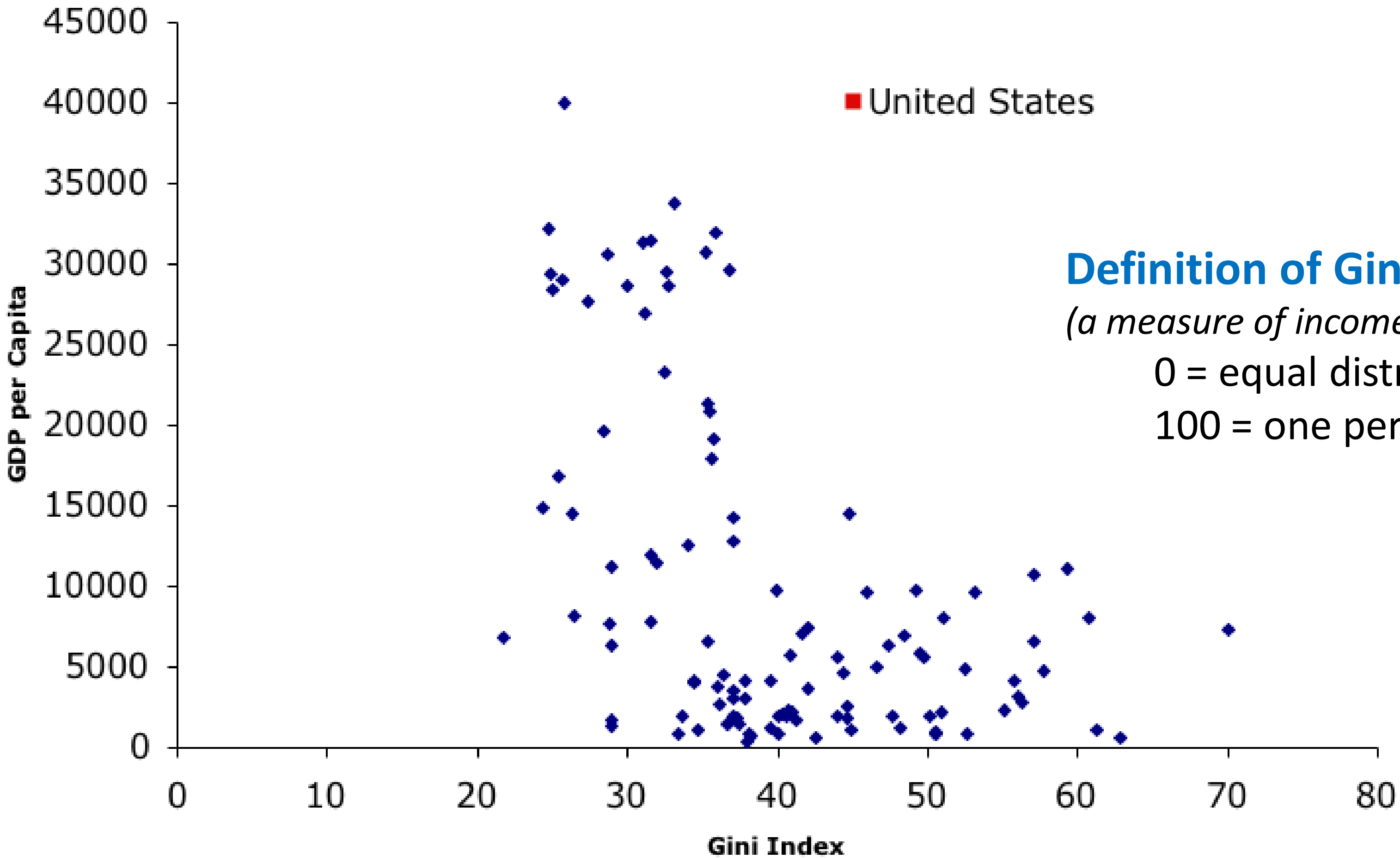
Per Capita Gross National Income for Selected Countries, 2006

Table 3. Gross National Product and National Income at Current Market Prices by Economic Activities

(Millions of Baht)

