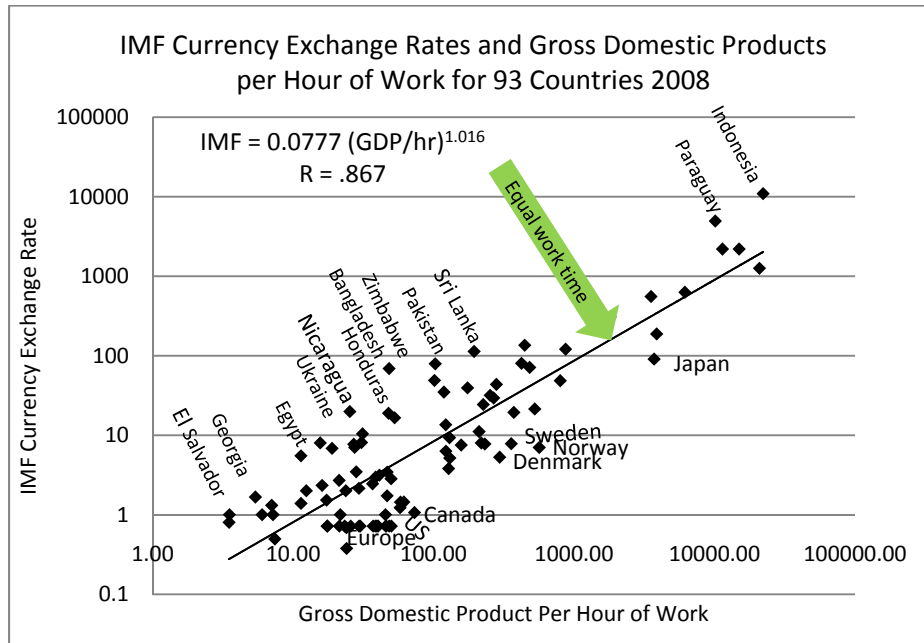


# A Metric for Money

Unity in Diversity

An actual quantity defines every unit of the metric system. The meter is an actual length. The liter is an actual volume. The gram is an actual weight. We need to follow the example of the metric system with money. Every national money today uses a word that identifies its nationality, but not one defines the actual quantity to which the numbers refer.

Time organizes all economic activities. To end inflation and deflation and to bring greater accuracy to prices, wages, and currency exchange rates, all monies need to be denominated in hours of productive work. Evidence for the correctness of the hour denominator is that equal work time is the center of gravity of currency exchange rates as shown in the following graph.



The centerline represents equal work time where all currencies would exchange for equal amounts of work time. That exchange rate can be calculated from the equation for the centerline;

$$\text{World Parity (5 minutes in 2008)} = .0777 (\text{GDP/hr})^{1.016}$$

Countries whose exchange rates are above the line are paying more than five minutes of work time for the currencies of countries whose exchange rates are below the centerline. World work time parity could also be achieved by all countries setting their exchange rate at their Gross Domestic Product per hour of work.

To calculate the work time value of a currency, divide Gross Domestic Product by the hours of work that produced it.

$$\frac{\text{Gross Domestic Product}}{\text{Hours of Work}} = \text{GDP per hour of work value of the currency.}$$

To express the value of a currency exchange rate in minutes of work, divide it by GDP per hour and multiply by 60.

$$\frac{\text{Currency Exchange Rate}}{\text{GDP per hour of work}} * 60 = \text{Exchange rate value in minutes of work.}$$

The country first to adopt an hour of work as its currency denominator would lead the world in adopting a metric for money the way that France led the world in adopting metrics for all other weights and measures. The Hour would modernize money and improve economic thinking and policies.

