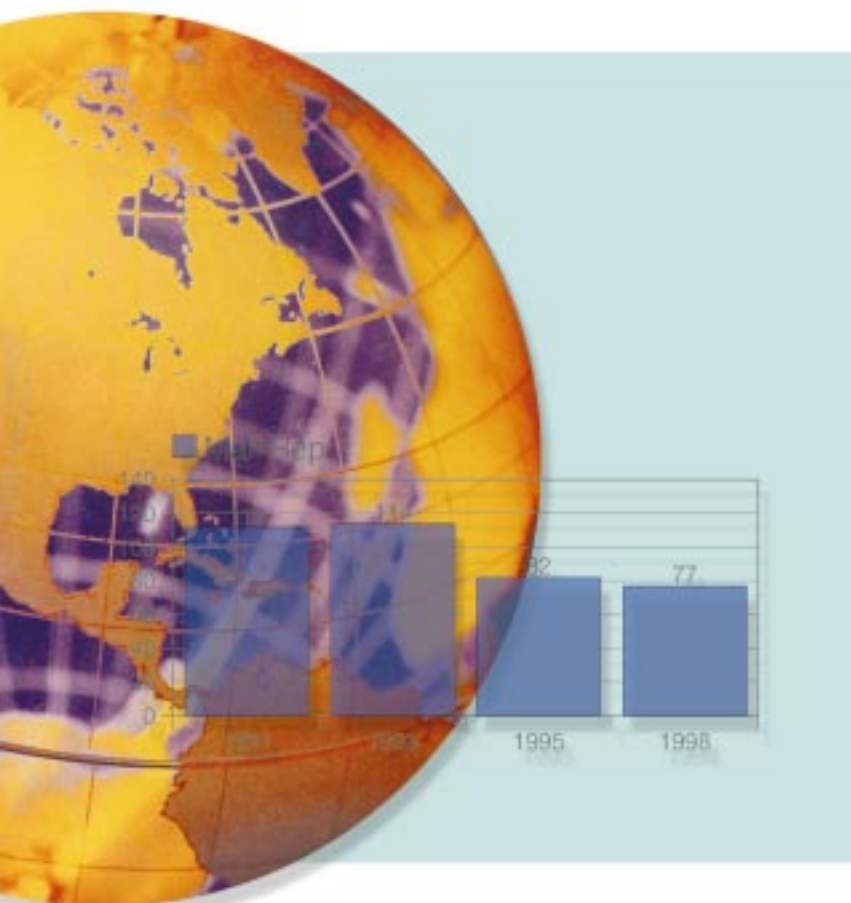




Fuel Prices and Taxation

with comparative tables
for 160 countries

Pricing Policies for
Diesel, Fuel and Gasoline
in Developing Countries and
Global Motorization Data

by Gerhard P. Metschies

May 1999



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Pump prices in Burkina Faso	Local currency	US \$ ¹ per liter	US \$ ¹ per gallon
Super gasoline ("Super")	395 Francs CFA/liter	0.81 US \$/Liter	3.08 US \$ per gallon
Gasoline ("Essence")	358 Francs CFA/liter	0.74 US \$/Liter	2.79 US \$ per gallon
Diesel ("Gazole")	300 Francs CFA/liter	0.62 US \$/Liter	2.34 US \$ per gallon
Kerosin (cooking "Petrol")	160 Francs CFA/liter	0.33 US \$/Liter	1.25 US \$ per gallon
2 Stroke Mix ("Mélange 2T")	380 Francs CFA/liter	0.78 US \$/Liter	2.96 US \$ per gallon

¹Exchange rate on Nov. 20, 1995: 1 US \$ = 486 Fr CFA



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Fuels, fuel prices and fuel taxation are matters of global debate, not only in terms of **transport and energy policy**, but also with regard to **economic, financial and environmental policy**. Within that context, international comparisons are playing an increasingly important role.

The present working paper on global fuel prices and global motorization is being published by the GTZ division "Transport and Mobility" and is intended primarily as a source of comparative basic data for a national **sector policy** within the **transportation sector in developing countries**.

Nowadays, the **revenues** side of the transportation sector is of particular importance, primarily because the expenditures side – mainly for road construction and, in particular, highways in developing countries – has been so predominant for the past several decades.

Sustainable transport policy – like sustainable environmental policy – is based on the **user pays principle**. Consequently, all around the world, the quest for recovery of costs incurred for **transport routes** is giving rise to the axiom: **"Transport finances transport"**.

Now that industrialized countries have come to rely increasingly on fuel taxation as a means of financing roads and highways (e.g., on the basis of Germany's "Straßenfinanzierungsgesetz", 1960; and on that of the U.S. Federal Highway Trust Fund), developing countries are also pondering the introduction of appropriate forms of **fuel taxation**.

Initial suggestions made within the framework of the World Bank's **Road Maintenance Initiative**¹ postulate that developing countries soon will also be levying a fuel tax of **some US cents 10 per liter** (and roughly US \$ 75 per passenger vehicle) to cover the cost of **road maintenance**. It should be noted, however, that while such a tax may suffice to cover all expenditures for road maintenance, depreciation, debt servicing, and new highway construction in the United States, it would, as a rule, **pay for little more than road maintenance** (!) in developing countries, where nowhere near as many vehicles are licensed, i.e., where traffic density is much lower. However, despite **political dialogue** at international donor conferences, major difficulties are still being encountered in attempts to enforce even such a minimal demand in the interest of independent road maintenance.

By contrast, financing models of the kind one used to encounter in some countries, where the entire road transport sector was **financed out of general tax revenues**, i.e., taken from the national budget with no appropriate counterfinancing by road users and in the absence of corresponding fuel taxes, are no longer even being considered.

On the contrary, the international trend in general **transport policy**, most notably embodied within the member countries of the European Union, sees the taxation of passenger vehicle fuel as a suitable means of covering not only the total cost of roads & highways construction and administration, but also for offsetting **railroad deficits** (presently on a magnitude of some US cents 9 per liter in Germany²).

¹ Ian Heggie, Managing and Financing of Roads, World Bank Technical Paper No. 409,

² Statutory taxation of 0.15 DM/liter, earmarked for the German states' absorption of their own regional rail traffic.

Likewise undisputed within the context of general **economic policy** is the fact that fuel (like transport services in general) must be viewed as a normal industrial good (= an ordinary commodity), which, with all of its various input taxes, is subject to a **full + final value-added tax** (amounting in Germany to US cents 16 per liter for super gasoline).

At the same time, fuel taxes have emerged as a major source of financing for national budgets within the scope of general **fiscal policy**. In Germany, where fuel taxation is generating US \$ 37 billion annually, this amounts to the **third-largest source of income for the federal budget** – following personal income taxes and the value-added tax.

For developing countries, too, many of which have trouble coping with the enormous administrative effort that has to be invested in collecting VAT and personal income taxes, fuel taxes suggest themselves by reason of their inherent "social justice", their airtight **simplicity of control**, and their potential for direct remittance by the oil companies themselves. In turn, numerous nuisance taxes could be dispensed with.

Due to excessively steep price increases, there have been occasional public protests and even riots. That, however, should not obscure the fact that **social acceptance** of fuel taxes by the general public has been steadily increasing, not only in Europe. Thus, filling stations have inconspicuously evolved into modern tollgates.

Despite the high **pump price** (amounting in Germany to about 96 US cents **per liter super** and 69 US cents per liter diesel), the average consumer appears to have forgotten that the – theoretically and globally possible – original reference prices **for untaxed super gasoline and diesel amount to a mere US cents 21 per liter and US cents 18 per liter**, respectively.

One prerequisite, however, is that **smuggling** be systematically prevented, particularly between countries with borders that are difficult to monitor.

The 1992 **UNCED conference in Rio and the 1997 follow-on agreements reached in Kyoto** have injected new topicality into the international debate over fuels in connection with **environmental policy**, but it will hardly be possible to achieve the agreed reductions in **CO₂ emissions** at the national level without the appropriate price signals (in the transport sector, this means without increasing fuel taxes).

Despite their international significance, general knowledge of international fuel prices, data and facts remains pronouncedly rudimentary. This is chiefly attributable to the **weakness of statistical offices** in practically all developing countries. Even the international data pooling points of such organizations as the International Energy Agency, the World Bank or Germany's Federal Statistical Office can not rectify that problem.

Consequently, the Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH, with its global network of regional offices and representations **in 64 emerging and newly industrializing countries**, has decided to publish a comprehensive database for the global fuel sector.

The appendix to this report also includes information on the **degree of global motorization** (including the particularly environmentally relevant two-wheel motorization) in facilitation – together with general economic and demographic data – of calculations regarding crucial infrastructural, economic, financial and environmental policy indicators.

Finally, this brochure's **executive summary** offers an initial overview of the voluminous data yield. The conclusions drawn, however, are intended only as an initial impetus for nudging the developing countries' various competent ministries into their own deliberations on how to arrive at a **sustainable long- and medium-term fuel price policy**.

The author wishes to express his special gratitude to all those who have contributed to this database, in particular the GTZ offices (primarily in Africa and Asia), and the German Federal Foreign Office (for such individual countries as North Korea, Macao, Myanmar and Djibouti), the German automobile association ADAC (for the European countries), the GTZ/EU project OLADE in its capacity as energy agency for South America as well as the World Bank.

The Author

2 Executive Summary

This publication draws on data from more than 150 countries – developing, newly industrializing and industrialized – to arrive at the following 8 conclusions:

The **globalization** of world trade has leveled **motor vehicle prices** all over the world to such an extent that the **price ratio** for equivalent products no longer exceeds about **1 to 2** between any two countries. Motor vehicle **fuel prices**, however, differ on a scale of as much as **1 to 100**.

In other words, the fuel price differential is 50 times higher than the motor vehicle price differential.

That being so, there is definite need at the international level for clarification of the fuel pricing complex, i.e., of what constitutes "normal" or "appropriate" taxation and pricing.

According to a GTZ survey, the **fuel policies** of all countries in the world can be assigned to one or the other of **4 categories**:

Category 1 contains the subsidizing and producing countries, where fuels are sold at prices below the world market reference price, i.e., without separate taxation (with prices beginning at 1 US cent per liter for diesel fuel).

Category 2 contains countries – like the USA – which pursue a low-price policy and therefore levy only an average tax of 10 US cents per liter on diesel and gasoline (with diesel selling for 31 US cents/liter or less).

Category 3 contains countries at the threshold between low-price and high-price policy (between 31 and 61 US cents /liter diesel).

Category 4 contains the high-price countries – **Japan and the EU** – where the tax on diesel ranges from 40 to 80 US cents per liter and the tax on gasoline amounts to between 60 and 100 US cents per liter (so that diesel costs between 61 and 111 US cents/liter).

At 136 US cents per liter, **Hong Kong** has the highest **gasoline prices** in the world, nearly five times as high as in neighboring **China**.

A gasoline price of DM 5.-, i.e., roughly 300 US cents per liter, as has been under discussion in and for Germany, would be globally unprecedented.

A given country's inclusion in one of the above four categories can not be explained in terms of its economic situation (per capita GNP) and often appears more or less **arbitrary**. For example, the high-price group includes, for gasoline, such countries as **Uganda, Sri Lanka, Brazil** and the **United Arab Emirates**, while comparable countries like **Ghana, the Philippines, Guyana, Russia** and **Yemen** belong to the low-price group.

Subsidizing countries in which prices for imported fuel are not only not taxed but even subsidized or, in the case of domestic production, sold for less than the cost price, constitute a special problem. This category includes countries like Iran and Iraq, but also Turkmenistan, Yemen, Venezuela, Nigeria and Indonesia.

-
- **Fuel price increases** can become necessary for two reasons: They may have to be relatively adjusted from time to time to offset what frequently amounts to considerable national inflation, and they may require "structural increases" (e.g., in the EU applicant countries). Especially in less developed countries, such increases are frequently implemented "unprofessionally", because **price surges in excess of 10 % are to be avoided at all cost** for psychological reasons, so that longer-term pricing strategies need to be pursued.
 - **The global motorization data** contained in this brochure enable – in combination with average-consumption values – an initial estimation of fuel consumption by motor vehicles in individual developing countries. This, in turn, allows estimation of the potential magnitude of **public revenues from fuel taxes** and/or from an increase in such taxes. This constitutes a major planning aid not only for the transport sector but also for the shaping of fuel taxes, which in some countries have become the **third-largest source of tax revenues**.
 - Finally, this is the first time that separate **motorization data** have been compiled for **mopeds and other two-wheel vehicles**. Particularly for Asia, these data draw attention to differences between the motorization strategies adopted by individual countries where two-wheel motorization is much more important than four-wheel motorization (cf. India, Indonesia, Taiwan). This is of particular environmental relevance as gas/oil mixtures required for two-stroke mopeds are more environmentally harmful than fuel for passenger cars.

Method of collection

Around the world, fuel prices vary not only from country to country as a function of global oil prices or due to individual countries' legal provisions, but also within individual countries. Countrywide average filling-station fuel price statistics (pump prices) are drawn on here for Europe and South America, while the prices quoted for developing countries are those posted at filling stations in the respective capital cities. The latter were collected by way of a questionnaire circulated via the Internet.

Data reference date

November 10, 1998, was chosen as the fuel-price reference date, though the data may vary somewhat for some individual prices. The price series stemming from prior surveys are "labeled" with their respective month and year.

Currency conversion

The objective was to compare the fuel-price situation in various countries of the world. The US dollar was chosen as the reference currency because all crude oil prices and most countries' import statistics are stated in dollars.

The conversion rate as of November 10, 1998, was 1 US\$ = 1.66 DM = 0.85 Euro.

The conversion rates for the individual countries were also pegged to that of the US dollar as of November 10, 1998, and/or as listed in the international monetary table published in the "Financial Times" at 14-day intervals¹

In countries with different, or double, exchange rates, the "market rate / parallel rate / black market rate" was given preference over the official exchange rate, not only because it is the rate that consumers mostly rely on, but also because sooner or later, as experience shows, the official exchange rate tends to be replaced by the parallel exchange rate. This method of conversion corrects the price levels in soft-currency countries – in Uzbekistan, for example, downward by a factor of "4" or in the Congo (D. R.) by "1.5".

Units of measurement

All fuel prices are based on the metric liter as unit of measurement. The US and, to some extent, the South American prices were converted from US gallons to liters. In some isolated cases (Sierra Leone) the British Imperial gallon had to be converted.

1 US gallon = 3.7853 liters 1 barrel = 159 liters 1 Imp. gal. = 4.5 liters

Fuel quality

Since taxation was the point of main interest, the most widely sold grade of gasoline (in terms of quantity) was taken as the respective basis for each different country, i.e., **unleaded super** in European and other industrialized countries, and super (95 or 98 octane) for imported cars in developing and newly industrializing countries. The exception to that rule are the CIS Republics of the Caucasus and Central Asia, where regular-grade gasoline is still the norm. No qualitative differences were drawn for diesel fuel, though it should be kept in mind that there are still numerous gasoline-engine trucks on the road in the CIS countries and China.

Data sources

The data pertaining to the industrialized countries stem from various sources, primarily from the German automobile club "Allgemeiner Deutscher Automobil Club" (ADAC) in Munich for the countries of Europe; the GTZ-EU OLADE Project as an energy agency in Quito, Ecuador, for South America; and from the World Bank for various Asian countries. Most of the data for developing countries, especially those located in Africa and Asia, are based on local price surveys conducted by GTZ through its local offices. In some difficult cases, e.g., Macau, North Korea, Myanmar, Djibouti and several Persian Gulf Countries, the German Federal Foreign Office kindly assisted us in our efforts to collect the relevant data.

Untaxed pump price and "world market price"

In calculating the fuel tax burden, the difference between the taxed pump price and the non-taxed pump price is decisive. The average global untaxed pump price is assumed here as **18 US cents per liter diesel and 21 US cents per liter super gasoline**. (The untaxed pump price is nearly twice as high as the f.o.b. world market price.)

Representation of findings

The fuel-price findings are broken down according to continent and presented in 4 different chapters: AFRICA, AMERICA, ASIA and EUROPE (with north and south America grouped together, and with Asia and Australia counting as a single continent). Also, 4 different types of representation were chosen to satisfy different requirements:

- **Synoptical representation**, in which the countries are arranged alphabetically in tables and prices for super and diesel are listed for the years 1991, 1993, 1995 and 1998;
- **Geographical representation**, in which pump prices for super (and, in parentheses, for diesel) are shown both for the individual countries and for their neighbors, since political considerations in connection with potential price increases and the prevention of smuggling must, of course, include a comparison with the situation in neighboring countries;
- **Price-series representation**, in which the countries are arranged in the order of their respective pump prices for super gasoline. This form of representation enables classification of the countries on a given continent as low-, medium- or high-price countries;
- **Graphical representation of price developments** in individual countries over a 7-year period. This form of representation visualizes how the various governments have attempted to increase or reduce their taxation of super and diesel as a source of revenue for expenditures in, say, the construction and maintenance of roads and highways.