	2001	2002	2003	2004	2005	2006r	2007r	2008r	2009p
Agriculture	**468,905**	**514,257**	**615,854**	**668,808**	**728,093**	**844,614**	**910,125**	**1,049,743**	**1,036,586**
Agriculture, Hunting and Forestry	357,979	406,809	506,623	561,857	623,738	736,623	812,075	955,710	931,907
Fishing	110,926	107,448	109,231	106,951	104,355	107,991	98,050	94,033	104,679
Non-Agriculture	**4,664,597**	**4,936,386**	**5,301,515**	**5,820,668**	**6,364,800**	**7,000,325**	**7,615,072**	**8,030,723**	**8,004,965**
Mining and Quarrying	126,232	135,851	154,606	175,350	222,617	257,148	278,935	315,273	306,529
Manufacturing	1,715,926	1,836,083	2,061,572	2,235,573	2,461,294	2,748,707	3,037,691	3,163,683	3,087,741
Electricity, Gas and Water Supply	166,683	175,595	191,006	210,903	220,410	238,889	248,125	262,027	278,108
Construction	154,493	165,719	174,699	194,466	214,004	234,458	249,263	259,223	246,076
Wholesale and Retail Trade; Repair of Motor Vehicles, Motorcycles and Personal and Household Goods	856,098	866,332	888,016	970,806	1,042,043	1,116,528	1,206,866	1,288,332	1,272,556
Hotels and Restaurants	289,175	309,622	299,567	334,222	346,865	386,063	416,758	440,173	439,720
Transport, Storage and Communications	427,049	449,278	457,169	492,530	519,623	569,261	626,456	645,300	647,319
Financial Intermediation	151,360	170,036	202,257	233,719	264,896	286,220	308,915	354,619	368,831
Real Estate, Renting and Business Activities	163,862	171,751	177,848	188,243	198,521	208,810	214,925	216,681	215,839
Public Administration and Defence; Compulsory Social Security	222,161	244,783	262,272	295,885	326,051	349,981	374,043	399,094	416,087
Education	202,318	211,278	221,191	248,876	280,978	316,829	360,446	384,444	414,924
Health and Social Work	104,825	107,654	106,836	116,695	135,224	150,013	163,924	168,839	177,188
Other Community, Social and Personal Service Activities	77,118	84,949	96,654	115,178	123,743	128,680	119,513	123,353	123,912
Private Households with Employed Persons	7,297	7,455	7,822	8,222	8,531	8,738	9,212	9,682	10,135
Gross Domestic Product, (GDP)	**5,133,502**	**5,450,643**	**5,917,369**	**6,489,476**	**7,092,893**	**7,844,939**	**8,525,197**	**9,080,466**	**9,041,551**
Plus : Net Factor Income Payment from the Rest of the World	-133,539	-188,437	-242,933	-291,032	-344,014	-316,810	-311,204	-323,601	-352,513
Gross National Product, (GNP)	**4,999,963**	**5,262,206**	**5,674,436**	**6,198,444**	**6,748,879**	**7,528,129**	**8,213,993**	**8,756,865**	**8,689,038**
Less : Indirect Taxes less Subsidies	512,818	587,556	675,281	699,782	767,913	887,550	892,941	858,051	910,307
Provision for Consumption of Fixed Capital	759,455	790,921	824,216	868,249	927,456	995,880	1,079,373	1,169,742	1,265,666
National Income, (NI)	**3,727,690**	**3,883,729**	**4,174,939**	**4,630,413**	**5,053,510**	**5,644,699**	**6,241,679**	**6,729,072**	**6,513,065**
Per Capita GDP (Baht)	**81,697**	**85,947**	**92,485**	**100,564**	**108,955**	**119,635**	**129,089**	**136,585**	**135,144**
Per Capita GNP (Baht)	**79,572**	**82,975**	**88,688**	**96,054**	**103,671**	**114,804**	**124,377**	**131,718**	**129,875**
Per Capita NI (Baht)	**59,324**	**61,239**	**65,252**	**71,755**	**77,628**	**86,081**	**94,512**	**101,216**	**97,351**
Population (1,000 Heads)	62,836	63,419	63,982	64,531	65,099	65,574	66,041	66,482	66,903

Comparing how rich a country is vs how much its wealth is shared



Definition of Gini index

(a measure of income inequality)

0 = equal distrubution

100 = one person has everything

L-shape pattern → unexpected

Source: http://visualizingeconomics.com/2006/01/04/gdp-per-capital-vs-gini-index/

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Thailand Now an Upper Middle Income Economy

Available in: ภาษาไทย

BANGKOK, August 2, 2011 — The World Bank has upgraded Thailand's income categorization from a lower-middle income economy to an upper-middle income economy this year.