## Currency Exchange Rates in 2008 Minutes and at Equal Work Time World Parity for 93 Countries (page 1 of 3)

From <i>International Financial Statistics</i> Oct. 2009		GDP / Total Hours = GDP per hour					Hours from <i>International Labour Organization</i>						
Country	Currency	IMF Rate	GDP (line 99b)		Employed (line 67e)		Hours per worker		Total	GDP Per	IMF Ex.	World Parity (on center line)	
		(line ae)	Billions	Year	Millions	Year	Annual	Year	Hours	Hour	Rate	Currency	Minutes
Bangladesh	Taka	68.92	5458.2	2008	47.36	2006	2392	2006	113.3	48.18	<b>85.82</b>	3.98	5
Nicaragua	Cordobas	19.85	93.0	2006	1.77	2003	2080	est	3.7	25.32	<b>47.04</b>	2.07	5
Pakistan	Rupees	79.098	10478.2	2008	49.09	2008	2080	est	102.1	102.62	<b>46.25</b>	8.59	5
Sri Lanka	Rupees	113.14	3578.4	2007	7.10	2006	2595	2007	18.4	194.12	<b>34.97</b>	16.41	5
Solomon Is.	Dollars	8	1.8	2002	0.06	2005	2080	est	0.1	15.59	<b>30.79</b>	1.27	5
Indonesia	Rupiah	10,950	4,954,029	2008	99.93	2007	2236	2006	223.4	22,171	<b>29.63</b>	2022	5
Paraguay	Guaranies	4,945	60,413.5	2007	2.35	2003	2538	2007	6.0	10,124	<b>29.31</b>	912	5
Egypt	Pounds	5.5041	731.2	2007	22.51	2008	2860	2006	64.4	11.36	<b>29.08</b>	0.92	5
Philippines	Pesos	48.88	7,497.5	2008	34.09	2008	2168	2007	73.9	101.43	<b>28.92</b>	8.49	5
Honduras	Lempiras	18.895	270.6	2008	2.72	2006	2080	est	5.7	47.76	<b>23.74</b>	3.95	5
China: P.R.	Yuan	6.8346	30,067	2008	764.00	2006	2080	est	1,589	18.92	<b>21.67</b>	1.54	5
Moldova	Lei	10.4002	62.8	2008	1.25	2008	1612	2007	2.0	31.16	<b>20.03</b>	2.56	5
Seychelles	Rupees	16.5732	3.8	2005	0.04	2005	2080	est	0.1	52.76	<b>18.85</b>	4.37	5
Georgia	Lari	1.667	19.1	2008	1.70	2007	2080	est	3.5	5.38	<b>18.59</b>	0.43	5
Albania	Leks	135.41	891.0	2006	0.96	2008	2080	est	2.0	445.29	<b>18.25</b>	38.15	5
Thailand	Baht	34.898	9,102.8	2008	36.98	2008	2080	est	76.9	118.36	<b>17.69</b>	9.93	5
Ukraine	Hryvnias	7.7	949.9	2008	20.79	2008	1692	2007	35.2	27.00	<b>17.11</b>	2.21	5
El Salvador	Colones	1	22.1	2008	2.75	2007	2288	2007	6.3	3.52	<b>17.06</b>	0.28	5
Morocco	Dirhams	8.098	663.1	2008	10.41	2008	2080	est	21.7	30.62	<b>15.87</b>	2.51	5
Bolivia	Bolivianos	7.02	120.7	2008	2.12	2002	2080	est	4.4	27.40	<b>15.37</b>	2.24	5
Azerbaijan	Manat	0.801	25.2	2007	3.93	2005	1835	2007	7.2	3.50	<b>13.75</b>	0.28	5
Kyrgyz Rep.	Soms	39.418	185.0	2008	0.51	2008	2080	est	1.1	174.41	<b>13.56</b>	14.72	5
Colombia	Pesos	2198.09	479619.0	2008	17.61	2006	2392	2007	42.1	11,386.77	<b>11.58</b>	1027.36	5
Jamaica	Dollars	80.217	1018.2	2008	1.16	2008	2080	est	2.4	422.38	<b>11.40</b>	36.15	5
Tunisia	Dinars	1	45	2007	3.09	2007	2080	est	6.4	7	<b>11.17</b>	1	5
Armenia	Dram	307	3,646.1	2008	1.12	2008	1799	2006	2.0	1,808	<b>10.18</b>	158	5
Ecuador	DollarsUS	1	54.686	2008	4.03	2006	2259	2006	9.1	6.00	<b>9.99</b>	0.48	5
Belize	Dollar	2	2.6	2007	0.10	2005	2080	est	0.2	12.40	<b>9.68</b>	1.00	5
Costa Rica	Colones	555.470	15,609.8	2008	1.83	2006	2418	2007	4.4	3,527.69	<b>9.45</b>	312.37	5
Macedonia	Denar	43.561	354	2007	0.61	2008	2080	est	1	279.72	<b>9.34</b>	23.78	5
Algeria	Dinars	71.183	9,306.2	2007	9.27	2007	2080	est	19.3	482.65	<b>8.85</b>	41.40	5