 Africa **America** **Asia and Australia** **Europe** **Global Fuel Prices for 187 Countries**

- **World Table of Pump Prices for Super Gasoline and Diesel**
- **Ranking of Diesel and Gasoline Prices for 160 Countries**
- **Conclusions**

 Annex: Fuel Prices in Local Currency



Africa



Synoptical Table:

Pump Prices for Super Gasoline and Diesel, 1991-1998



Geographical Representation:

Fuel Prices as of November 1998



Price-series Representation:

Ranking of Fuel Prices as of November 1998



Graphical Representation of Price Developments:

Price Trends in Individual Countries, 1991-1998

Pump Prices for Super Gasoline and Diesel (in US cents per liter) 1991-1998 - Africa -

Fuel prices in US cents per liter										
Country	Super gasoline				Diesel				Source & date of 1998 data	
	1991	1993	1995	1998	1991	1993	1995	1998	Source	Date
"Untaxed pump price"				23				18		
Algeria	15	20	40	31	4	9	23	16	ADAC	Dec 98
Angola				38				19	World Bank	Feb 98
Benin	63	62	36	39	48	47	28	31	gtz	Nov 98
Botswana	68	41	38	31	61	37	35	29	gtz	Nov 98
Burkina Faso	103	100	81	68	84	85	62	50	World Bank	Feb 98
Burundi*	63	59	52	72	61	54	48	66	gtz	Nov 98
Cameroon	68	69	68	64	58	58	50	48	gtz	Nov 98
Cape Verde*	68			81	40			43	gtz	Jan 99
Central African Rep	133	128	82	81	99	98	64	65	gtz	Nov 98
Chad*	105	102	80	70	97	95	70	61	gtz	Nov 98
Congo (Dem Rep)	81	74	73	50	73	67	70	50	gtz	Apr 99
Congo (Rep)	105			(72)	71			(40)	World Bank	Feb 97
Côte d'Ivoire	124	123	83	74	115	86	56	45	gtz	Nov 98
Djibonti Republic	77	61	93	91	38	56	40	40	gtz	Jan 99
Egypt	29	30	29	29	7	9	12	12	gtz	Nov 98
Eritrea*		50	40	37		29	19	23	Germ. Emb.	Jan 99
Ethiopia*	27	26	32	36	14	19	24	25	gtz	Nov 98
Gabon	118	116		63	83	70		39	gtz	Nov 98
Gambia	73	67		83	52	48		63	gtz	Nov 98
Ghana	53	53	38	32	43	45	33	30	gtz	Nov 98
Guinea*	67	61		68	61	56		56	gtz	Nov 98
Kenya	53	40	56	70	37	33	43	54	gtz	Nov 98
Lesotho				39				38	World Bank	Jun 98
Libya*				22				17	ADAC	Dec 98
Madagascar	43	54	47	47	25	31	32	33	gtz	Nov 98
Malawi	64	71	65	51	56	67	55	45	gtz	Dec 98
Mali Rep	112	114	82	77	74	74	57	48	gtz	Nov 98
Mauritania	86	85		59	53	43		31	gtz	Nov 98
Morocco	82	75	94	79	45	41	47	47	gtz	Nov 98
Mozambique	74	48	53	55	26	21	32	41	World Bank	Jun 98
Namibia*	46	42		38	41	38		36	gtz	Nov 98
Niger Rep	94	92	79	76	81	60	55	52	gtz	Nov 98
Nigeria*	5	2	13	13	4	1	3	10	gtz	Nov 98
Rwanda	81	93		72	79	88		72	gtz	Nov 98
Senegal	119	123	94	71	74	88	62	48	MoE Seneg.	May 98
South Africa		52	51	43		52	46	39	gtz	Nov 98
Sudan Rep*	7	58	50	33	6	58	25	26	gtz	Nov 98
Swaziland	46	43		37	41	40		36	gtz	Nov 98
Tanzania*	42	43	56	63	25	30	44	57	gtz	Nov 98
Togo Rep	81	72	47	42	66	63	40	37	gtz	Nov 98
Tunisia	58	52	64	60	33	31	44	33	gtz	Nov 98
Uganda	69	79	98	86	55	71	85	68	gtz	Nov 98
Zambia*	40	72	60	53	24	66	57	49	gtz	Nov 98
Zimbabwe*	68	47	38	26	37	28	29	22	gtz	Nov 98

* 1998 price for regular gasoline

Sources:

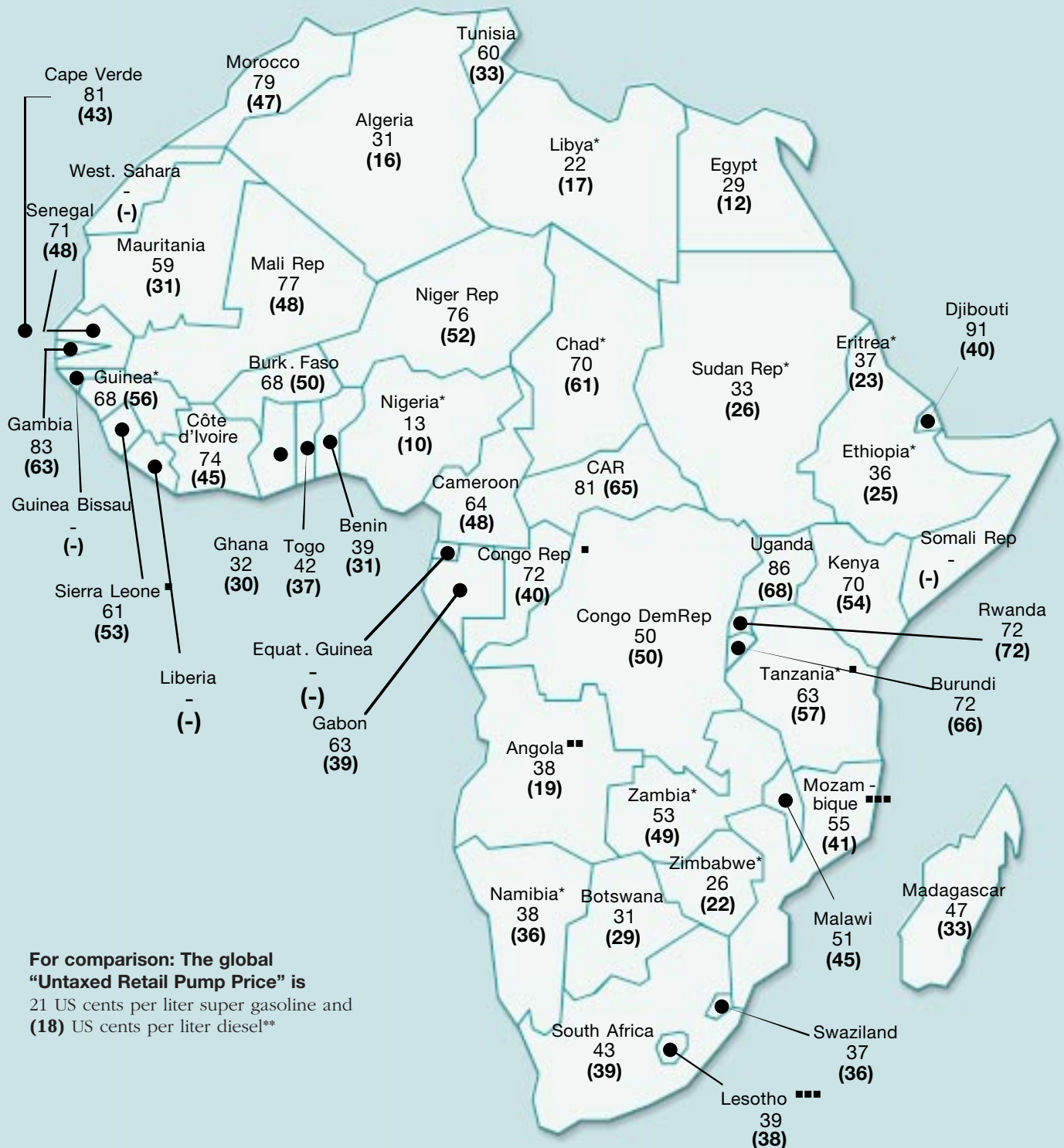
gtz Fuel Price Surveys 1991, 1993, 1995, 1998; ADAC Germany; Olade;
World Bank (all data from last quarter of each year)



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Fuel Prices Africa

in US cents per liter gasoline
(diesel in brackets) November 1998



**For comparison: The global
"Untaxed Retail Pump Price" is
21 US cents per liter super gasoline and
(18) US cents per liter diesel****

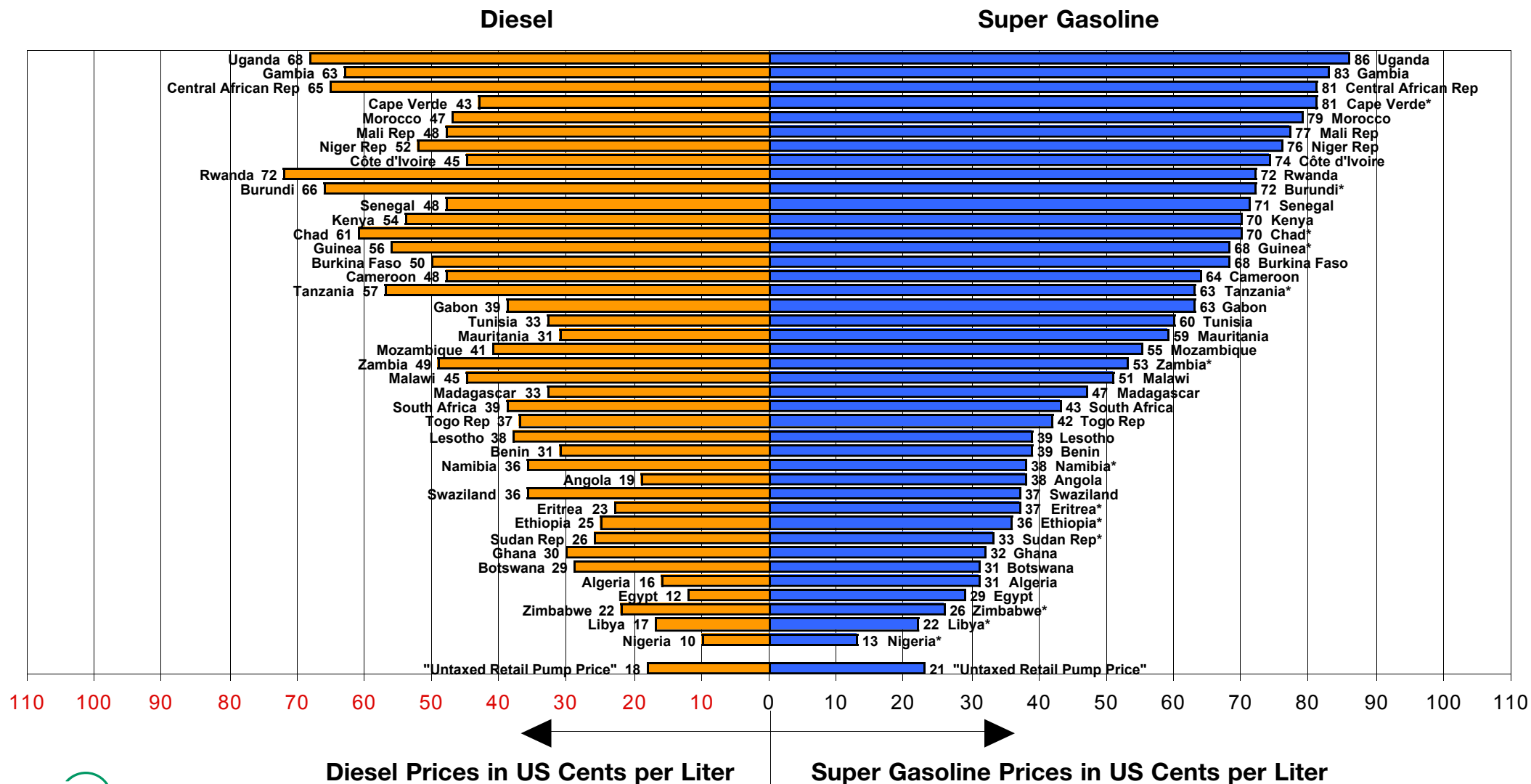
Data Sources:
GTZ Fuel Price Survey 1998 (Dr. Metschies); ADAC, Germany; OLADE; World Bank

- * Price for regular gasoline
- ** The "Untaxed Retail Pump Prices" are hypothetical reference retail prices
excl. fuel taxes, VAT etc.
- Price as of Feb. 1997 ■■ Price as of Feb. 98 ■■■ Price as of June 98



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Fuel Prices as of November 1998 - Africa - Average Consumer Prices at Highway Pump in US Cents per Liter



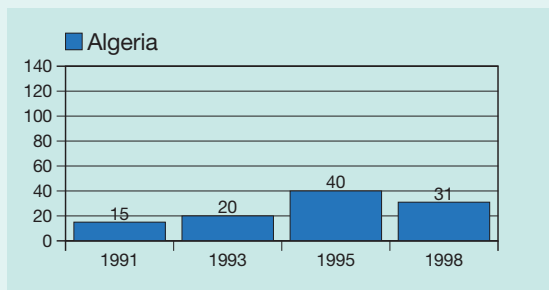
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Source: GTZ Fuel Price Survey 1998 (Dr. Metschies); 1 US\$ = 1,66 DM = 0,85 EURO

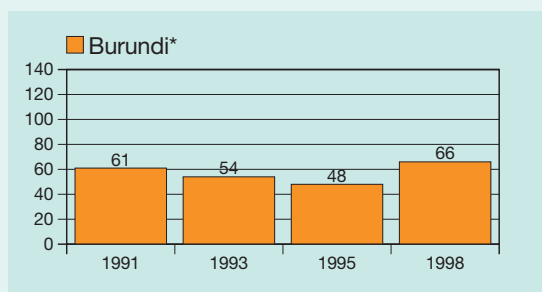
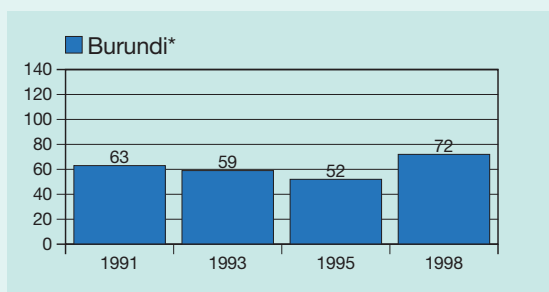
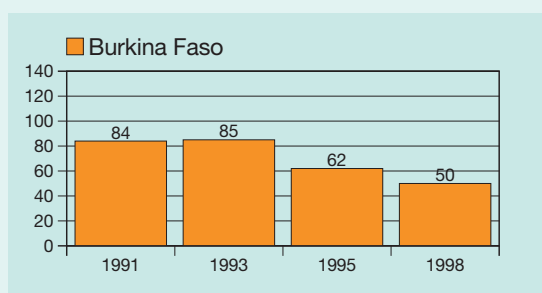
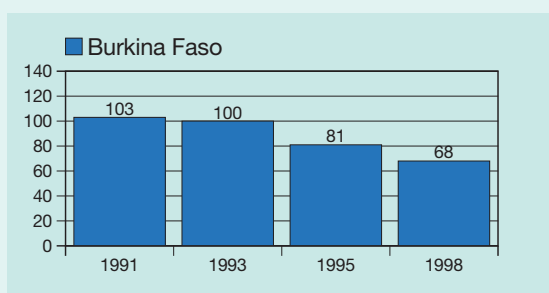
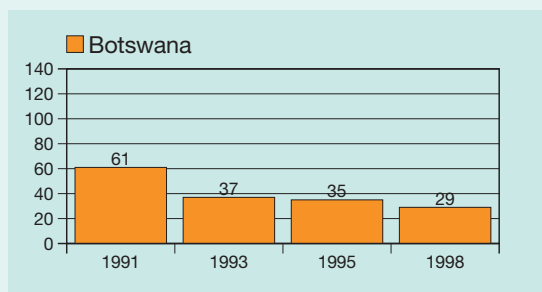
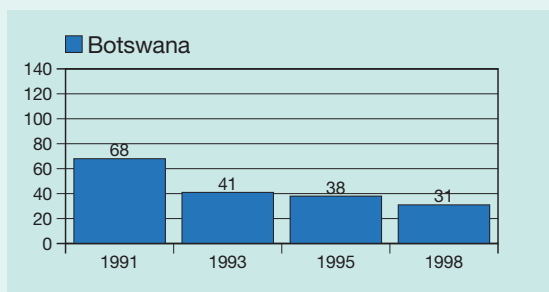
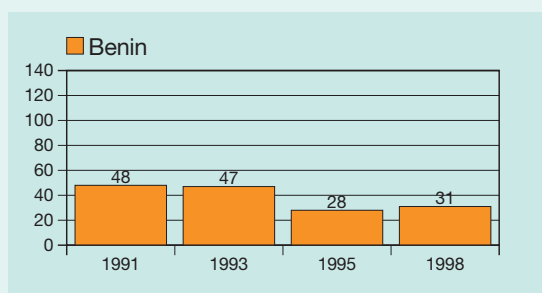
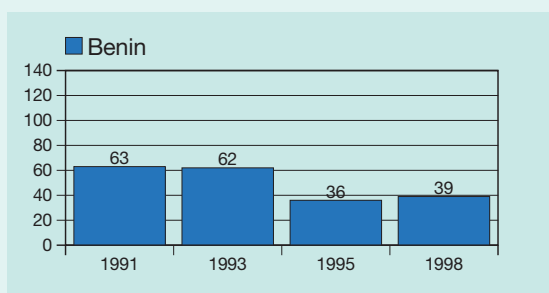
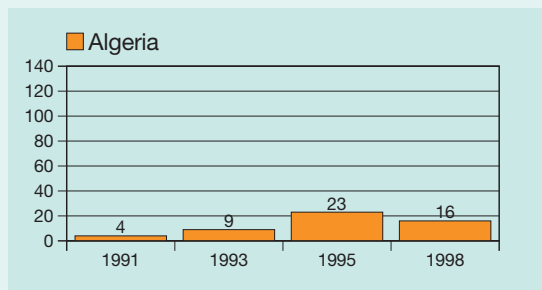
*Price for regular gasoline ***"Untaxed Retail Pump Price" is a global average price at the highway pump incl. distribution, but excluding fuel tax, VAT etc.