The World Bank annually revises its classification of the world's economies based on gross national income (GNI) per capita estimates using the Atlas method. As of July 1, 2011, upper-middle-income economies are those with average incomes of US$3,976 to US$12,275. Using the Atlas method, Thailand's GNI per capita is currently at US$4,210.

World Bank Senior Economist Kirida Bhaopichitr says: "The upgrade is in recognition of Thailand's economic achievements in the past decade in which GNI per capita has almost doubled, while poverty has been significantly reduced. The country has been prudent in macroeconomic management with a strong fiscal stance and low public debts and inflation. Thailand has a friendly business environment and has been successful in attracting foreign direct investments and achieving greater diversification in manufacturing production, both in terms of higher value-added production and expansion into new emerging export markets.

"These achievements were reflected in the resiliency of the Thai economy to the recent global financial crisis, which now place Thailand in a position of opportunity to pursue stronger ties to both ASEAN and the world," says Bhaopichitr, "For Thailand to sustain its growth and avoid the middle income trap, it needs to pay attention to raising the productivity of not only the manufacturing, but also the agriculture and services sectors. Higher levels of education and skills as well as creativity, innovation, and competition will be necessary. These would not only promote higher growth but also inclusive growth which will help reduce the persistent high income inequality in Thailand".

The new listing of all economies included in the World Bank's databases, their regional and income classifications, and the explanation of the Atlas methodology can be found here.