## Currency Exchange Rates in 2008 in Minutes and at Equal Work Time World Parity for 93 Countries (page 2 of 3)

From <i>International Financial Statistics</i> Oct. 2009			GDP / Total Hours = GDP per hour					Hours from <i>International Labour Organization</i>					
Country	Currency	IMF Rate	GDP (line 99b)		Employed (line 67e)		Hours per worker		Total	GDP Per	IMF Ex.	World Parity	
		(line ae)	Billions	Year	Millions	Year	Annual	Year	Hours	Hour	Rate	Currency	Minutes
Belarus	Rubels	2200	128,828.8	2008	4.54	2008	1896	2007	8.6	14,963.15	<b>8.82</b>	1355.95	5
Brazil	Reais	2.336	2,889.7	2008	83.53	2007	2153	2006	179.8	16.07	<b>8.72</b>	1.31	5
Panama	Balboas	1	19.5	2007	1.21	2006	2241	2007	2.7	7.18	<b>8.36</b>	0.58	5
Kazakhstan	Tenge	120.79	12,676.6	2007	7.86	2008	1856	2005	14.6	869.33	<b>8.34</b>	75.27	5
Saint Lucia	E. Carib. \$	2.7	2.8	2008	0.06	2004	2080	est	0.1	21.23	<b>7.63</b>	1.73	5
Mauritius	Rupees	31.756	265.2	2008	0.52	2008	2023	2006	1.0	252.59	<b>7.54</b>	21.44	5
Malaysia	Ringgit	3.464	740.7	2008	10.72	2008	2460	2007	26.4	28.11	<b>7.39</b>	2.30	5
Bulgaria	Leva	1.3873	66.7	2008	3.32	2008	1768	2006	5.9	11.37	<b>7.32</b>	0.92	5
Mexico	Pesos	13.5383	12110.6	2008	43.52	2008	2283	2007	99.3	121.91	<b>6.66</b>	10.23	5
Russian Fed.	Rubles	29.3804	41962.0	2008	70.91	2008	2212	2007	156.9	267.52	<b>6.59</b>	22.73	5
Uruguay	Pesos	24.35	652.0	2008	1.41	2006	2044	2007	2.9	225.63	<b>6.48</b>	19.12	5
Chile	Pesos	629.11	88535.2	2008	6.64	2008	2168	2007	14.4	6,149.98	<b>6.14</b>	549.44	5
Turkey	New Liras	2	950	2008	21.57	2008	2548	2007	55.0	17	<b>5.29</b>	1	5
Barbados	Dollars	2	6.5	2006	0.13	2008	2080	est	0.3	24	<b>5.07</b>	2	5
Poland	Zlotys	2.9618	1266.245	2008	15.80	2008	2075	2007	32.8	38.63	<b>4.60</b>	3.18	5
Peru	N Soles	3.1395	373.0	2008	3.66	2006	2485	2007	9.1	41.05	<b>4.59</b>	3.38	5
Argentina	Pesos	3.433	1,038.2	2008	10.30	2008	2158	2005	22.2	46.69	<b>4.41</b>	3.86	5
Venezuela	Bolivares	2.145	687	2008	10.97	2006	2132	2007	23	29.36	<b>4.38</b>	2.41	5
South Africa	Rand	9.305	2,283.8	2008	8.47	2008	2080	est	17.6	129.65	<b>4.31</b>	10.89	5
Latvia	Lats	0.495	16.2	2008	1.08	2008	2038	2007	2.2	7.41	<b>4.01</b>	0.59	5
Lithuania	Litai	2.451	111.5	2008	1.52	2008	1997	2007	3.0	36.74	<b>4.00</b>	3.02	5
India	Rupees	48.455	53,217.5	2008	27.21	2002	2454	2007	66.8	796.97	<b>3.65</b>	68.91	5
South Korea	Won	1259.5	1,023,938.0	2008	23.58	2008	2080	est	49.0	20,879.58	<b>3.62</b>	1902.21	5
Romania	Lei	2.834	493.5	2008	4.81	2008	2064	2007	9.9	49.74	<b>3.42</b>	4.11	5
Estonia	Krooni	11.105	248.1	2008	0.65	2008	1810	2005	1.2	210.64	<b>3.16</b>	17.83	5
Czech Rep.	Koruny	19.346	3,693.5	2008	4.83	2006	2054	2006	9.9	372.45	<b>3.12</b>	31.81	5
TrinidadTobago	Dollars	6.2993	152.1	2008	0.60	2008	2080	est	1.2	122.29	<b>3.09</b>	10.26	5
Hungary	Forint	187.91	26620.5	2008	3.88	2008	1772	2007	6.9	3,871.99	<b>2.91</b>	343.37	5
Botswana	Pula	7.5191	91.2	2008	0.28	2002	2080	est	0.6	157.16	<b>2.87</b>	13.24	5
Bahamas	Dollars	1	7.6	2008	0.17	2006	2080	est	0.3	21.65	<b>2.77</b>	1.77	5
Portugal	Euros	0.7185	166.2	2008	5.20	2008	1830	2007	9.5	17.47	<b>2.47</b>	1.42	5