The Development of Fuel Prices Over Time - Africa - pump prices in US cents per liter

Super Gasoline



Diesel

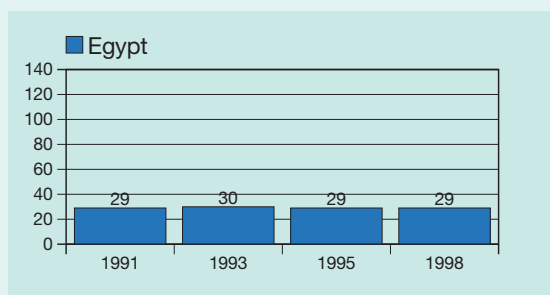
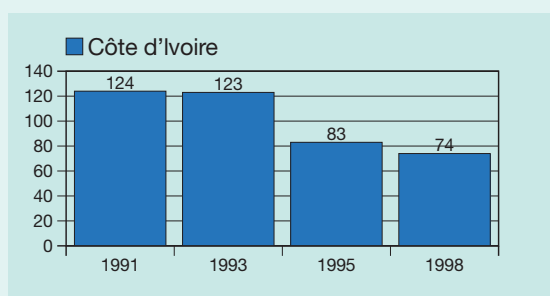
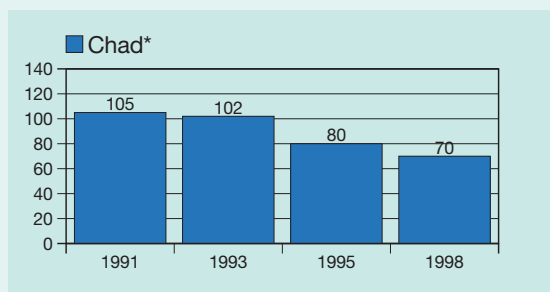
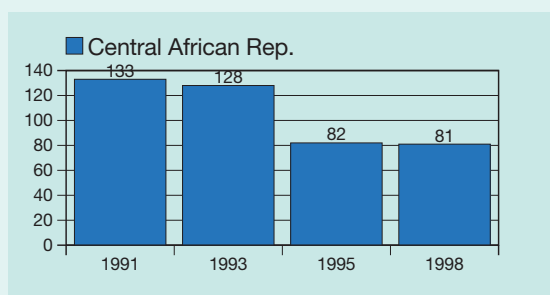
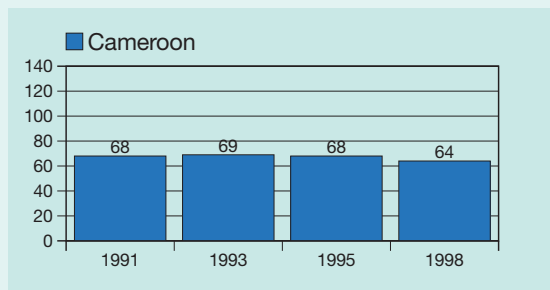


Untaxed Retail Pump Price 21 US cents (1998)

Untaxed Retail Pump Price 18 US cents (1998)

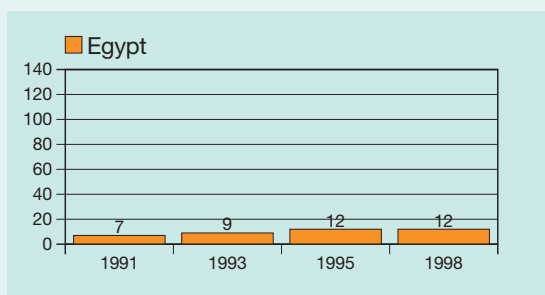
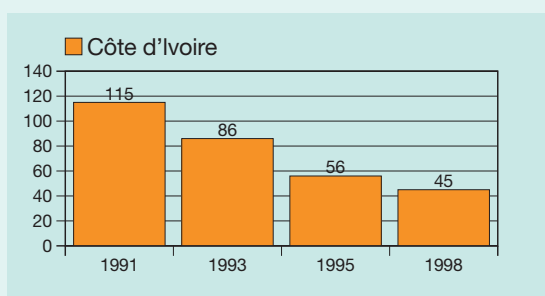
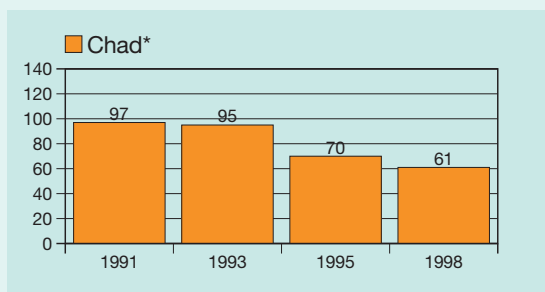
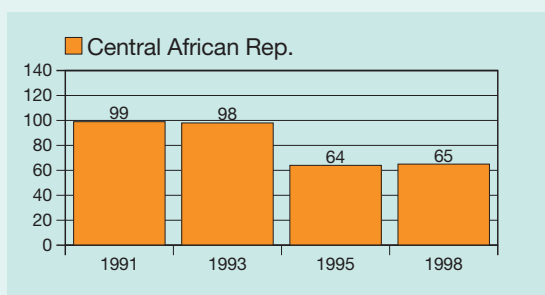
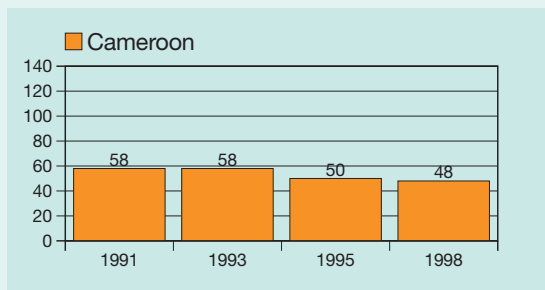
The Development of Fuel Prices Over Time - Africa - pump prices in US cents per liter

Super Gasoline



Untaxed Retail Pump Price 21 US cents (1998)

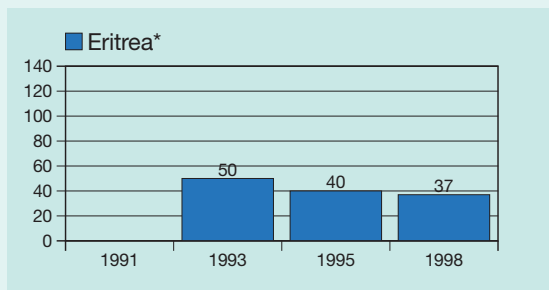
Diesel



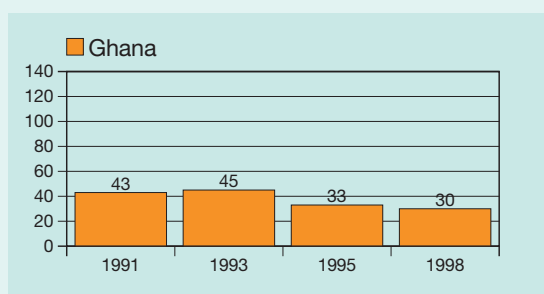
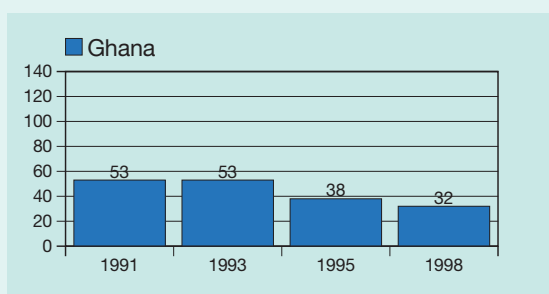
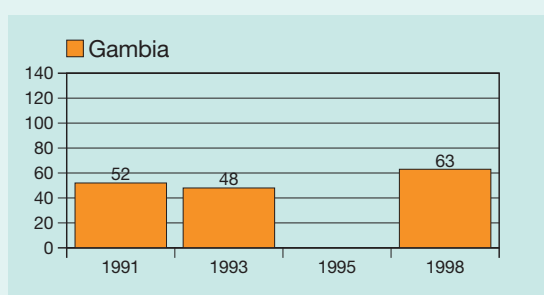
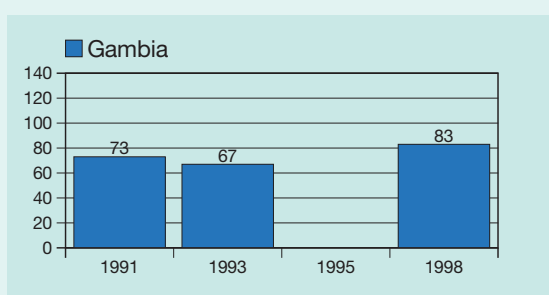
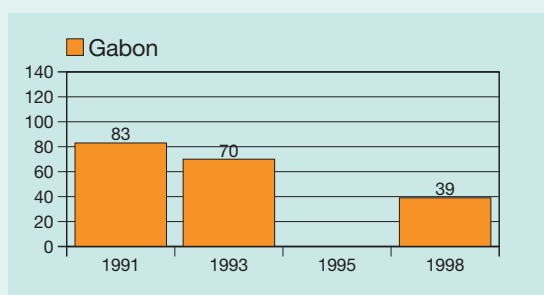
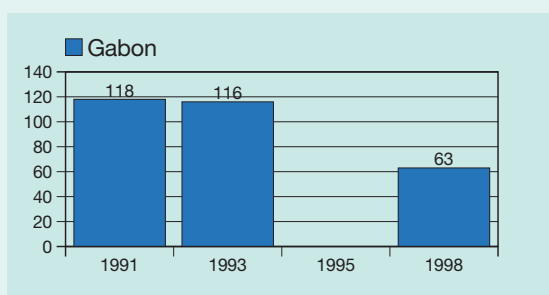
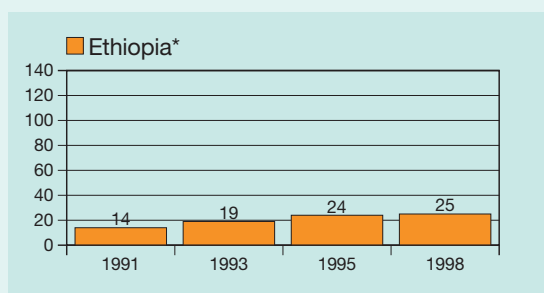
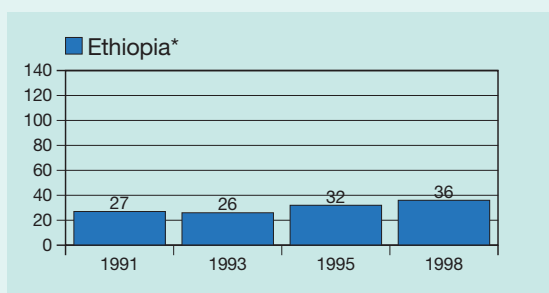
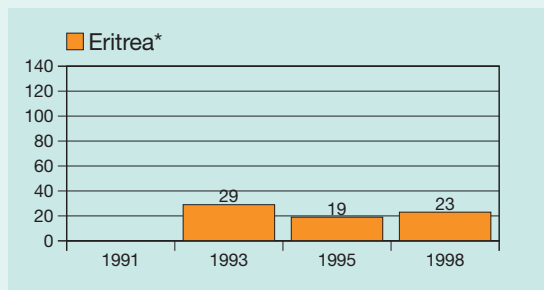
Untaxed Retail Pump Price 18 US cents (1998)

The Development of Fuel Prices Over Time - Africa - pump prices in US cents per liter

Super Gasoline



Diesel

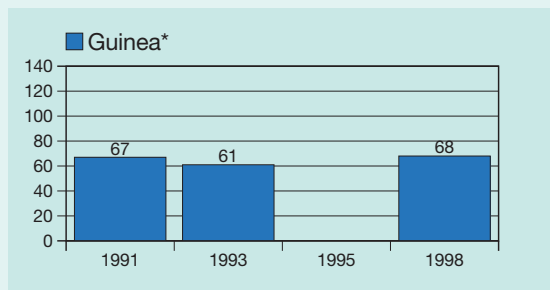


Untaxed Retail Pump Price 21 US cents (1998)

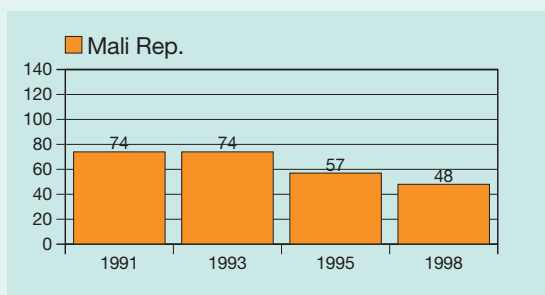
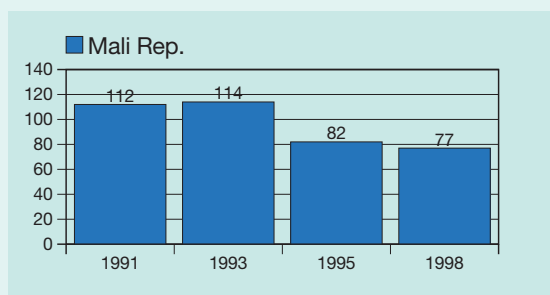
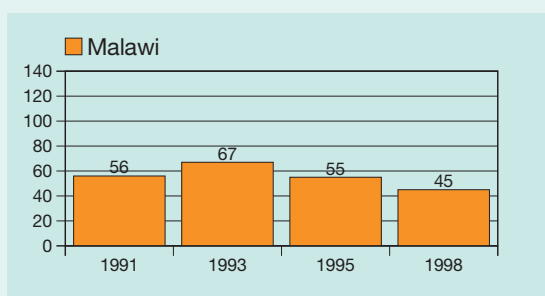
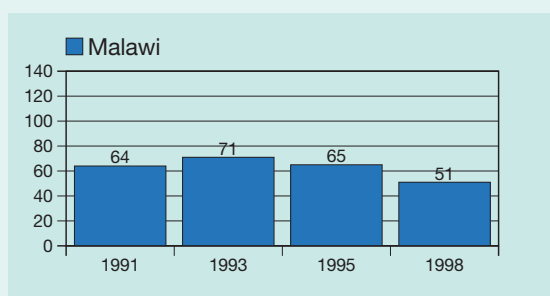
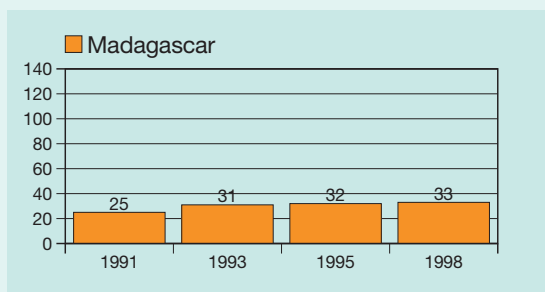
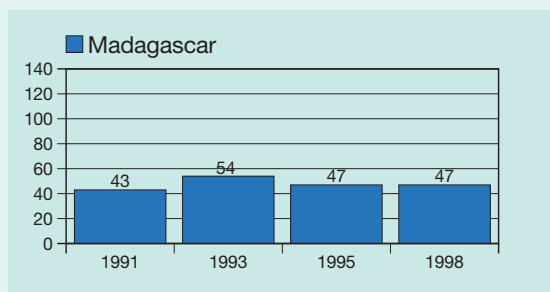
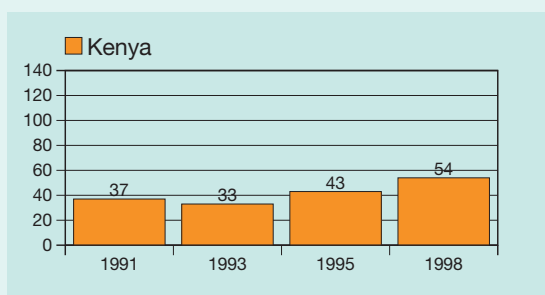
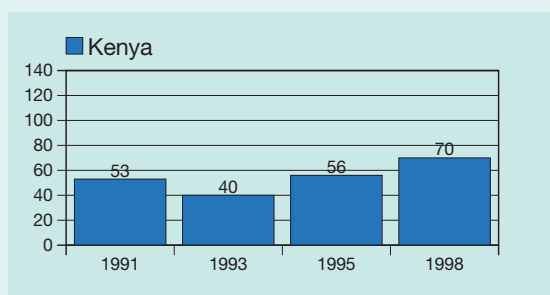
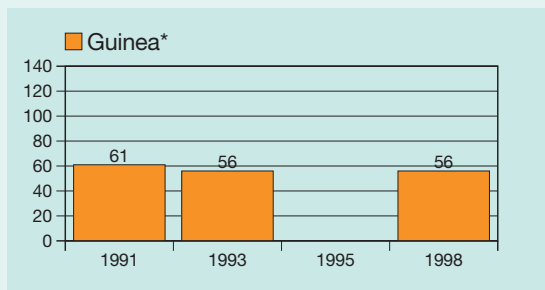
Untaxed Retail Pump Price 18 US cents (1998)

The Development of Fuel Prices Over Time - Africa - pump prices in US cents per liter

Super Gasoline



Diesel

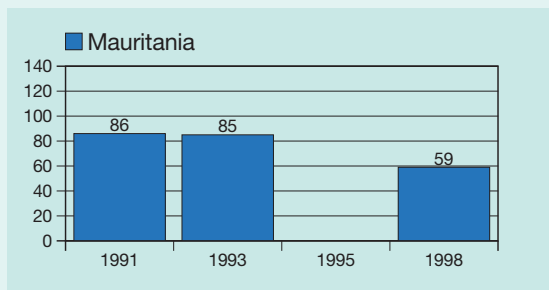


Untaxed Retail Pump Price 21 US cents (1998)

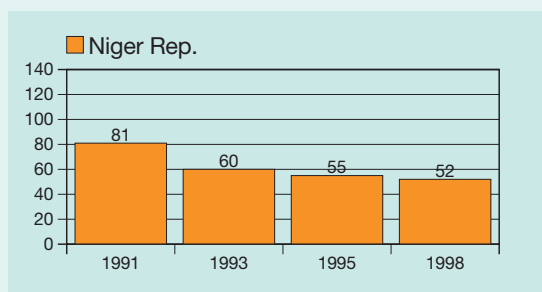
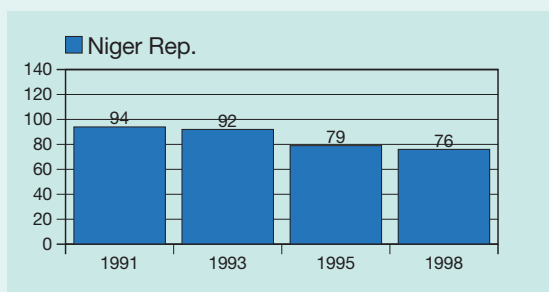
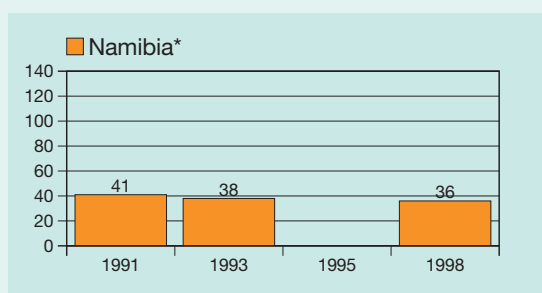
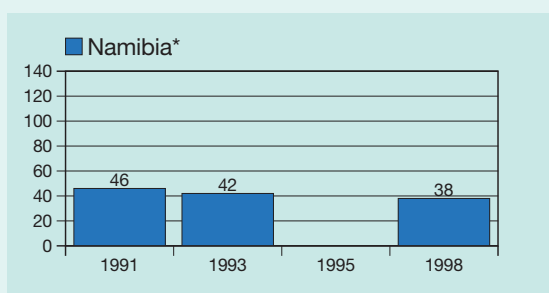
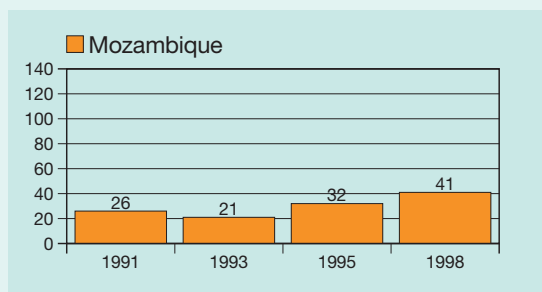
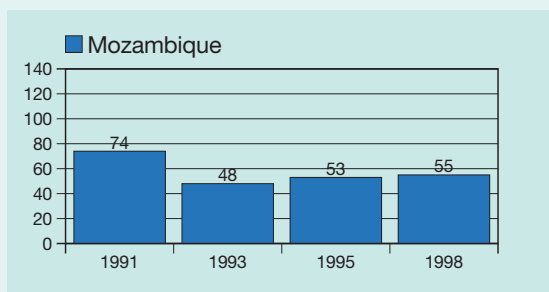
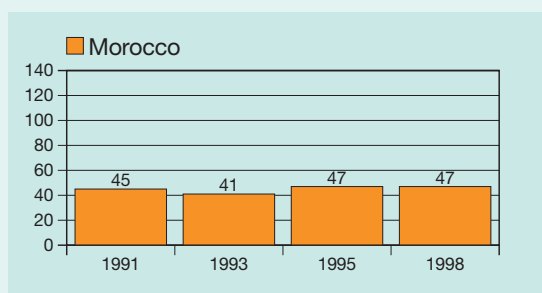
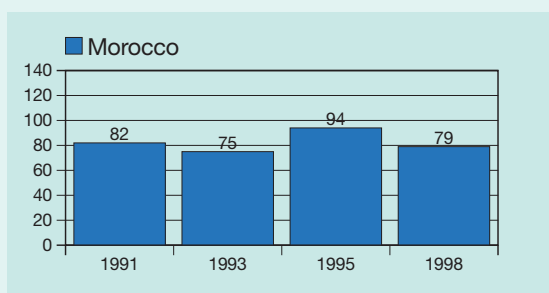
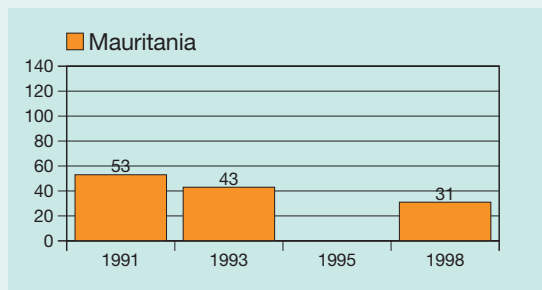
Untaxed Retail Pump Price 18 US cents (1998)