Related Content

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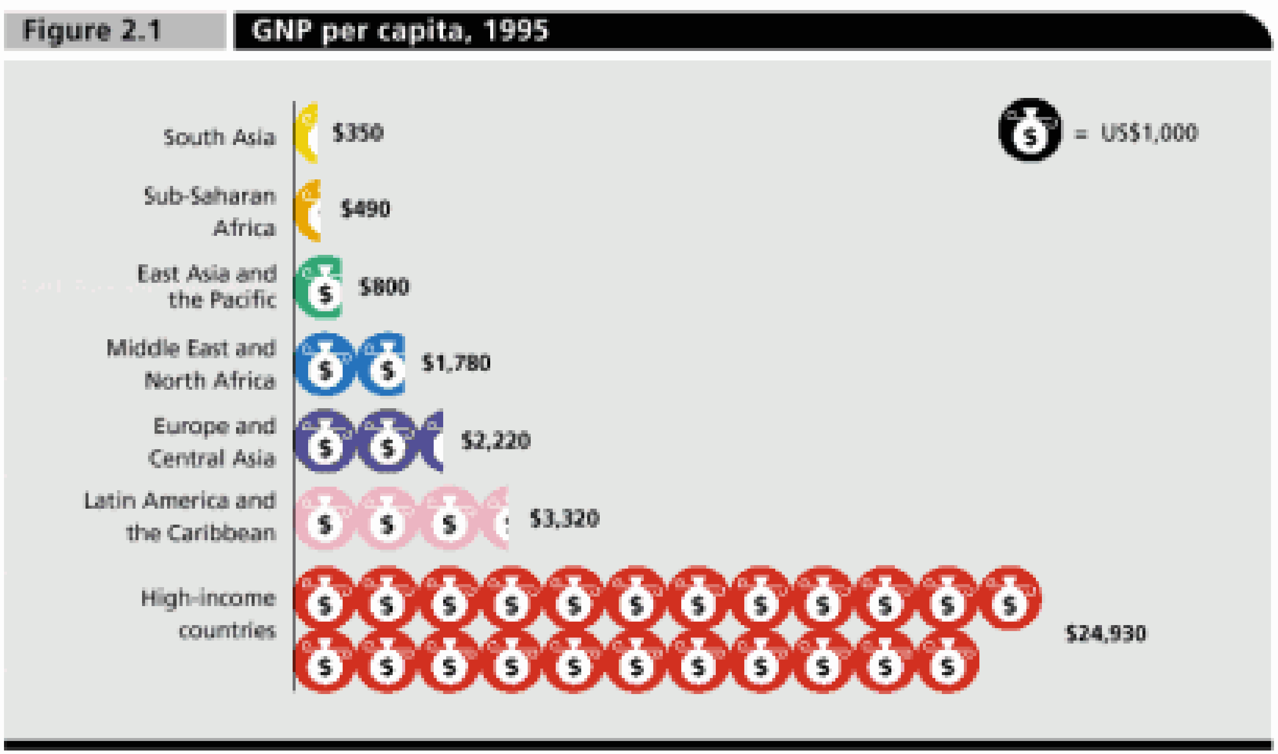
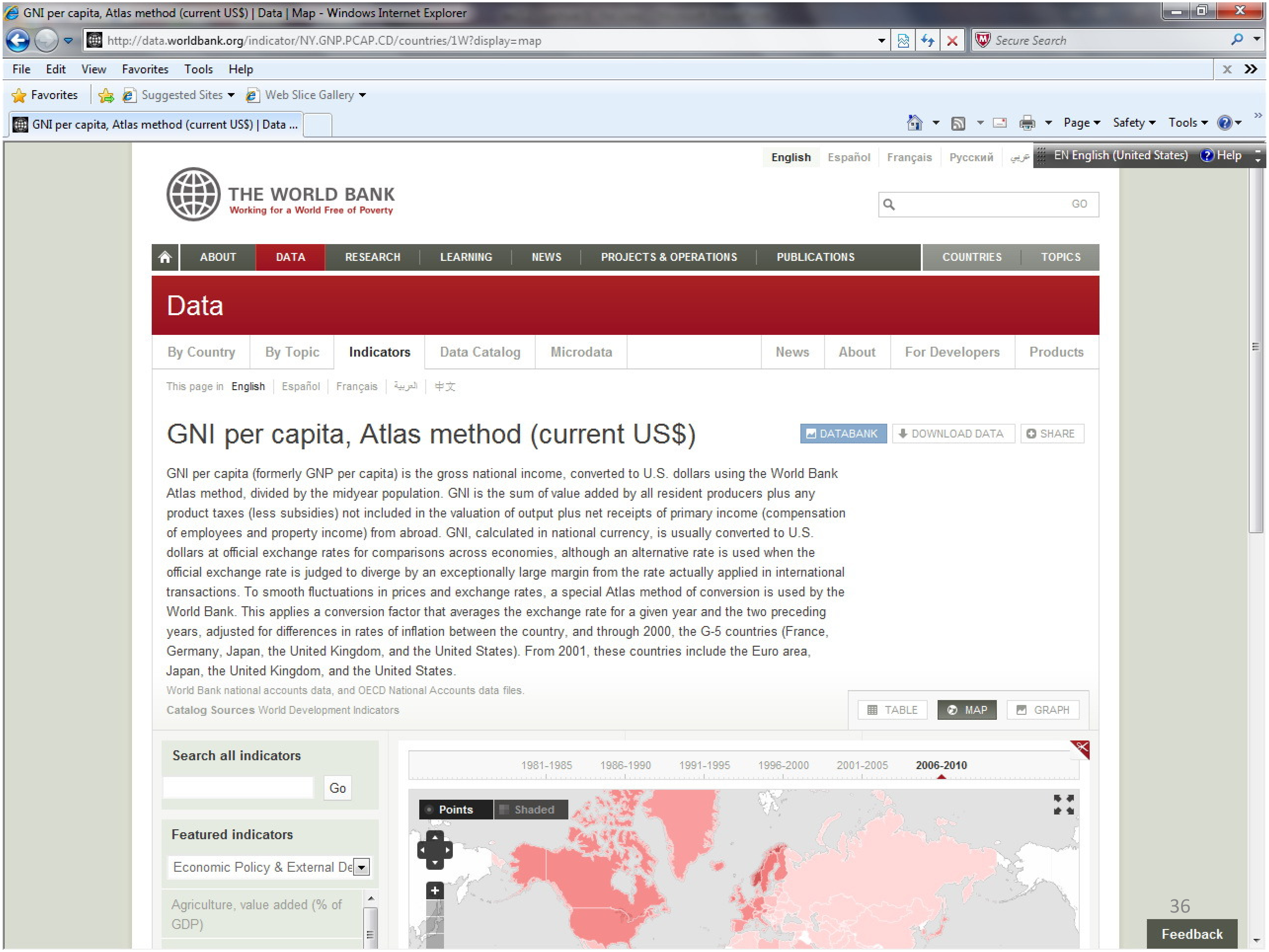
Changes in Country Classifications