## Currency Exchange Rates in 2008 in Minutes and at Equal Work Time World Parity for 93 Countries (page 3 of 3)

From <i>International Financial Statistics</i> Oct. 2009			GDP / Total Hours = GDP per hour						Hours from <i>International Labour Organization</i>				
Country	Currency	IMF Rate (line ae) Per \$US	GDP (line 99b) Billions	Year	Employed (line 67e) Millions	Year	Hours per worker Annual	Year	Total Hours Billions	GDP Per Hour Currency	IMF Ex. Rate Minutes	World Parity (on center line) Currency	Minutes
Malta	Euros	1	6	2008	0.16	2008	2023	2007	0.3	18	<b>2.46</b>	1	5
Slovak Rep.	Koruny	21	2,028.6	2008	2.30	2006	1680	2007	3.9	525	<b>2.45</b>	45	5
Croatia	Kuna	5.156	342.159	2008	1.23	2008	2142	2007	2.6	130.27	<b>2.37</b>	10.94	5
New Zealand	Dollars	1.7286	179.9	2008	2.19	2008	1763	2007	3.9	46.65	<b>2.22</b>	3.85	5
China: Macao	Patacas	7.982	171.9	2008	0.32	2008	2439	2007	0.8	218.18	<b>2.20</b>	18.48	5
Cyprus	Euros	0.71855	17	2008	0.38	2008	2075	2006	1	21.31	<b>2.02</b>	1.74	5
China: HK	Dollars	7.751	1,677.0	2008	3.48	2007	2080	est	7.2	231.42	<b>2.01</b>	19.62	5
Slovenia	Euros	0.7185	37.1	2008	0.88	2008	1815	2007	1.6	23.27	<b>1.85</b>	1.90	5
Israel	N Sheqalim	3.802	725.1	2008	2.78	2008	2044	2007	5.7	127.78	<b>1.79</b>	10.73	5
U Kingdom	Pounds	0.685965	1,442.9	2008	29.44	2008	2049	2007	60.3	23.92	<b>1.72</b>	1.96	5
Greece	Euros	0.7185	242.9	2008	4.56	2008	2075	2007	9.5	25.68	<b>1.68</b>	2.10	5
Singapore	Dollars	1.4392	257.4	2008	1.84	2007	2408	2007	4.4	58.05	<b>1.49</b>	4.81	5
Japan	Yen	90.75	507,371.0	2008	63.92	2008	2137	2007	136.6	3,713.90	<b>1.47</b>	329.13	5
Germany	Euros	0.7185	2,488.0	2008	40.22	2008	2101	2007	84.5	29.45	<b>1.46</b>	2.42	5
Spain	Euros	0.7185	1095.0	2008	20.26	2008	1804	2007	36.6	29.96	<b>1.44</b>	2.46	5
Australia	Dollars	1.4434	1181.7	2008	10.71	2008	1799	2007	19.3	61.31	<b>1.41</b>	5.09	5
United States	Dollars	1	14441.4	2008	145.36	2008	2189	2007	318.2	45.38	<b>1.32</b>	3.75	5
Sweden	Kronor	7.8106	3156.9	2008	4.59	2008	1924	2007	8.8	357.16	<b>1.31</b>	30.49	5
Canada	Dollar	1.2246	1602.5	2008	17.13	2008	1622	2007	27.8	57.67	<b>1.27</b>	4.78	5
Italy	Euros	1	1,570	2008	23.41	2008	1810	2007	42.4	37	<b>1.16</b>	3	5
France	Euros	1	1,950.1	2008	26.00	2008	1949	2007	50.7	38	<b>1.12</b>	3	5
Finland	Euros	0.7185	186.16	2008	2.53	2008	1867	2007	4.7	39.40	<b>1.09</b>	3.25	5
Denmark	Kroner	5.285	1,734.6	2008	2.83	2008	2080	est	5.9	294.99	<b>1.07</b>	25.10	5
Belgium	Euros	0.719	344.0	2008	4.45	2008	1923	2005	8.5	40.24	<b>1.07</b>	3.32	5
Ireland	Euros	0.718546	182	2008	2.10	2008	1893	2007	4	45.72	<b>0.94</b>	3.78	5
Bahrain	Dinar	0.375996	8.2	2008	0.17	2002	2080	est	0.3	24.00	<b>0.94</b>	1.96	5
Austria	Euros	0.7185	282.3	2008	3.42	2008	1799	2007	6.2	45.88	<b>0.94</b>	3.79	5
Netherlands	Euros	0.7185	594.6	2008	7.98	2008	1544	2005	12.3	48.24	<b>0.89</b>	3.99	5
Switzerland	Francs	1.0637	541.8	2008	3.95	2008	1877	2007	7.4	73.05	<b>0.87</b>	6.08	5
Luxembourg	Euros	0.7185	36.7	2008	0.35	2008	2080	est	0.7	49.98	<b>0.86</b>	4.13	5
Norway	Kroner	7	2,548.3	2008	2.52	2008	1789	2007	4.5	564.42	<b>0.74</b>	48.53	5

est = 40 per week assumed