The Development of Fuel Prices Over Time - Africa - pump prices in US cents per liter

Super Gasoline



Diesel

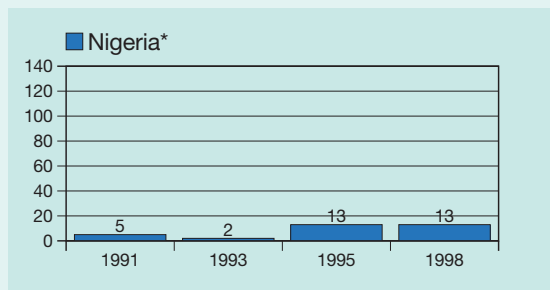


Untaxed Retail Pump Price 21 US cents (1998)

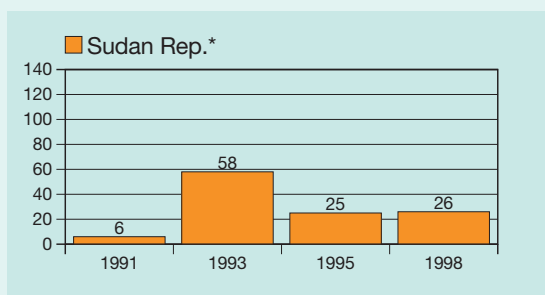
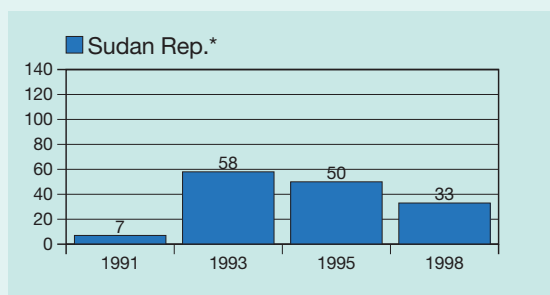
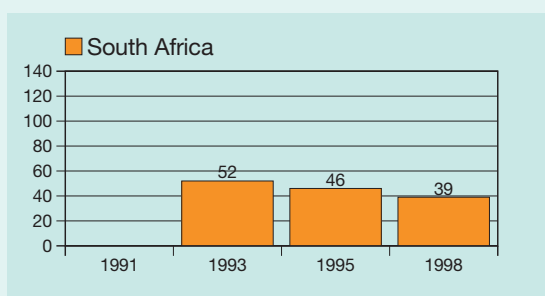
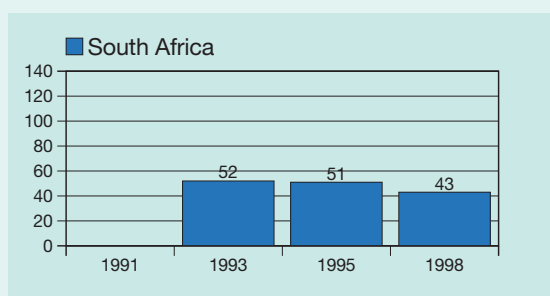
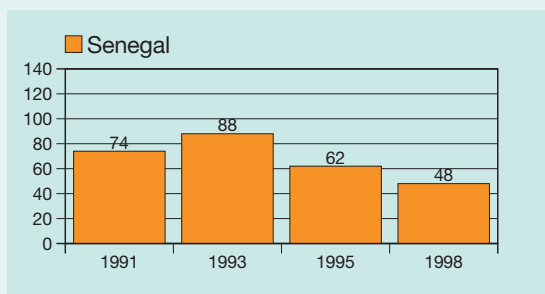
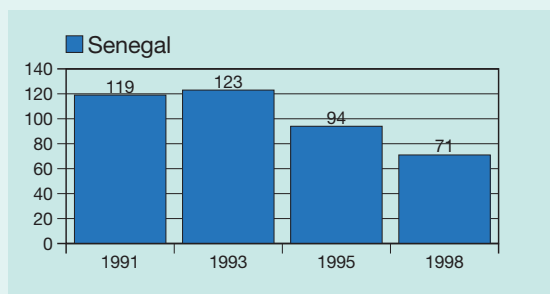
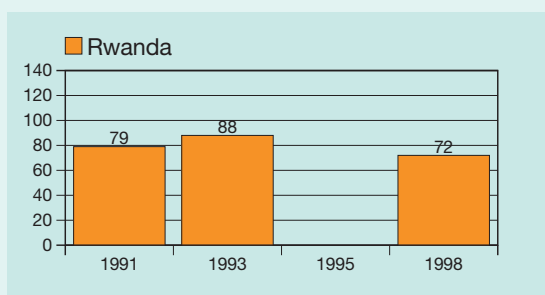
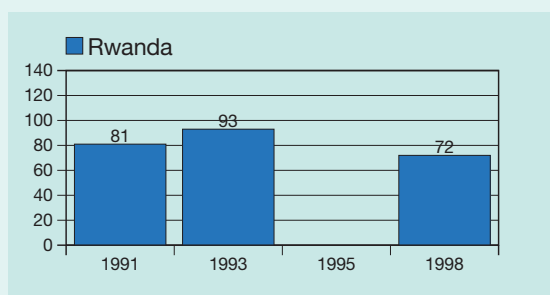
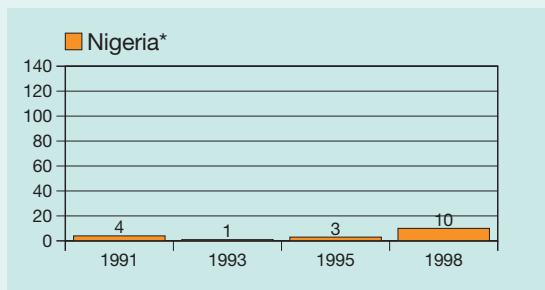
Untaxed Retail Pump Price 18 US cents (1998)

The Development of Fuel Prices Over Time - Africa - pump prices in US cents per liter

Super Gasoline



Diesel

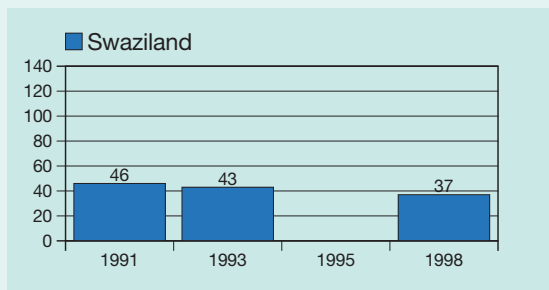


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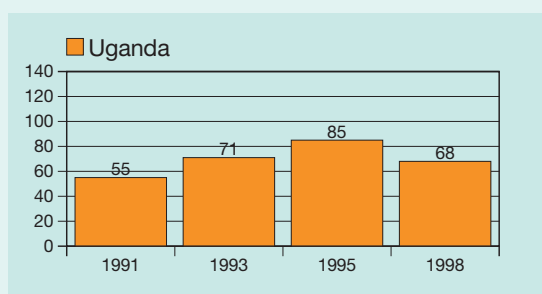
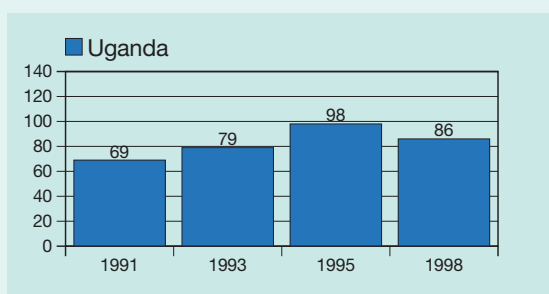
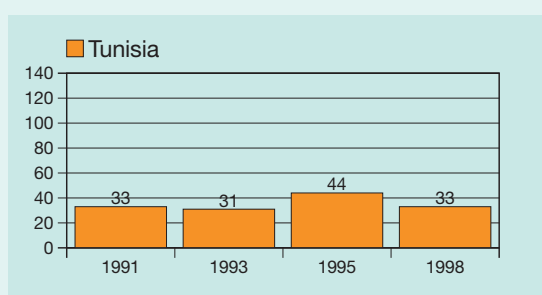
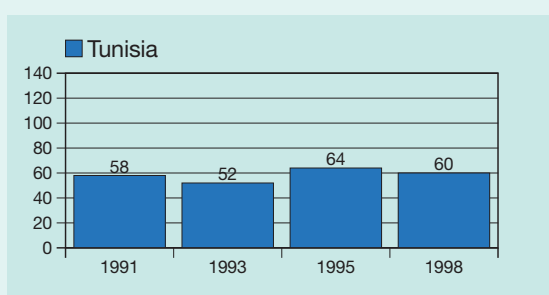
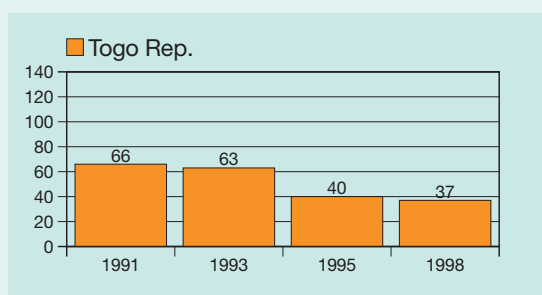
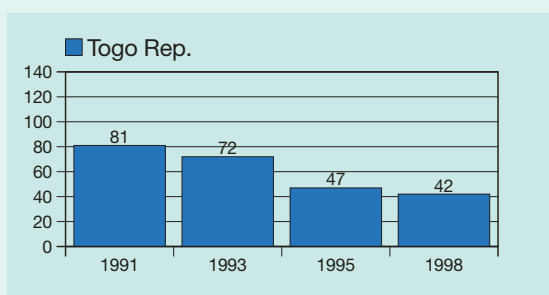
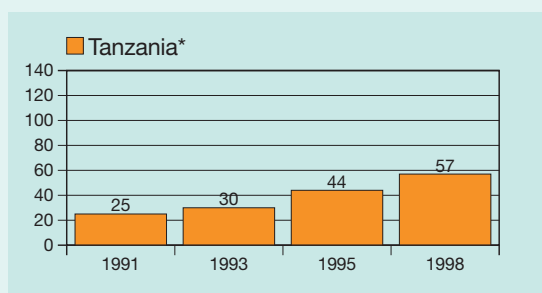
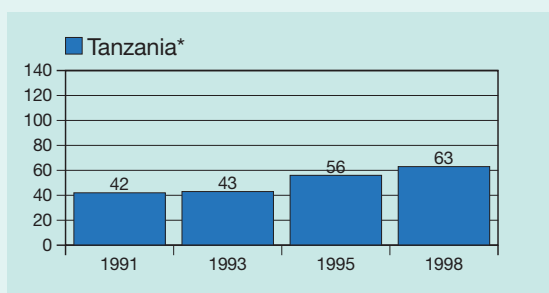
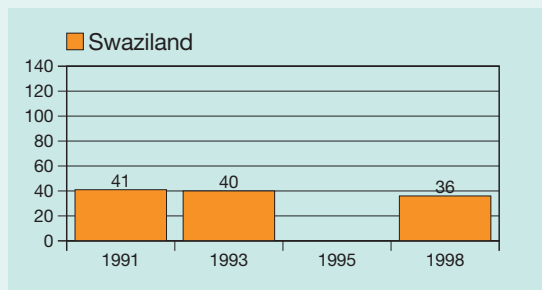
Untaxed Retail Pump Price 18 US cents (1998)

The Development of Fuel Prices Over Time - Africa - pump prices in US cents per liter

Super Gasoline



Diesel

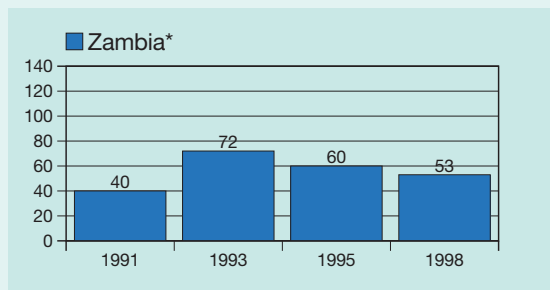


Untaxed Retail Pump Price 21 US cents (1998)

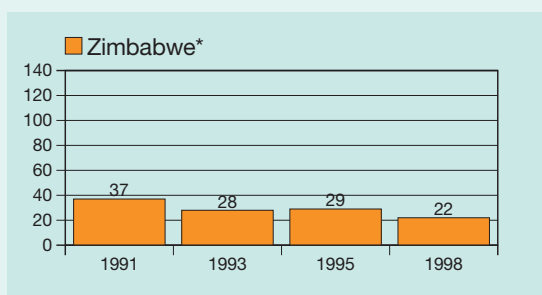
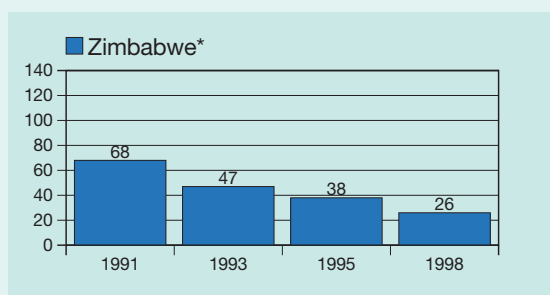
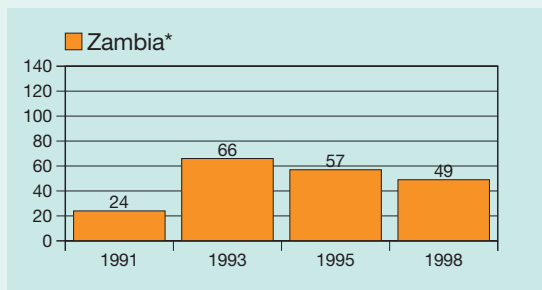
Untaxed Retail Pump Price 18 US cents (1998)

The Development of Fuel Prices Over Time - Africa - pump prices in US cents per liter

Super Gasoline



Diesel



Untaxed Retail Pump Price 21 US cents (1998)

Untaxed Retail Pump Price 18 US cents (1998)



America



Synoptical Table:
Pump Prices for Super Gasoline and Diesel, 1991-1998



Geographical Representation:
Fuel Prices as of November 1998



Price-series Representation:
Ranking of Fuel Prices as of November 1998



Graphical Representation of Price Developments:
Price Trends in Individual Countries, 1991-1998

Pump Prices for Super Gasoline and Diesel (in US cents per liter) 1991-1998 - America -

Fuel prices in US cents per liter										
Country	Super gasoline				Diesel				Source & date of 1998 data	
	1991	1993	1995	1998	1991	1993	1995	1998	Source	Date
"Untaxed Pump Price"				23				18		
Argentina		79	60	94		29	28	42	Olade	Dec 98
Bolivia		43	38	53		35	31	35	Olade	Dec 98
Brazil		53	63	80		38	39	34	Olade	Dec 98
Canada		47	45	41		39	36	39	ADAC	Dec 98
Chile		43	53	49		31	33	29	Olade	Dec 98
Colombia		23	35	24		19	27	20	Olade	Dec 98
Costa Rica		37	40	41		28	27	28	Olade	Dec 98
Cuba				50				18	Olade	Dec 98
Dominican Republic			40	40			28	22	Olade	Dec 98
Ecuador		31	33	38		19	28	24	Olade	Dec 98
El Salvador				54				30	Olade	Dec 98
Grenada				54				41	Olade	Dec 98
Guatemala		32	39	41		25	28	32	Olade	Dec 98
Guyana				30				27	Olade	Dec 98
Haiti				59				36	Olade	Dec 98
Honduras		41	35	50		26	25	30	Olade	Dec 98
Jamaica				37				33	Olade	Dec 98
Mexico		39	32	36		28	25	28	Olade	Dec 98
Nicaragua		69	62	47		30	31	35	Olade	Dec 98
Panama		43		41		30		28	Olade	Dec 98
Paraguay		43	44	47		27	28	24	Olade	Dec 98
Peru		56	68	55		32	43	33	Olade	Dec 98
Puerto Rico				34				32	World Bank	Mar 98
Suriname				56				41	Olade	Dec 98
Trinidad and Tobago				39				20	Olade	Dec 98
United St. (average)		32	34	32		28	33	27	GTZ	Nov 98
United States (high)				35				31	GTZ	Nov 98
United States (low)				30				26	GTZ	Nov 98
Uruguay			89	90			38	42	Olade	Dec 98
Venezuela			3	14			1	8	Olade	Dec 98

* 1998 price for regular gasoline

Sources:

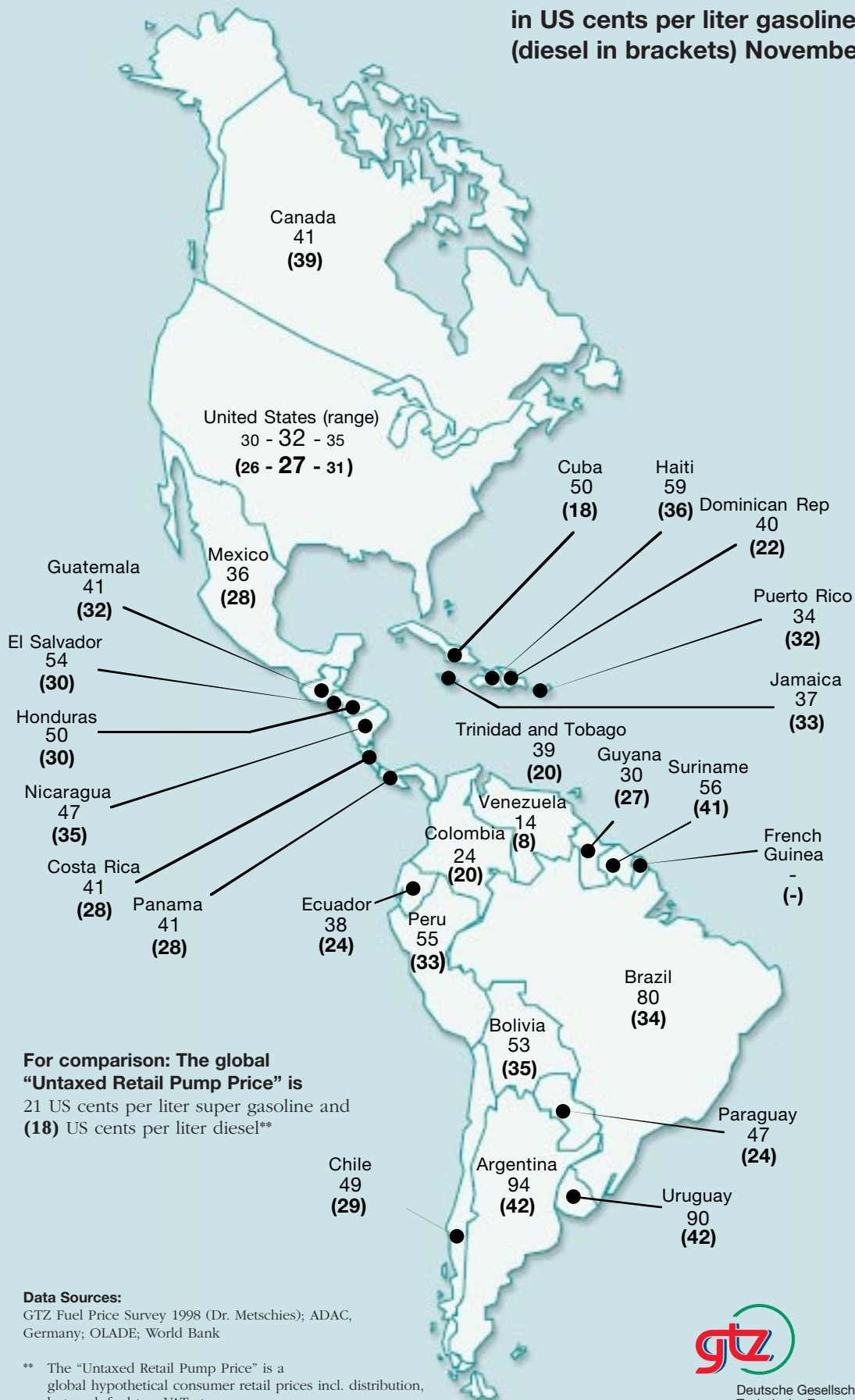
gtz Fuel Price Surveys 1991, 1993, 1995, 1998; ADAC Germany; Olade;
World Bank (all data from last quarter of each year)



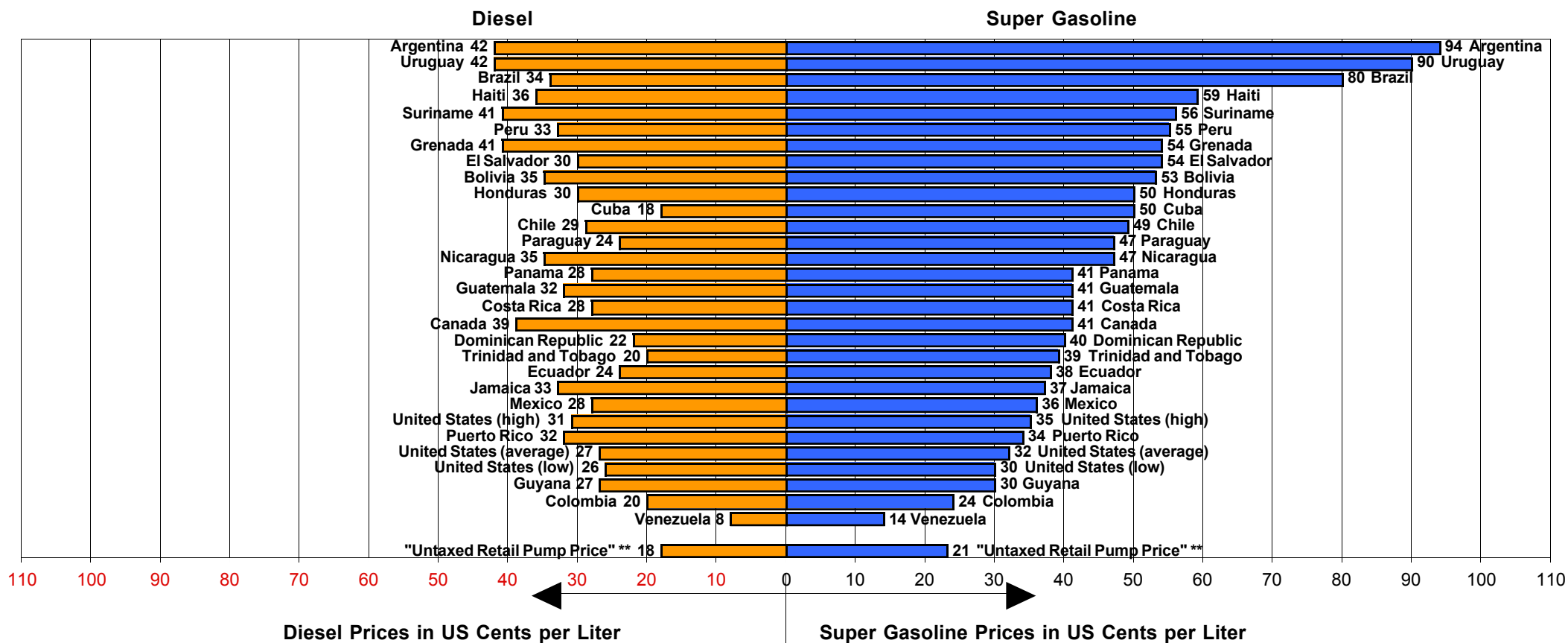
Deutsche Gesellschaft für
Technische Zusammenarbeit (GTZ) GmbH

Fuel Prices America

in US cents per liter gasoline
(diesel in brackets) November 1998

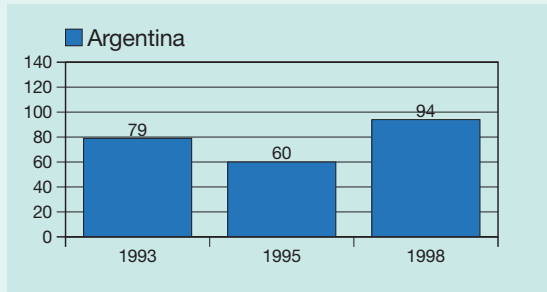


Fuel Prices as of November 1998 - America - Average Consumer Prices at Highway Pump in US Cents per Liter

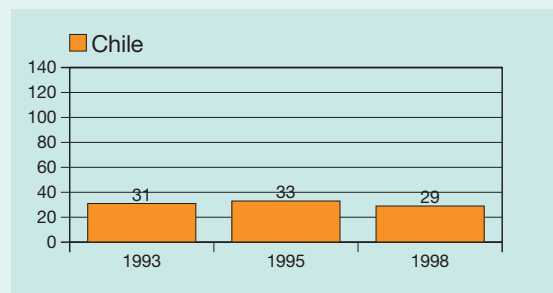
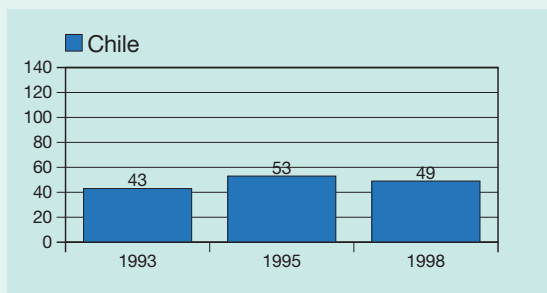
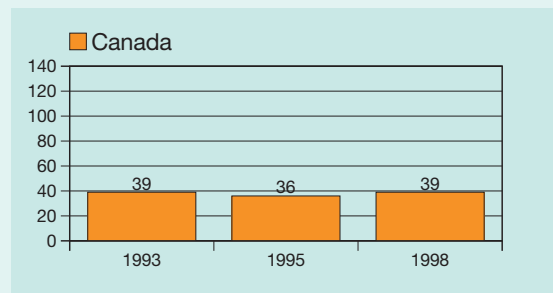
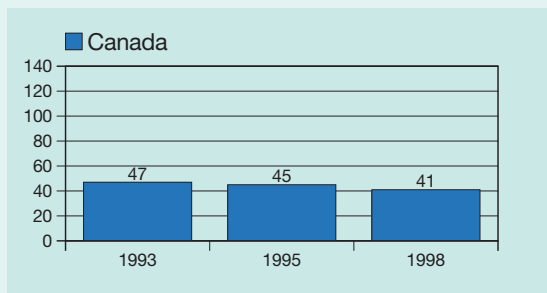
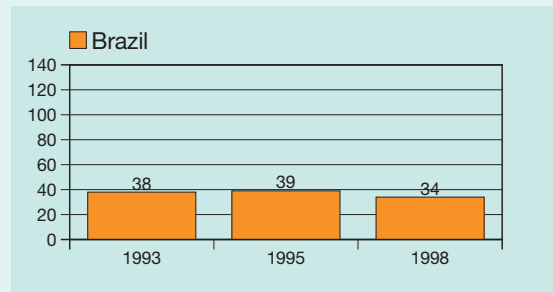
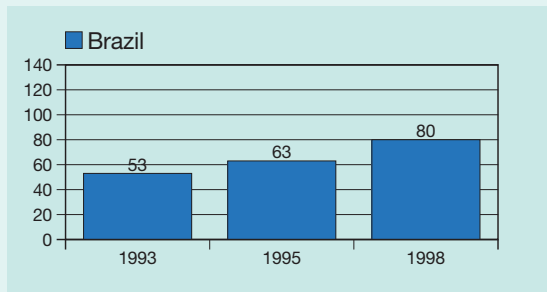
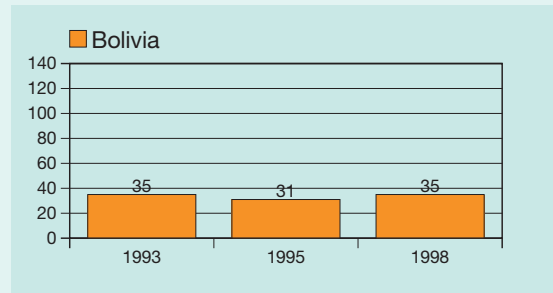
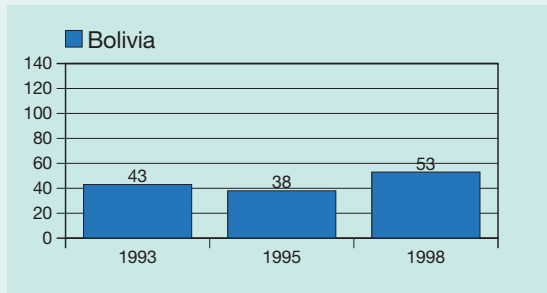
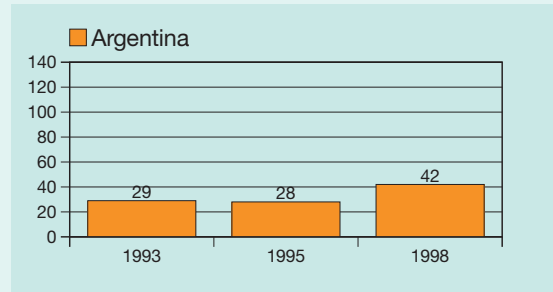


The Development of Fuel Prices Over Time - America - pump prices in US cents per liter

Super Gasoline



Diesel

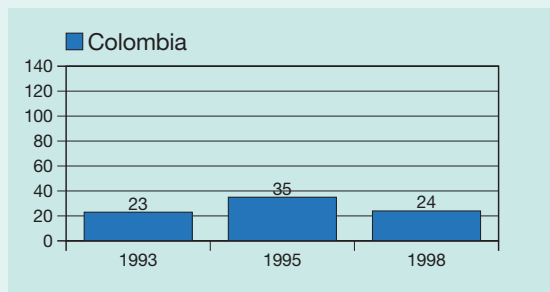


Untaxed Retail Pump Price 21 US cents (1998)

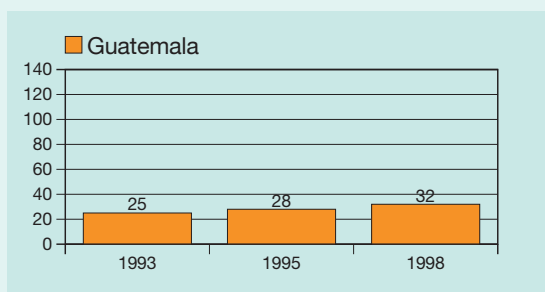
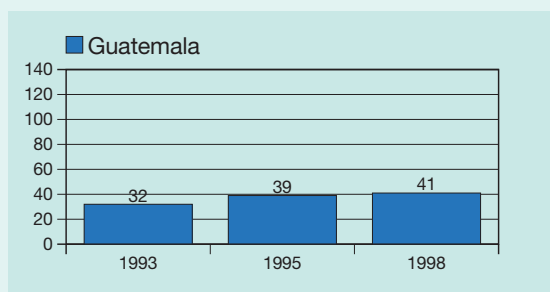
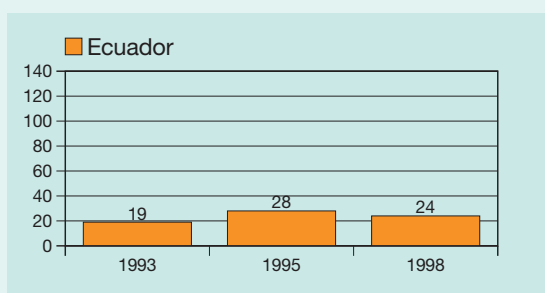
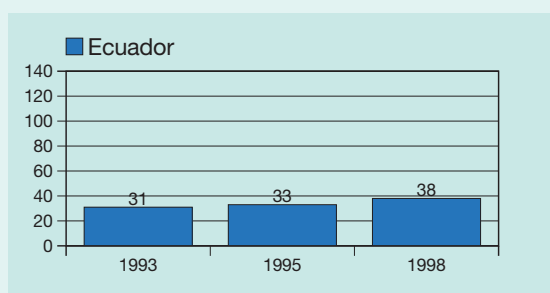
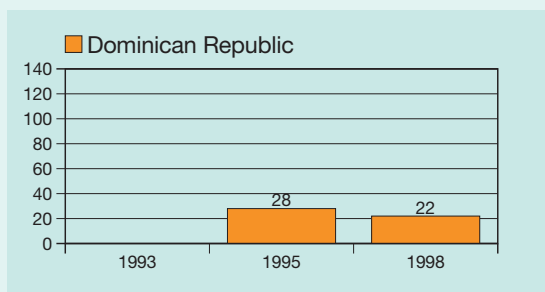
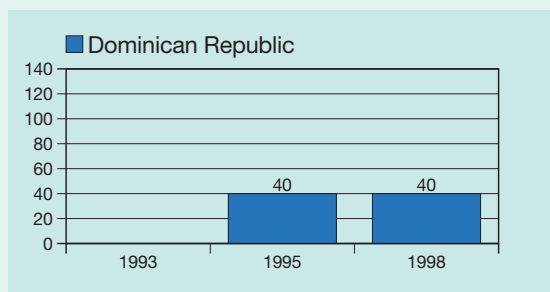
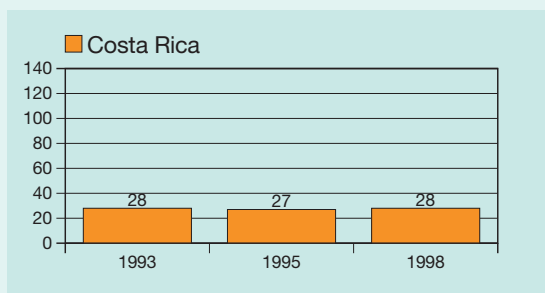
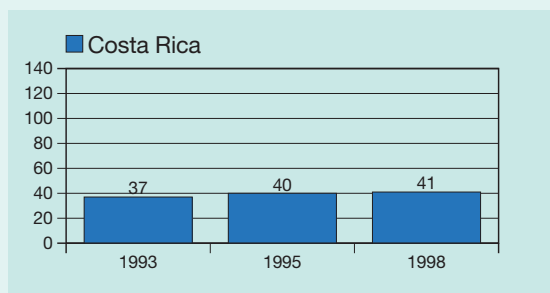
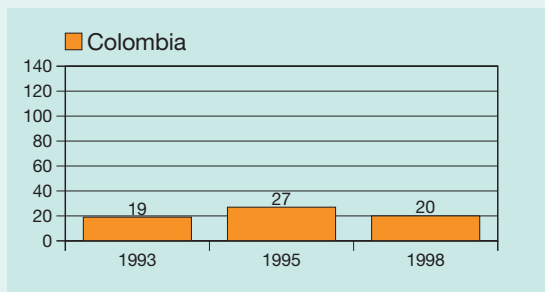
Untaxed Retail Pump Price 18 US cents (1998)

The Development of Fuel Prices Over Time - America - pump prices in US cents per liter

Super Gasoline



Diesel

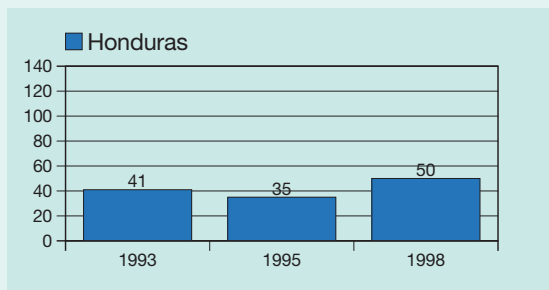


Untaxed Retail Pump Price 21 US cents (1998)