Source: http://www.worldbank.org/depweb/beyond/global/chapter2.html


GNI per capita, Atlas method (current US$) | Data | Map - Windows Internet Explorer

http://data.worldbank.org/indicator/NY.GNP.PCAP.CD/countries/1W?display=map

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GNI per capita, Atlas method (current US$)

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GNI per capita (formerly GNP per capita) is the gross national income, converted to U.S. dollars using the World Bank Atlas method, divided by the midyear population. GNI is the sum of value added by all resident producers plus any product taxes (less subsidies) not included in the valuation of output plus net receipts of primary income (compensation of employees and property income) from abroad. GNI, calculated in national currency, is usually converted to U.S. dollars at official exchange rates for comparisons across economies, although an alternative rate is used when the official exchange rate is judged to diverge by an exceptionally large margin from the rate actually applied in international transactions. To smooth fluctuations in prices and exchange rates, a special Atlas method of conversion is used by the World Bank. This applies a conversion factor that averages the exchange rate for a given year and the two preceding years, adjusted for differences in rates of inflation between the country, and through 2000, the G-5 countries (France, Germany, Japan, the United Kingdom, and the United States). From 2001, these countries include the Euro area, Japan, the United Kingdom, and the United States.

World Bank national accounts data, and OECD National Accounts data files.

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Economic Policy & External De

Agriculture, value added (% of GDP)

1981-1985 | 1986-1990 | 1991-1995 | 1996-2000 | 2001-2005 | 2006-2010

Points | Shaded

Feedback

Income Distribution in 2008

All Individual Tax Units 152,462,000

= Average Income $54,315

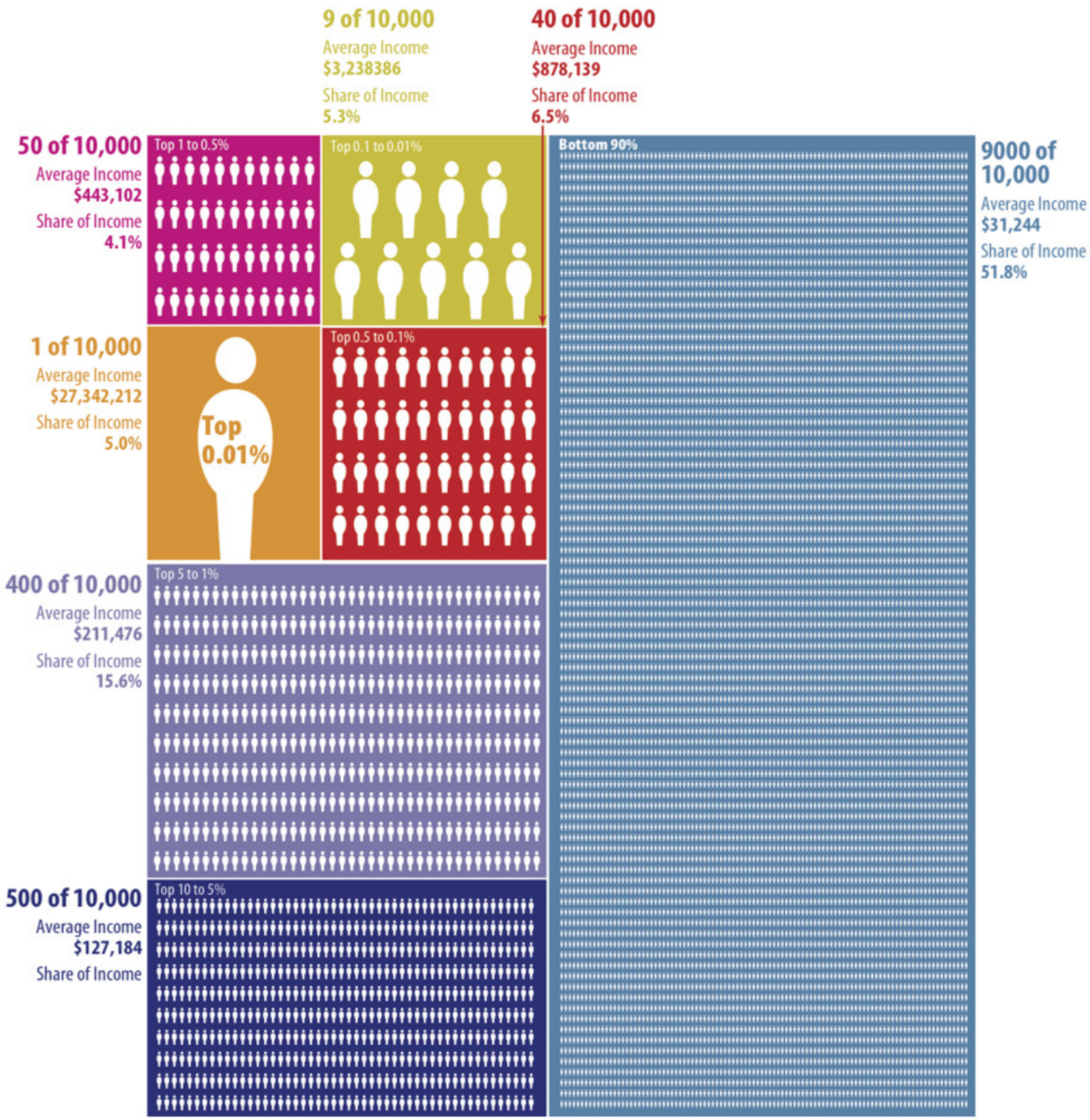
		Income cut off	Number of tax units
Top 0.01%	1 out of 10,000	$9,141,190	15,246
Top 0.1%	10 out of 10,000	$1,695,136	152,462
Top 1%	100 out of 10,000	$368,238	1,524,620
Top 10%	1,000 out of 10,000	$109,062	15,246,200