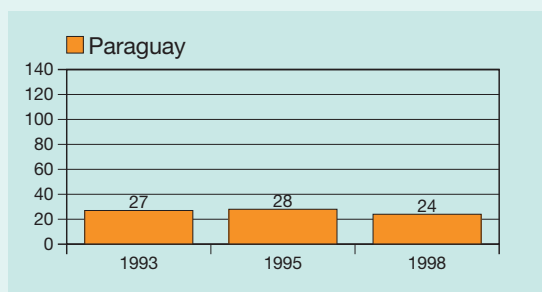
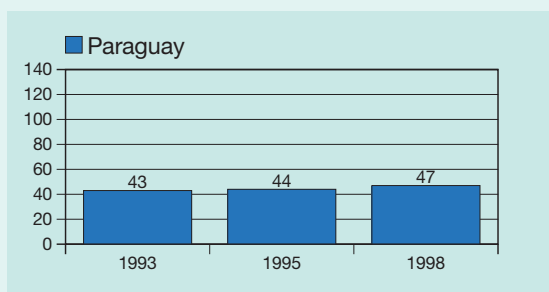
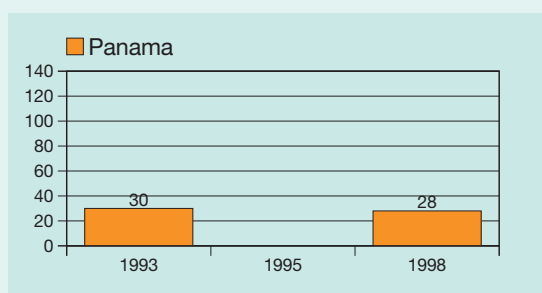
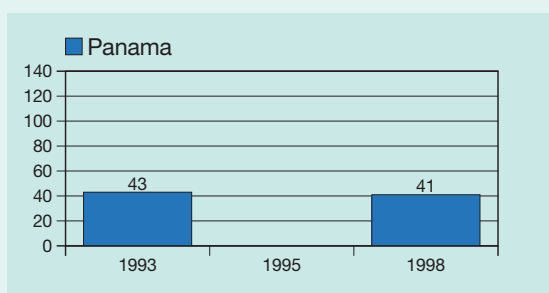
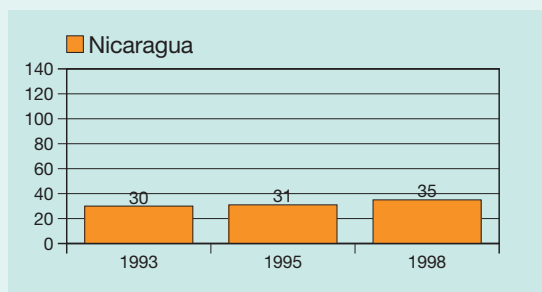
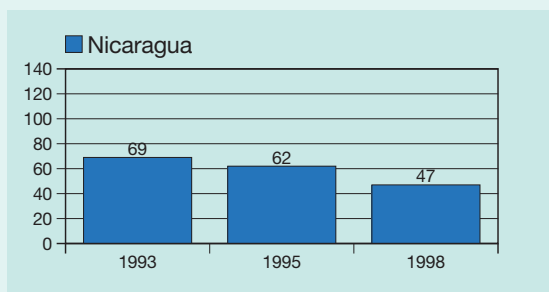
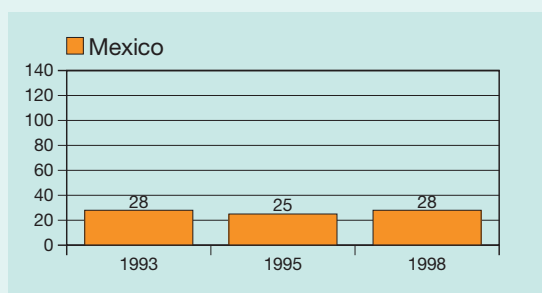
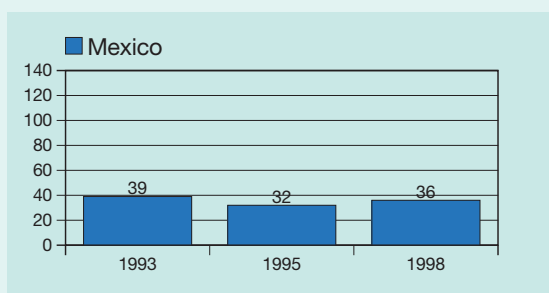
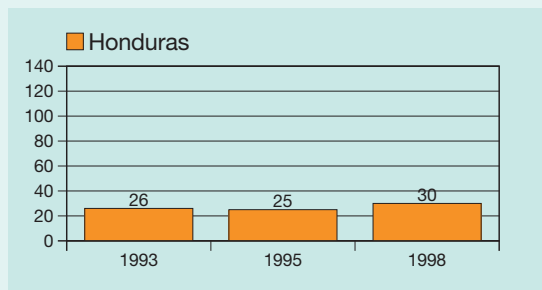
Untaxed Retail Pump Price 18 US cents (1998)

The Development of Fuel Prices Over Time - America - pump prices in US cents per liter

Super Gasoline



Diesel

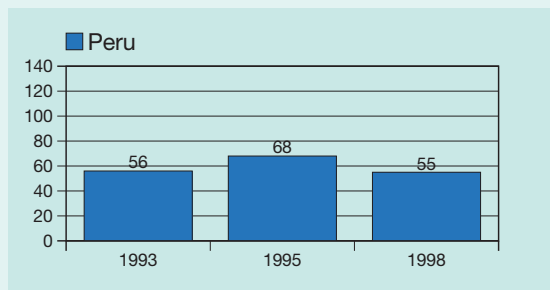


Untaxed Retail Pump Price 21 US cents (1998)

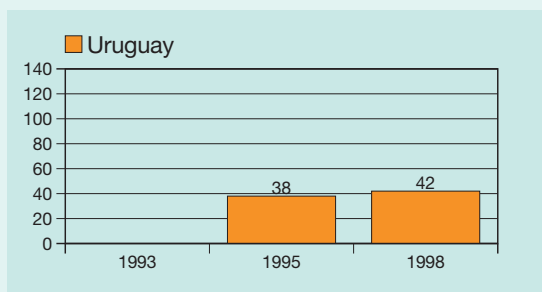
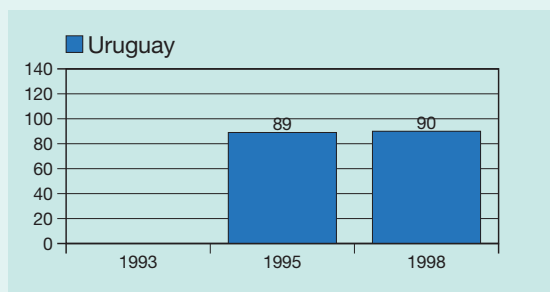
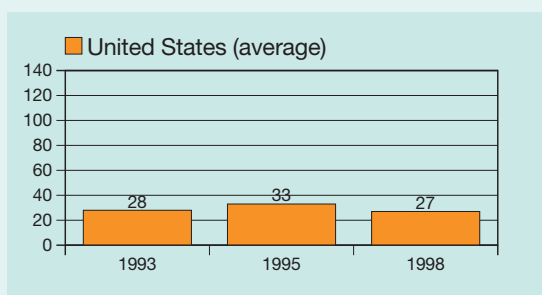
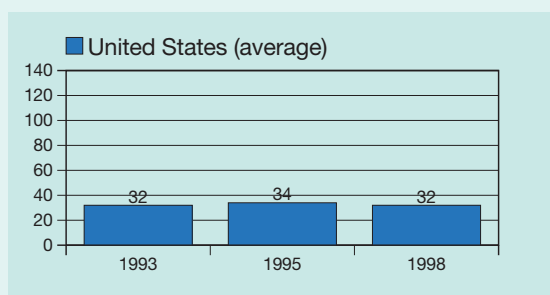
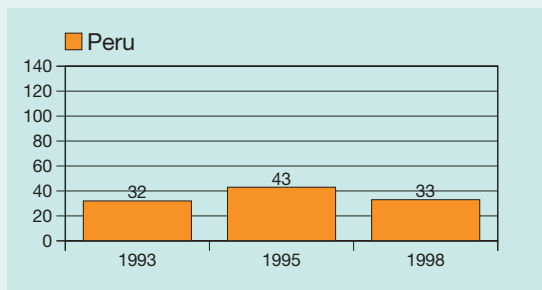
Untaxed Retail Pump Price 18 US cents (1998)

The Development of Fuel Prices Over Time - America - pump prices in US cents per liter

Super Gasoline



Diesel



Untaxed Retail Pump Price 21 US cents (1998)

Untaxed Retail Pump Price 18 US cents (1998)



Asia and Australia



Synoptical Table:

Pump Price for Super Gasoline and Diesel, 1991-1998



Geographical Representation:

Fuel Prices as of November 1998



Price-series Representation:

Ranking of Fuel Prices as of November 1998

Pump Prices for Super Gasoline and Diesel (in US cents per liter) 1991-1998 - Asia and Australia -

Fuel prices in US cents per liter										
Country	Super gasoline				Diesel				Source & date of 1998 data	
	1991	1993	1995	1998	1991	1993	1995	1998	Source	Date
"Untaxed P. Price" **				23				18		
Afghanistan										
Armenia				49				25	gtz	Nov 98
Australia				46				45	ADAC	Nov 98
Azerbaijan				46				22	gtz	Nov 98
Bahrain				26				18	ADAC	Dec 98
Bangladesh			36	47			31	26	gtz	Nov 98
Bhutan*				59				26	gtz	Nov 98
Brunei				34				18	gtz	Feb 99
Burma/Myanmar*				13				12	gtz	Dec 98
Cambodia				47				28	gtz	Nov 98
China			27	28			24	25	gtz	Nov 98
Hong Kong			119	136			74	85	ADAC	Dec 98
India			48	56			19	21	ADAC	Dec 98
Indonesia			44	16			20	7	gtz	Nov 98
Iran				8				1	World Bank	Feb 97
Iraq				1				1	gtz	Nov 98
Israel			73	86			31	31	ADAC	Dec 98
Japan			125	102			75	69	ADAC	Nov 98
Jordan			40	42			15	15	gtz	Nov 98
Kazakhstan				30				24	gtz	Nov 98
Korea North*				73				41	Swed. Emb.	Feb 99
Korea South			79	93			33	41	World Bank	May 97
Kuwait				17				13	gtz	Dec 98
Kyrgyzstan				47				27	World Bank	Feb 98
Laos				31				24	World Bank	Jun 98
Lebanon				35				22	gtz	Nov 98
Macau				74				51	gtz	Feb 99
Malaysia			42	28			26	17	gtz	Nov 98
Mongolia				23				22	gtz	Nov 98
Nepal*			52	59			22	24	gtz	Nov 98
New Zealand			61	64			32	39	ADAC	Nov 98
Oman				31				26	gtz	Jan 99
Pakistan			47	46			20	19	gtz	Nov 98
Palest. Territories				86				31	ADAC	Dec 98
Papua New Guinea				41				28	gtz	Jan 99
Philippines			34	34			27	22	World Bank	Feb 98
Qatar				16				15	gtz	Jan 99
Russia			35	28			28	18	gtz	Nov 98
Saudi Arabia			16	16			9	10	gtz	Nov 98
Singapore*				72				36	ADAC	Dec 98
Sri Lanka			75	84			23	30	World Bank	Feb 98
Syria				45				14	gtz	Nov 98
Taiwan			59	57			38	41	World Bank	4Q 97
Tajikistan				26				13	gtz	Nov 98
Thailand			34	30			30	27	gtz	Nov 98
Turkey			56	78			37	47	ADAC	Nov 98
Turkmenistan				9				5	Germ. Emb.	Jan 99
U A E				105				67	ADAC	Dec 98
Uzbekistan			32	11			31	9	gtz	Dec 98
Vietnam			34	35			25	26	World Bank	Jun 98
Yemen*				26				7	gtz	Nov 98

* 1998 price for regular gasoline

Sources:

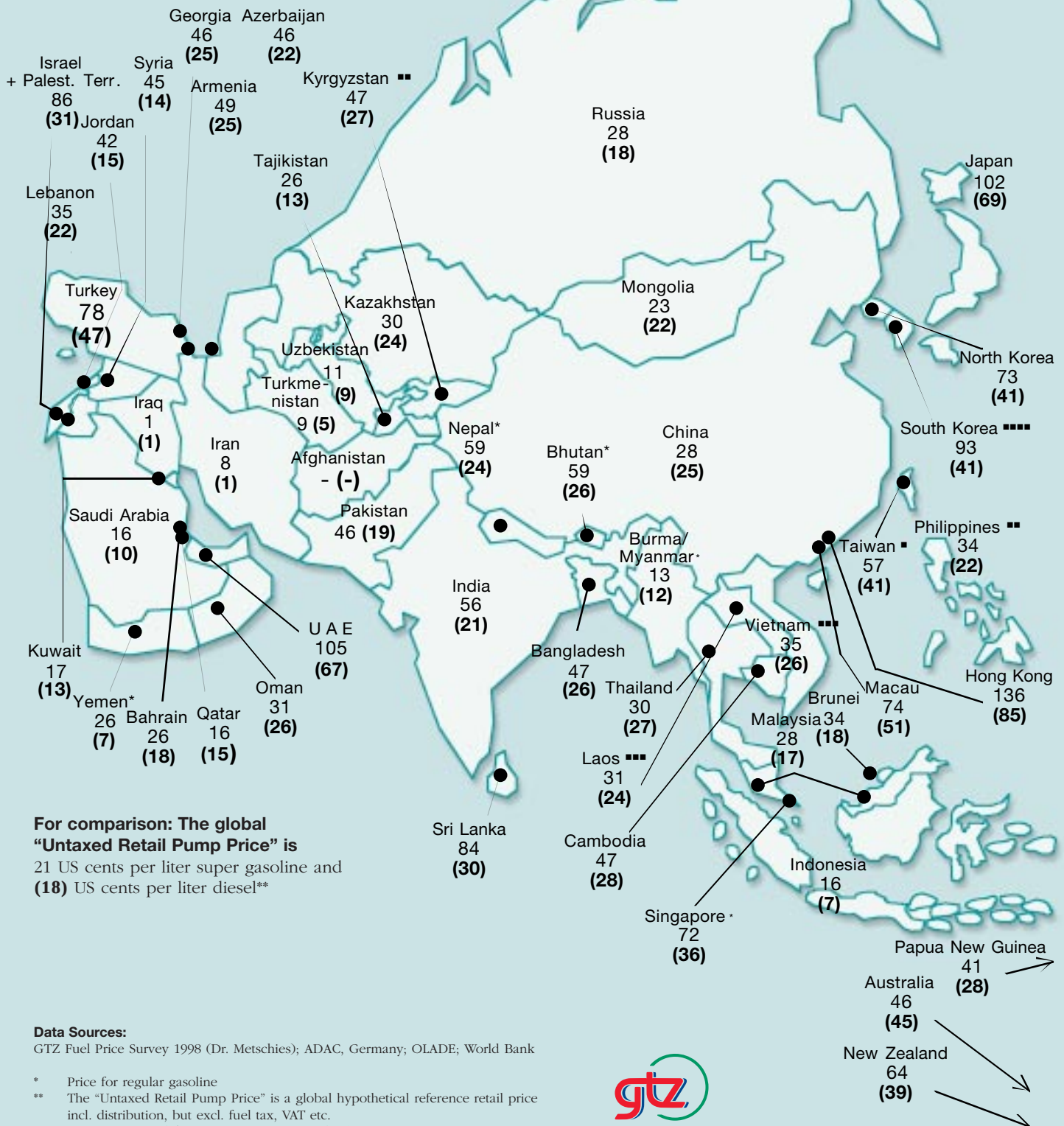
gtz Fuel Price Surveys 1991, 1993, 1995, 1998; ADAC Germany; Olade;
World Bank (all data from last quarter of each year)



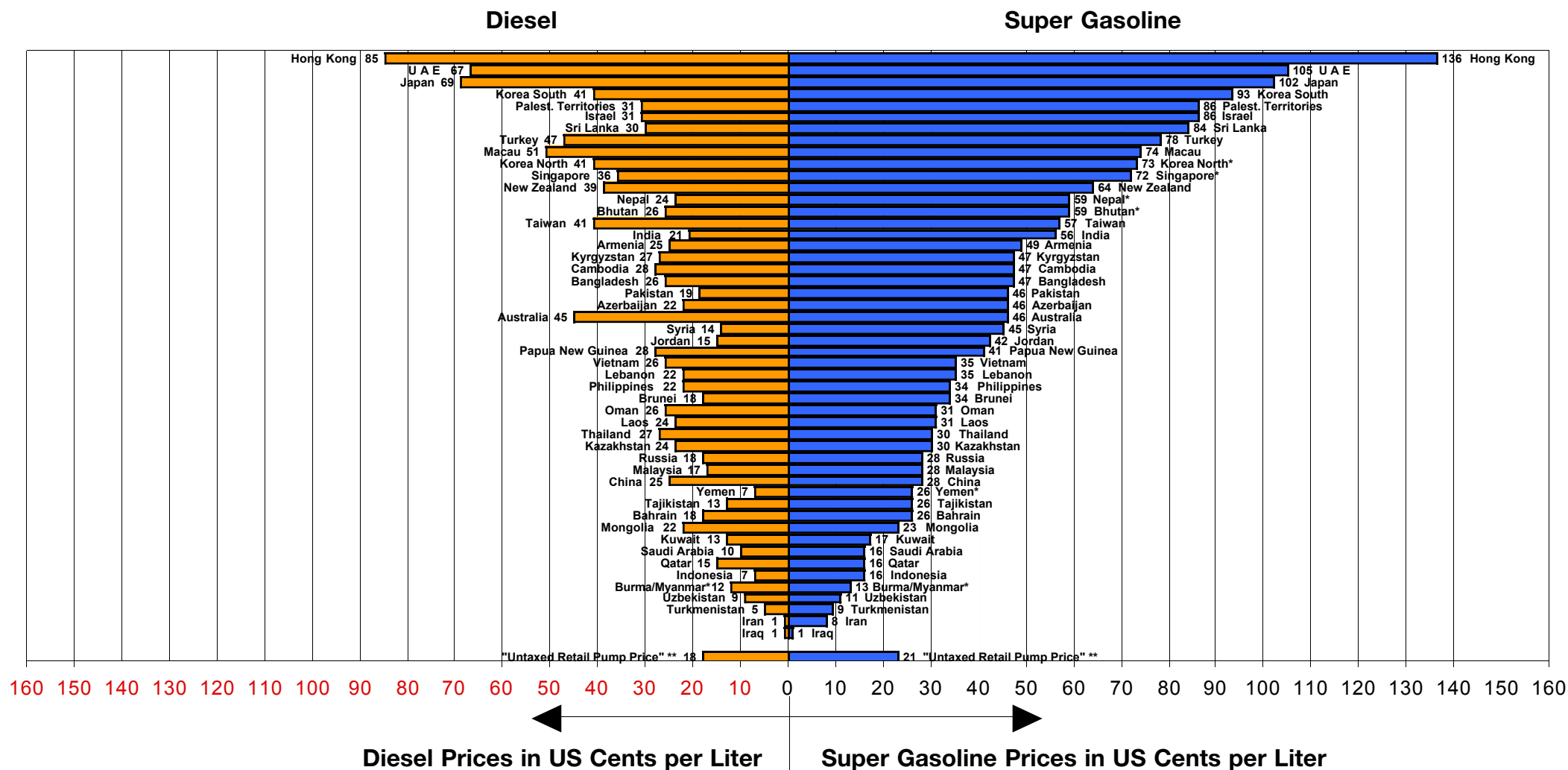
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Fuel Prices Asia and Australia

in US cents per liter gasoline
(diesel in brackets) November 1998



Fuel Prices as of November 1998 - Asia and Australia - Average Consumer Prices at Highway Pump in US Cents per Liter





Europe



Synoptical Table:

Pump Price for Super Gasoline and Diesel, 1991-1998



Geographical Representation:

Fuel Prices as of November 1998



Price-series Representation:

Ranking of Fuel Prices as of November 1998

Pump Prices for Super Gasoline and Diesel (in US cents per liter) 1991-1998 - Europe -