Average Income for each income group

= $1,000,000

Share of Income reported to IRS = 1%

Source: http://visualizingeconomics.com/2011/10/25/2008-income-share/



Source:
http://visualizingeconomics.com/2011/10/25/2008-income-share/

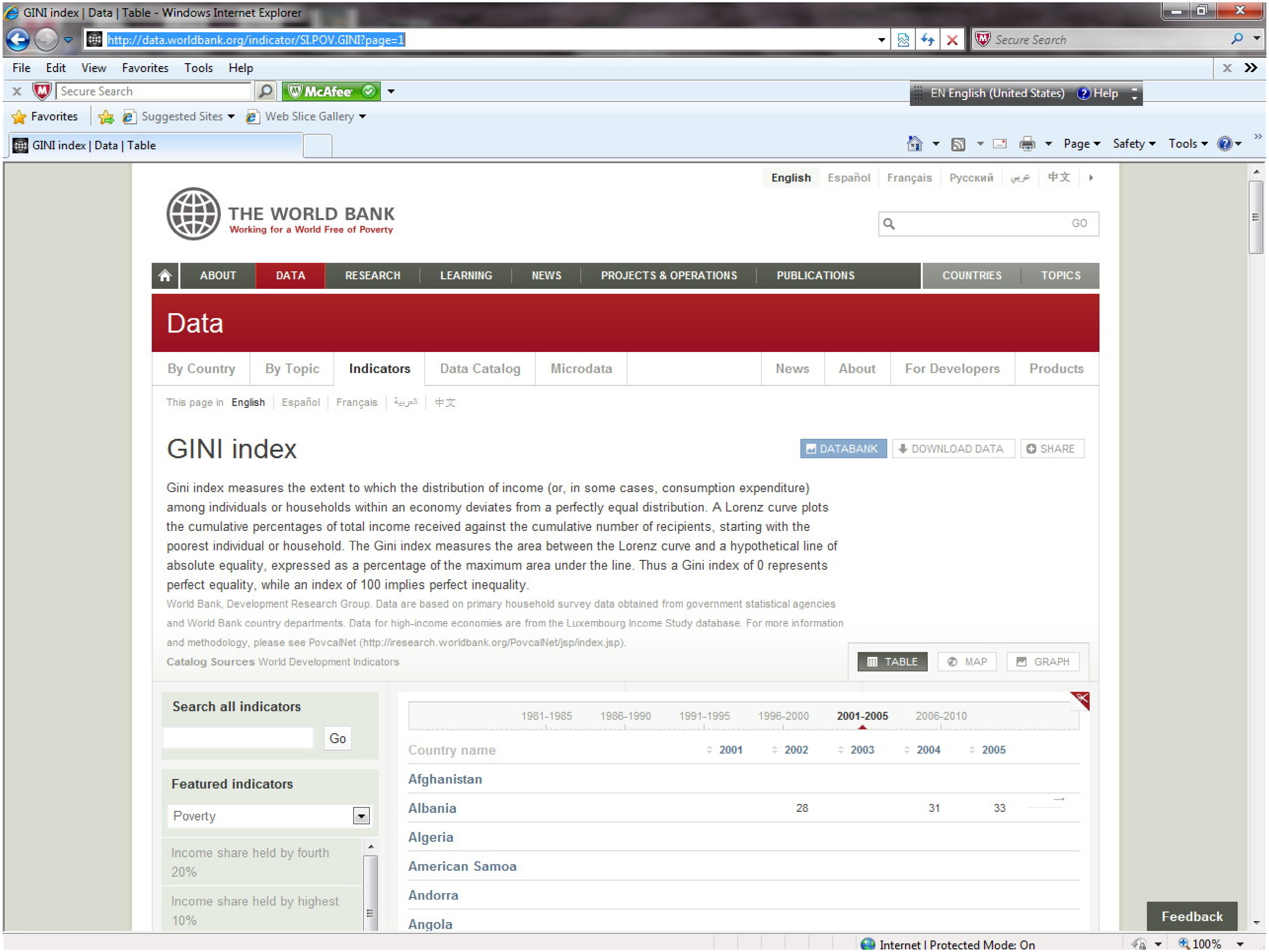
Countries	Gini Coefficient	Survey Year
Hong Kong	0.525	2001
Australia	0.352	1994
Canada	0.331	1998
France	0.327	1995
Germany	0.283	2000
Japan	0.249	1993
South Korea	0.316	1998
Singapore	0.425	1998
Sweden	0.250	2000
Taiwan	0.326	2000
United Kingdom	0.360	1999
United States	0.408	2000