Fuel prices in US cents per liter										
Country	Super gasoline				Diesel				Source & date of 1998 data	
	1991	1993	1995	1998	1991	1993	1995	1998	Source	Date
"Untaxed P. Price" **				23				18		
Albania				86				43	gtz	Nov 98
Andorra										
Austria			115	104			87	82	ADAC	Nov 98
Belarus				34				13	World Bank	Jul 98
Belgium			118	112			82	85	ADAC	Nov 98
Bosnia + Herzegovina				66				60	ADAC	Nov 98
Bulgaria			46	66			26	52	ADAC	Nov 98
Croatia			75	67			64	61	ADAC	Nov 98
Cyprus				78				25	ADAC	Nov 98
Czech Rep			85	72			60	60	ADAC	Nov 98
Denmark			108	105			87	85	ADAC	Nov 98
Estonia			33	45			33	36	ADAC	Nov 98
Finland			120	117			85	79	ADAC	Nov 98
France			117	111			78	77	ADAC	Nov 98
Georgia				46				25	ADAC	Dec 98
Germany			112	96			77	69	ADAC	Nov 98
Greece			88	65			59	40	ADAC	Nov 98
Hungary			74	72			65	64	ADAC	Nov 98
Iceland				112				40	ADAC	Nov 98
Irish Rep			96	102			87	102	ADAC	Nov 98
Italy			118	119			86	93	ADAC	Nov 98
Latvia			41	55			34	35	ADAC	Nov 98
Liechtenstein				85				89	ADAC	Nov 98
Lithuania			35	51			30	34	ADAC	Nov 98
Luxembourg			84	78			68	61	ADAC	Nov 98
Macedonia			93	70			59	46	ADAC	Nov 98
Malta				77				49	ADAC	Nov 98
Moldova				45				31	ADAC	Nov 98
Monaco										
Netherlands			121	114			82	79	ADAC	Nov 98
Norway			133	121			109	110	ADAC	Nov 98
Poland			55	54			42	44	ADAC	Nov 98
Portugal				102				71	ADAC	Nov 98
Romania			29	53			19	40	ADAC	Nov 98
Russia			35	28			28	18	gtz	Nov 98
Slovakia			66	61			40	54	ADAC	Nov 98
Slovenia			59	66			50	64	ADAC	Nov 98
Spain			89	84			70	70	ADAC	Nov 98
Sweden			117	109			101	84	ADAC	Nov 98
Switzerland			102	86			101	91	ADAC	Nov 98
Turkey			56	78			37	47	ADAC	Nov 98
Ukraine				49				25	ADAC	Dec 98
United Kingdom			92	111			85	111	ADAC	Nov 98
Yugoslavia / Serbia			(76)	61			(84)	43	ADAC	Nov 98

* 1998 price for regular gasoline

Sources:

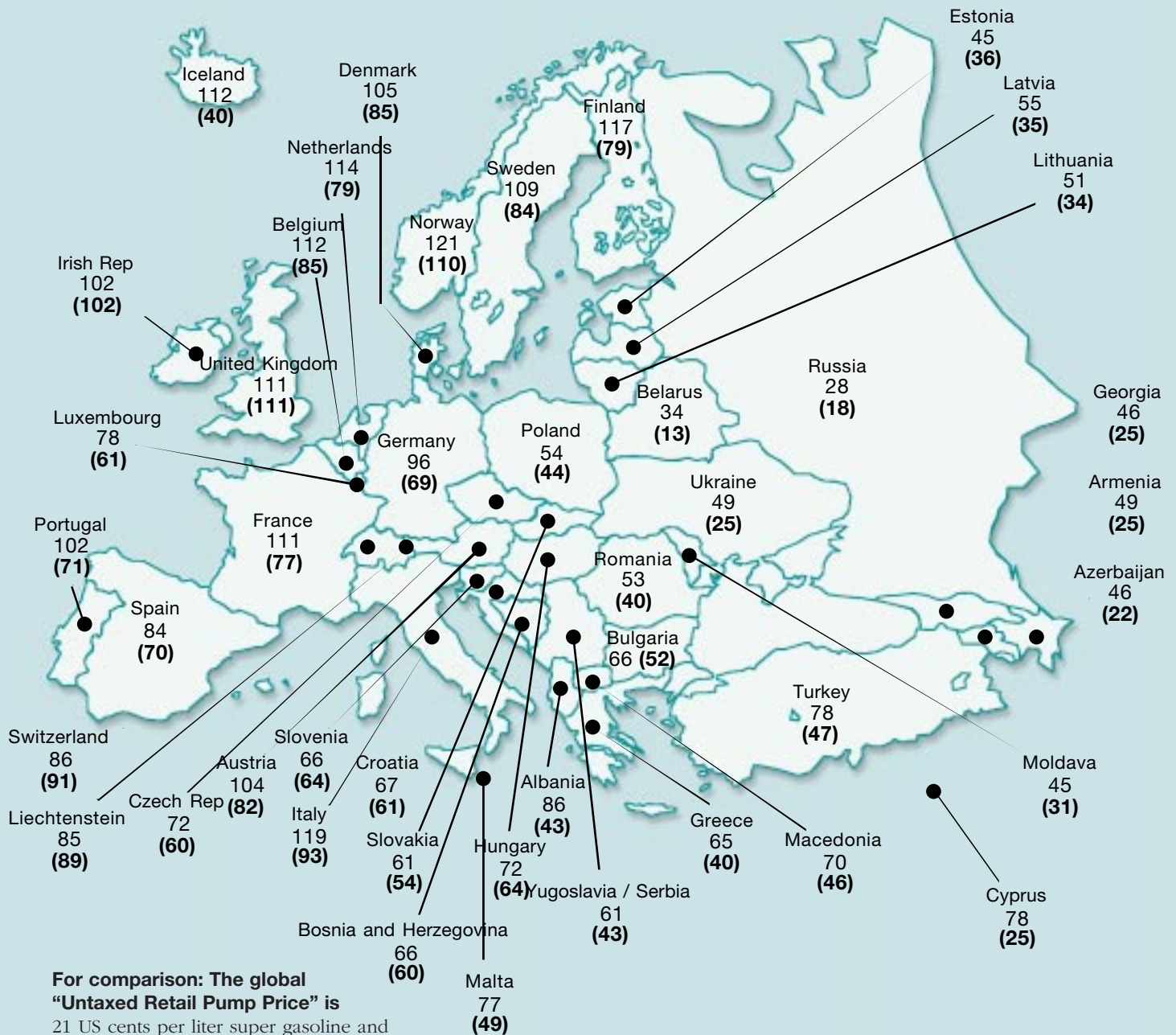
gtz Fuel Price Surveys 1991, 1993, 1995, 1998; ADAC Germany; Olade;
World Bank (all data from last quarter of each year)



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Fuel Prices in Europe

in US cents per liter gasoline
(diesel in brackets) November 1998



Data Sources:

GTZ Fuel Price Survey 1998 (Dr. Metschies); ADAC, Germany; OLADE; World Bank

** The "Untaxed Retail Pump Price" is a global hypothetical reference retail price incl. distribution, but excl. fuel tax, VAT etc.

■■■ Price as of July 98

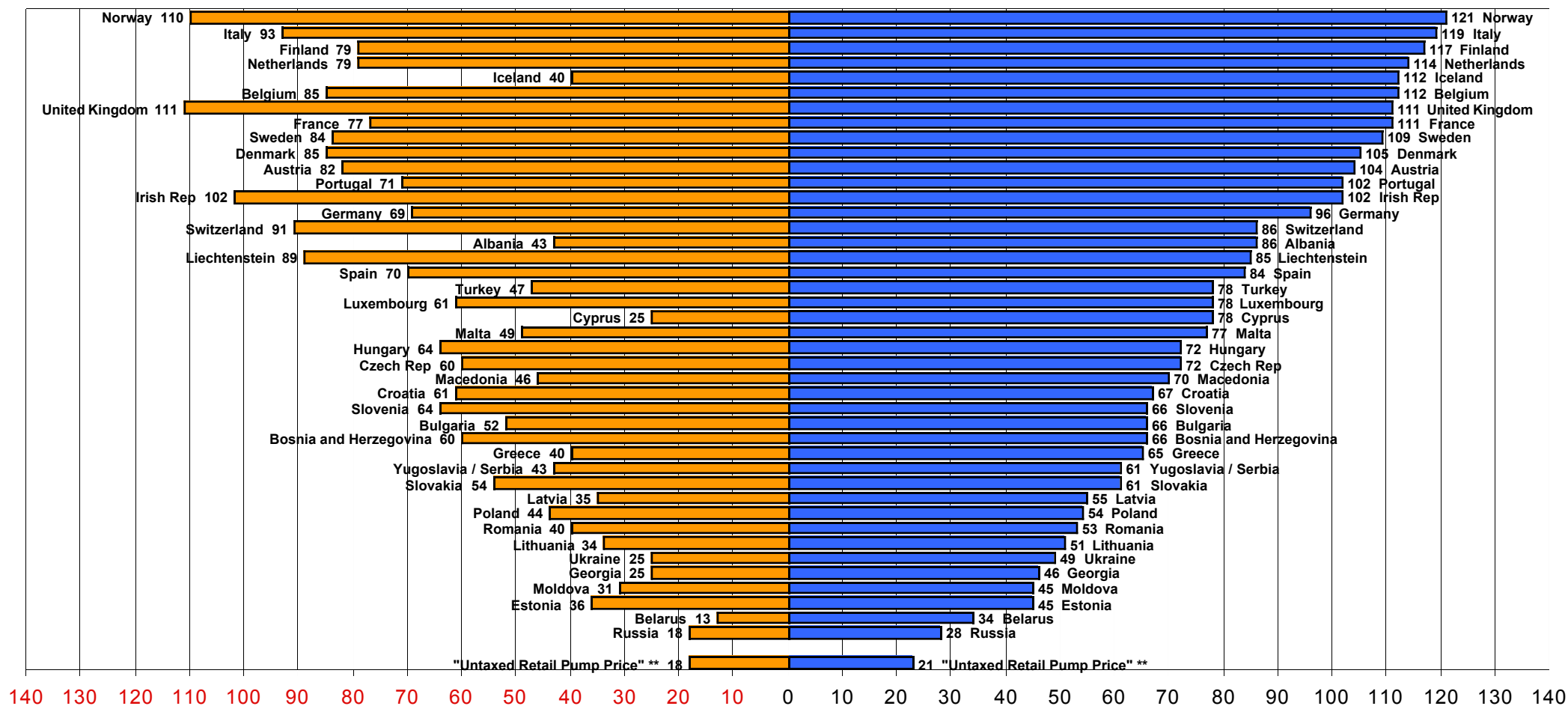


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Fuel Prices as of November 1998 - Europe - Average Consumer Prices at Highway Pump in US Cents per Liter

Diesel

Super Gasoline



Diesel Prices in US Cents per Liter

Super Gasoline Prices in US Cents per Liter



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Source: GTZ Fuel Price Survey 1998 (Dr. Metschies); 1 US\$ = 1,66 DM = 0,85 EURO

*Price for regular gasoline **"Untaxed Retail Pump Price" is a global average price at the highway pump incl. distribution, but excluding fuel tax, VAT etc.



Overview: Global Fuel Prices



World Table of Pump Prices for Super Gasoline and Diesel



Ranking of Diesel and Gasoline Prices for 160 Countries



Conclusions

Global Fuel Prices for 187 Countries

World table of pump prices for super gasoline and diesel [US cents/l], 1991 – 1998

The following table summarizes the fuel prices pertaining to the various continents. It lists 187 countries of the world in alphabetical order and indicates their respective fuel prices in US cents per liter. The local prices have been converted according to the valid exchange rates as of the survey date. The respective source of data and the date of the last survey are noted separately. The basic parameters of the survey data (cf. chapter 3) apply as well to this table.

The fuel prices in the individual states of the USA are not mentioned separately but only summarized in the three categories "average", "low" and "high".

Ranking of Diesel and Gasoline prices for 160 countries as of November 1998

Of the 187 countries listed in the following table, the 160 most important countries (with populations exceeding 1 million) have also been listed, in ascending order of fuel prices, in a diesel/gasoline-price diagram. The diesel price list also shows the "black line", i.e., the untaxed pump price of 18 US cents per liter, while the gasoline price list has its "black line" situated at 21 US cents per liter (cf. Annex 8.5: [Untaxed Retail Pump Price](#)).

Diesel prices: global country rankings (160 countries)

At 111 US cents per liter diesel, the United Kingdom has the highest diesel prices, and at 1 US cents per liter, Iran and Iraq have the lowest.

The diesel diagram plainly indicates four main country categories:

Category 1 (subsidized); these are the oil subsidizing and producing countries in which diesel fuel is available at liter prices situated below the untaxed pump price of 18 US cents per liter (beginning at 1 US cents per liter).

Category 2 (low-taxed US category), i.e., the USA and other countries that pursue a low-price policy, where diesel and gasoline taxes average out to only 10 US cents per liter (pump price: 18 - 31 US cents/liter diesel).

Category 3 (between US and EU), i.e., countries occupying an intermediate range situated between low-taxed and highly taxed price policies (pump prices between 31 and 61 US cents/liter diesel).

Category 4 (highly taxed EU and Japan), i.e., the EU countries, Japan, and other countries in which the per-liter tax on diesel amounts to between 40 and 80 US cents (resulting in pump prices of 61 – 111 US cents/liter diesel).

¹ Details are published on the Internet by the US Federal Department of Highways, Washington D.C.

Gasoline prices: global country rankings (160 countries)

With local pump prices ranging around 136 US cents/liter for gasoline, Hong Kong drivers pay more for gasoline than anyone else in the world – nearly five times as much as in neighboring China. Conversely, Iraq's gasoline price of 1 US cent per liter is the lowest the world.

The gasoline diagram also comprises 4 different country categories:

Category 1 (subsidized); these are the oil subsidizing and producing countries in which gasoline is available at liter prices situated below the untaxed pump price of 21 US cents per liter (beginning at 1 US cents per liter).

Category 2 (low-taxed US category), i.e., the USA and other countries that pursue a low-price policy, where diesel and gasoline taxes average out to only 10 US cents per liter (pump price: 22 - 35 US cents/liter gasoline).

Category 3 (between US and EU), i.e., countries occupying an intermediate range situated between low-taxed and highly taxed price policies (pump prices between 35 and 78 US cents/liter gasoline).

Category 4 (highly taxed EU and Japan), i.e., the EU countries, Japan, and other countries in which the per-liter tax on gasoline amounts to between 60 and 100 US cents (resulting in pump prices of 78 – 136 US cents/liter gasoline).



Conclusions

A given country's assignment to one of the above 4 categories is not dependent on its economic situation (per capita GNP, cf. motorization table in chapter 7). Indeed, the impression is more or less one of arbitrariness, since the highly taxed gasoline category includes countries like Uganda, Sri Lanka, Brazil and the United Arab Emirates, while comparable countries like Ghana, the Philippines, Guyana, Russia and Yemen belong to the low-taxed price group.

Pump Prices for Super Gasoline and Diesel (in US cents per liter) 1991-1998

1

Fuel prices in US cents per liter										
Country	Super gasoline				Diesel				Source & date of 1998 data	
	1991	1993	1995	1998	1991	1993	1995	1998	Source	Date
Afghanistan										
Albania				86				43	gtz	Nov 98
Algeria	15	20	40	31	4	9	23	16	ADAC	Dec 98
Andorra										
Angola				38				19	World Bank	Feb 98
Antigua										
Argentina		79	60	94		29	28	42	Olade	Dec 98
Armenia				49				25	gtz	Nov 98
Australia				46				45	ADAC	Nov 98
Austria			115	104			87	82	ADAC	Nov 98
Azerbaijan				46				22	gtz	Nov 98
Bahamas										
Bahrain				26				18	ADAC	Dec 98
Bangladesh			36	47			31	26	gtz	Nov 98
Barbados				72				62	Olade	Dec 98
Belarus				34				13	World Bank	Jul 98
Belgium			118	112			82	85	ADAC	Nov 98
Belize										
Benin	63	62	36	39	48	47	28	31	gtz	Nov 98
Bhutan*				59				26	gtz	Nov 98
Bolivia		43	38	53		35	31	35	Olade	Dec 98
Bosnia + Herzegovina				66				60	ADAC	Nov 98
Botswana	68	41	38	31	61	37	35	29	gtz	Nov 98
Brazil		53	63	80		38	39	34	Olade	Dec 98
Brunei				34				18	gtz	Feb 99
Bulgaria			46	66			26	52	ADAC	Nov 98
Burkina Faso	103	100	81	68	84	85	62	50	World Bank	Feb 98
Burma*				13				12	gtz	Dec 98
Burundi*	63	59	52	72	61	54	48	66	gtz	Nov 98
Cambodia				47				28	gtz	Nov 98
Cameroon	68	69	68	64	58	58	50	48	gtz	Nov 98
Canada		47	45	41		39	36	39	ADAC	Dec 98
Cape Verde*	68			81	40			43	gtz	Jan 99
Central African Rep.	133	128	82	81	99	98	64	65	gtz	Nov 98
Chad*	105	102	80	70	97	95	70	61	gtz	Nov 98
Chile		43	53	49		31	33	29	Olade	Dec 98
China			27	28			24	25	gtz	Nov 98
Colombia		23	35	24		19	27	20	Olade	Dec 98
Comoros										
Congo (DemRep)	81	74	73	50	73	67	70	50	gtz	April 99
Congo (Rep.)	105			(72)	71			(40)	World Bank	Feb 97
Costa Rica		37	40	41		28	27	28	Olade	Dec 98
Côte d'Ivoire	124	123	83	74	115	86	56	45	gtz	Nov 98
Croatia			75	67			64	61	ADAC	Nov 98
Cuba				50				18	Olade	Dec 98
Cyprus				78				25	ADAC	Nov 98
Czech Rep			85	72			60	60	ADAC	Nov 98
Denmark			108	105			87	85	ADAC	Nov 98
Djibouti Republic	77	61	93	91	38	56	40	40	gtz	Jan 99
Dominica										
Dominican Republic			40	40			28	22	Olade	Dec 98
Ecuador		31	33	38		19	28	24	Olade	Dec 98
Egypt	29	30	29	29	7	9	12	12	gtz	Nov 98
El Salvador				54				30	Olade	Dec 98
Equatorial Guinea										

Sources:

gtz Fuel Price Surveys 1991, 1993, 1995, 1998; ADAC Germany; Olade;
World Bank (all data from last quarter of each year)



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Pump Prices for Super Gasoline and Diesel (in US cents per liter) 1991-1998