Source : Worldbank (2004)

Gini Coefficient of Hong Kong

	1981	1986	1991	1996	2001
Gini coefficient	0.451	0.453	0.476	0.518	0.525

Source: http://www.scribd.com/doc/328232/United-Nations-Gini-Coefficient



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http://data.worldbank.org/indicator/SI.POV.GINI?page=1

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Gini index measures the extent to which the distribution of income (or, in some cases, consumption expenditure) among individuals or households within an economy deviates from a perfectly equal distribution. A Lorenz curve plots the cumulative percentages of total income received against the cumulative number of recipients, starting with the poorest individual or household. The Gini index measures the area between the Lorenz curve and a hypothetical line of absolute equality, expressed as a percentage of the maximum area under the line. Thus a Gini index of 0 represents perfect equality, while an index of 100 implies perfect inequality.

World Bank, Development Research Group. Data are based on primary household survey data obtained from government statistical agencies and World Bank country departments. Data for high-income economies are from the Luxembourg Income Study database. For more information and methodology, please see PovcalNet (http://iresearch.worldbank.org/PovcalNet/jsp/index.jsp).

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Poverty

Income share held by fourth 20%

Income share held by highest 10%

1981-1985 | 1986-1990 | 1991-1995 | 1996-2000 | 2001-2005 | 2006-2010

Country name	2001	2002	2003	2004	2005
Afghanistan					
Albania		28		31	33
Algeria					
American Samoa					
Andorra					
Angola					

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Country name	2001	2002	2003	2004	2005
Sweden					
Switzerland					
Syrian Arab Republic				36	
Tajikistan			33	34	
Tanzania					
Thailand		42		42	
Timor-Leste	40				
Togo					
Tonga					
Trinidad and Tobago					
Tunisia					
Turkey		43		43	43
Turkmenistan					
Turks and Caicos Islands					
Tuvalu					
Uganda		46			43
Ukraine		28			28
United Arab Emirates					
United Kingdom					
United States					
Uruguay	45		45		45
Uzbekistan		35	37		
Vanuatu					
Venezuela, RB			48		48
Vietnam		38		39	
Virgin Islands (U.S.)					

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