2

Fuel prices in US cents per liter										
Country	Super gasoline				Diesel				Source & date of 1998 data	
	1991	1993	1995	1998	1991	1993	1995	1998	Source	Date
Eritrea*		50	40	37		29	19	23	Germ. Emb.	Jan 99
Estonia			33	45			33	36	ADAC	Nov 98
Ethiopia*	27	26	32	36	14	19	24	25	gtz	Nov 98
Fiji Is*				50				37	gtz	Jan 99
Finland			120	117			85	79	ADAC	Nov 98
France			117	111			78	77	ADAC	Nov 98
Gabon	118	116		63	83	70		39	gtz	Nov 98
Gambia	73	67		83	52	48		63	gtz	Nov 98
Georgia				46				25	ADAC	Dec 98
Germany			112	96			77	69	ADAC	Nov 98
Ghana	53	53	38	32	43	45	33	30	gtz	Nov 98
Greece			88	65			59	40	ADAC	Nov 98
Grenada				54				41	Olade	Dec 98
Guatemala		32	39	41		25	28	32	Olade	Dec 98
Guinea*	67	61		68	61	56		56	gtz	Nov 98
Guinea-Bissau	30	27			61	56				
Guyana				30				27	Olade	Dec 98
Haiti				59				36	Olade	Dec 98
Honduras		41	35	50		26	25	30	Olade	Dec 98
Hong Kong			119	136			74	85	ADAC	Dec 98
Hungary			74	72			65	64	ADAC	Nov 98
Iceland				112				40	ADAC	Nov 98
India			48	56			19	21	ADAC	Dec 98
Indonesia			44	16			20	7	gtz	Nov 98
Iran				(8)				(1)	World Bank	Feb 97
Iraq				1				1	gtz	Nov 98
Irish Rep			96	102			87	102	ADAC	Nov 98
Israel			73	86			31	31	ADAC	Dec 98
Italy			118	119			86	93	ADAC	Nov 98
Jamaica				37				33	Olade	Dec 98
Japan			125	102			75	69	ADAC	Nov 98
Jordan			40	42			15	15	gtz	Nov 98
Kazakhstan				30				24	gtz	Nov 98
Kenya	53	40	56	70	37	33	43	54	gtz	Nov 98
Kiribati										
Korea North*				73				41	Swed. Emb.	Feb 99
Korea South			79	(93)			33	(41)	World Bank	May 97
Kuwait				17				13	gtz	Dec 98
Kyrgyzstan				47				27	World Bank	Feb 98
Laos				31				24	World Bank	Jun 98
Latvia			41	55			34	35	ADAC	Nov 98
Lebanon				35				22	gtz	Nov 98
Lesotho				39				38	World Bank	Jun 98
Liberia										
Libya*				22				17	ADAC	Dec 98
Liechtenstein				85				89	ADAC	Nov 98
Lithuania			35	51			30	34	ADAC	Nov 98
Luxembourg			84	78			68	61	ADAC	Nov 98
Macau				74				51	gtz	Feb 99
Macedonia			93	70			59	46	ADAC	Nov 98
Madagascar	43	54	47	47	25	31	32	33	gtz	Nov 98
Malawi	64	71	65	51	56	67	55	45	gtz	Dec 98
Malaysia			42	28			26	17	gtz	Nov 98
Maledive Is										
Mali Rep	112	114	82	77	74	74	57	48	gtz	Nov 98

Sources:

gtz Fuel Price Surveys 1991, 1993, 1995, 1998; ADAC Germany; Olade;
World Bank (all data from last quarter of each year)



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Sources:



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Pump Prices for Super Gasoline and Diesel (in US cents per liter) 1991-1998

4

Fuel prices in US cents per liter										
Country	Super gasoline				Diesel				Source & date of 1998 data	
	1991	1993	1995	1998	1991	1993	1995	1998	Source	Date
Tanzania*	42	43	56	63	25	30	44	57	gtz	Nov 98
Thailand			34	30			30	27	gtz	Nov 98
Togo Rep	81	72	47	42	66	63	40	37	gtz	Nov 98
Trinidad and Tobago				39				20	Olade	Dec 98
Tunesia	58	52	64	60	33	31	44	33	gtz	Nov 98
Turkey			56	78			37	47	ADAC	Nov 98
Turkmenistan				9				5	Germ. Emb.	Jan 99
U A E				105				67	ADAC	Dec 98
Uganda	69	79	98	86	55	71	85	68	gtz	Nov 98
Ukraine				49				25	ADAC	Dec 98
United Kingdom			92	111			85	111	ADAC	Nov 98
United St. (average)		32	34	32		28	33	27	gtz	Nov 98
United States (low)				30				26	gtz	Nov 98
United States (high)				35				31	gtz	Nov 98
Uruguay			89	90			38	42	Olade	Dec 98
Uzbekistan			32	11			31	9	gtz	Dec 98
Vanuatu										
Vatican										
Venezuela			3	14			1	8	Olade	Dec 98
Vietnam			34	35			25	26	World Bank	Jun 98
Yemen*				26				7	gtz	Nov 98
Yugoslavia / Serbia			(76)	61			(84)	43	ADAC	Nov 98
Zambia*	40	72	60	53	24	66	57	49	gtz	Nov 98
Zimbabwe*	68	47	38	26	37	28	29	22	gtz	Nov 98

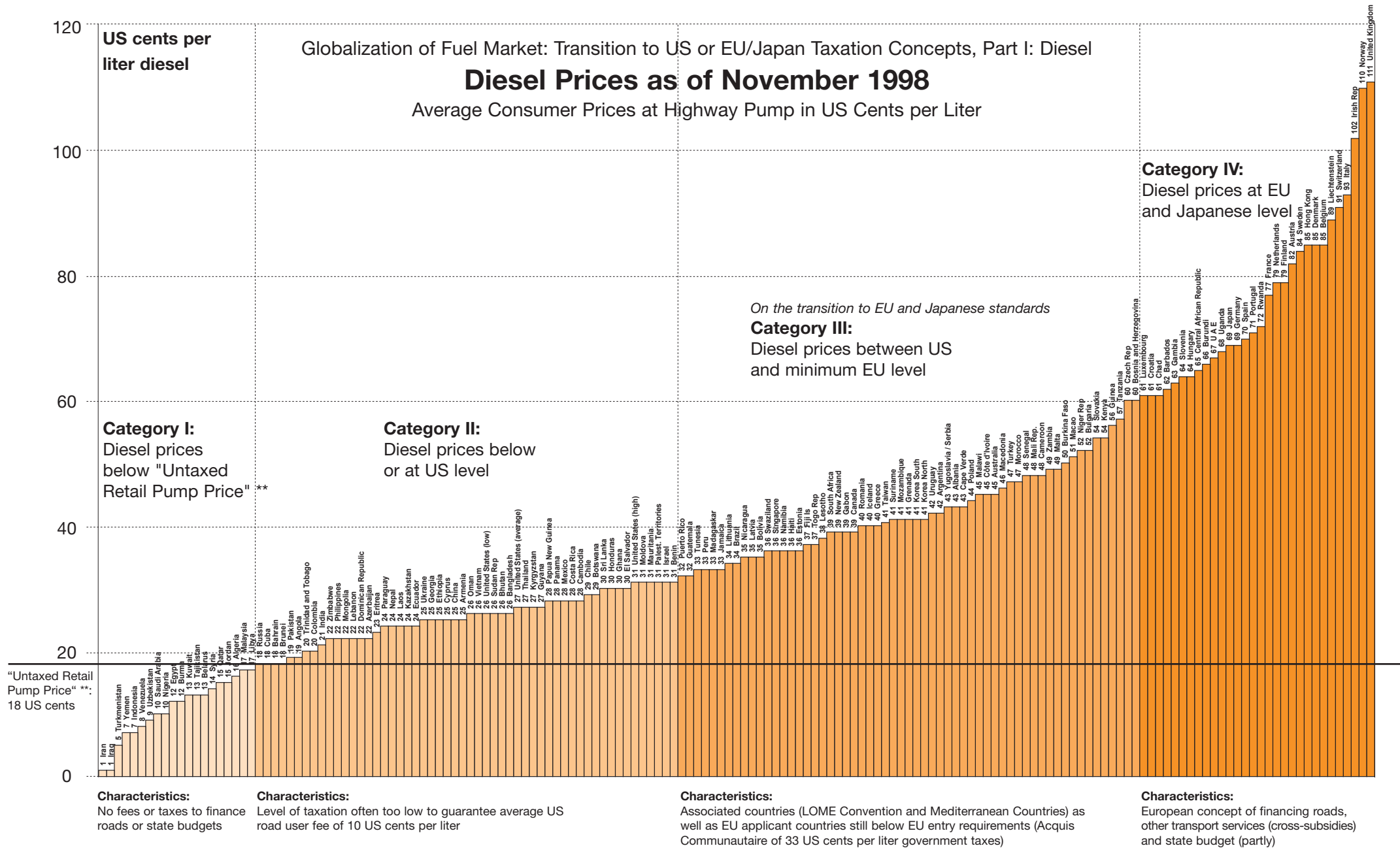
* 1998 price for regular gasoline

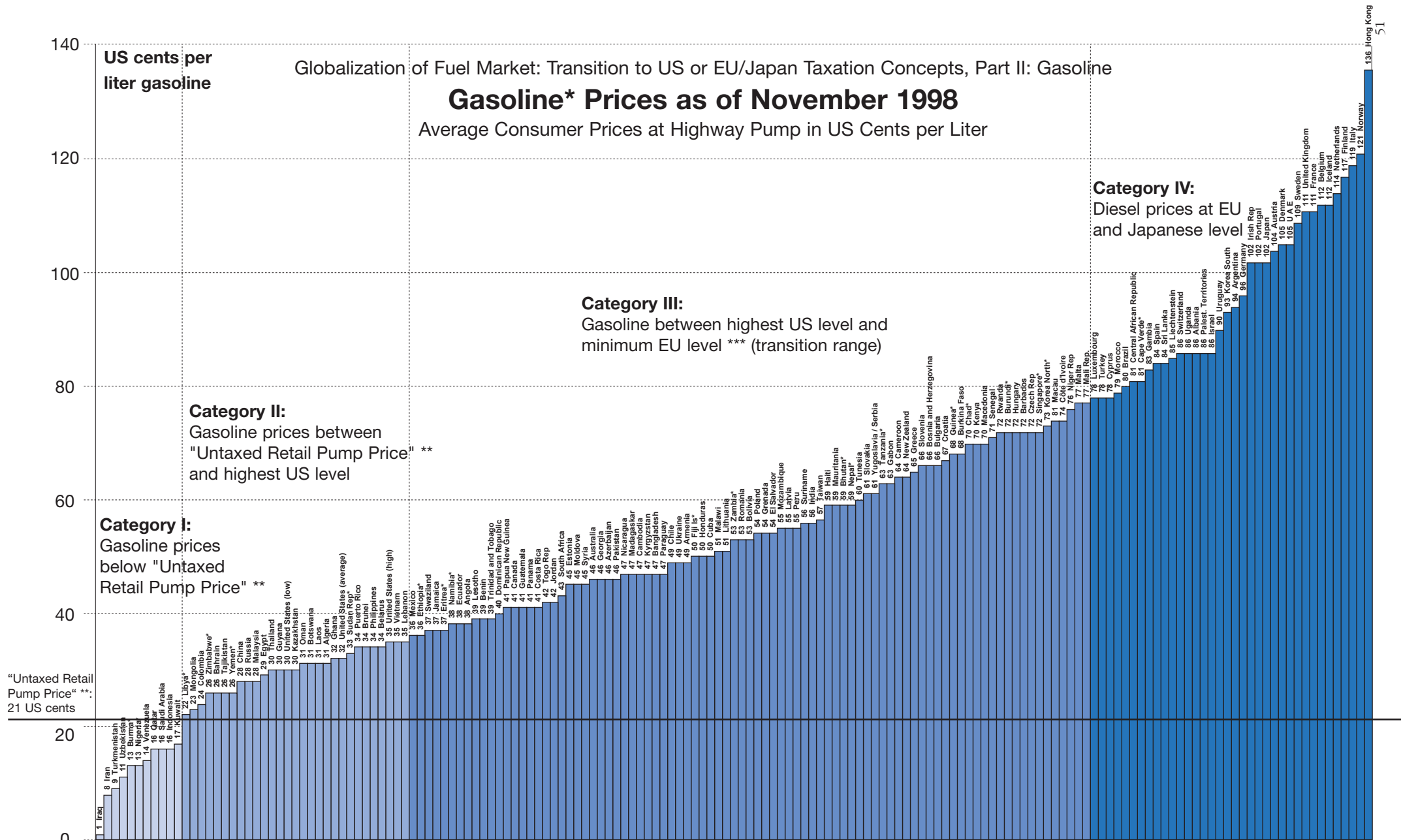
Sources:

gtz Fuel Price Surveys 1991, 1993, 1995, 1998; ADAC Germany; Olade;
World Bank (all data from last quarter of each year)



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* In most cases the prices given refer to super gasoline. Only in those countries marked with * the quality is "regular".

** The "Untaxed Retail Pump Price" is a hypothetical reference retail pump price for super gasoline including distribution and VAT but excluding fuel tax.

*** According to the agreed upon EU minimum taxation ("Acquis Communautaire"). NOTE: Greece is still below EU standard.

Country Table: Prices in Local Currency (November 1998)

1

Country	Currency	1 US \$ =	Fuel prices in local currency				
			Gasoline [a]	Super [b]	Unlead. [c]	Mainly used	Diesel
Afghanistan	Afghani	4750.0000					
Albania	Lek	139.7500	80	120	110	b	60
Algeria	Dinar	58.6815					
Andorra							
Angola	Readje Kwanza	257128.0000					
Antigua		2.7000					
Argentina	Peso	0.9995					
Armenia	Drum	509.3800	175	250		a	125
Australia	Australian \$	1.5779					
Austria	Shilling	11.6949					
Azerbaijan	Manat	3950.0000	1600	1800	1850	a	850
Bahamas	Bahama \$	1.0000					
Bahrain	Dinar	0.3770					
Bangladesh	Taka	48.5000	21	23			12.6
Barbados	Barb \$	2.0113					
Belarus	Rouble	278000.0000					
Belgium	Belg. Fr.	34.2900					
Belize	B. \$	2.0000					
Benin	CFA Fr	557.3600	195	220		b	175
Bhutan	Ngrultrum	42.3000	25			a	11
Bolivia	Boliviano	5.6100					
Bosnia and Herzegovina							
Botswana	Pula	4.3206		1.32	1.29	b	1.25
Brazil	Real	1.1881					
Brunei	Brunei \$	1.6375					
Bulgaria	Lev	1656.8000					
Burkina Faso	CFA Fr	557.3600					
Burma/Myanmar	Kyat	305.0000	39.65				35.24
Burundi	Burundi Fr	485.0010	350				320
Cambodia	Riel	3870.0000					
Cameroon	CFA Fr	557.3600		357			269
Canada	Canadian \$	1.5295					
Cape Verde	CV Escudo	99.6850					
Central African Republic	CFA Fr	557.3600	450	450		b	360
Chad	CFA Fr	557.3600	390			a	340
Chile	Chilean Peso	462.7000					
China	Renmimbi	8.2779	2.1	2.3	2.5	b	2.1
Colombia	Col Peso	1549.7500					
Comoros	Fr	417.4880					
Congo (DemRep)	Zaire	137500.0000					
Congo (Rep.)	CFA Fr	557.3600					
Costa Rica	Colon	266.7000					
Côte d'Ivoire	CFA Fr	557.3600	370	410			250
Croatia	Kuna	6.2028					
Cuba	Cuban Peso	23.0000					
Cyprus	Cyprus Pound	0.4930					
Czech Rep	Koruna	29.2345					
Denmark	Danish Crown	6.3195					
Djibouti Republic	Djib. Fr	177.7200					
Dominica	E Carib \$	2.7000					
Dominican Republic	D Peso	15.8000					
Ecuador	Sucre	6625.0000					
Egypt	Egyptian Pound	3.4045	0.9	1		b	0.4
El Salvador	Colon	8.7550					
Equatorial Guinea	CFA Fr	557.3600					
Eritrea							
Estonia	Kroon	13.2948					
Ethiopia	Ethiopian Birr	6.9880	2.5			a	1.76
Fiji Is	Fiji \$	1.9608	0.99			a	0.72
Finland	Markka	5.0540					
France	FF	5.5736					
Gabon	CFA Fr	557.3600		350			215
Gambia	Dalasi	10.2500		8.5		b	6.5
Georgia							
Germany	DM	1.6623					
Ghana	Cedi	2335.0000		744			711

*) Exchange rates according to Financial Times, 6.11.1998

Sources:

gtz Fuel Price Surveys 1991, 1993, 1995, 1998; ADAC Germany; Olade;
World Bank (all data from last quarter of each year)



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Country Table: Prices in Local Currency (November 1998)

2

Exchange rate*			Fuel prices in local currency				
Country	Currency	1 US \$ =	Gasoline [a]	Super [b]	Unlead. [c]	Mainly used	Diesel
Greece	Drachma	278.6350					
Grenada	E Carib \$	2.7000					
Guatemala	Quezna	6.5968					
Guinea	Fr	1243.0000	850			a	700
Guinea-Bissau	CFA Fr	557.3600					
Guyana	Guyanese \$	149.3000					
Haiti	Gourde	16.5850					
Honduras	Lempira	13.7750					
Hong Kong	HK \$	7.7427					
Hungary	Florint	214.4700					
Iceland	Icelandic Krona	69.2400					
India	Indian Rupee	42.3000					
Indonesia	Rupiah	8300.0000	1000	1300	1400	c	550
Iran	Rial	3000.0000					
Iraq	Iraqi Dinar	1750.0000	10	25		b	
Irish Rep	Irish Punt	0.6679					
Israel	Shekel	4.3197					
Italy	Lira	1644.0100					
Jamaica	Jamaican \$	35.7500					
Japan	Yen	118.3100					
Jordan	Jordanian Dinar	0.7115	0.221	0.301	0.351	a	0.106
Kazakhstan	Tenge	82.5000	20	25	30	c	20
Kenya	Kenya Shilling	59.6000	38	42			32
Kiribati	Australian \$	1.5779					
Korea North	Won	2.2000					
Korea South	Won	1311.5000					
Kuwait	Kuwait Dinar	0.3021	0.04	0.05		a	0.04
Kyrgyzstan							
Laos	New Kip	3682.0000					
Latvia	Lats	0.5759					
Lebanon	Lebanese Pound	1502.0000	500	525	525	b/c	325
Lesotho	Maluti	5.4850					
Liberia	Liberian \$	1.0000					
Libya	Libyan Dinar	0.3857					
Liechtenstein	Swiss Fr	1.3672					
Lithuania	Litas	4.0010					
Luxembourg	Lux Fr	34.2900					
Macau							
Macedonia	Denar	51.5937					
Madagascar	MG Fr	5115.0000	2090	2380		a	1700
Malawi	Kwacha	44.9750					
Malaysia	Ringgit	3.8000		1.06	1.1	c	0.651
Maldiv Is	Rufiya	11.7700					
Mali Rep.	CFA Fr	557.3600	370	430		a	270
Malta	Maltese Lira	0.3764					
Marshall Is							
Mauritania	Ouguiya	203.0550	115.1	120		a	63.6
Mauritius	Maur Rupee	24.7750					
Mexico	Mexican Peso	9.9890					
Mikronesia							
Moldova	Leu	8.7000					
Monaco	FF	5.5736					
Mongolia	Tugrik	840.5600	169	190		b	189
Morocco	Dirham	9.2418	7.07	7.34	7.34	b	4.37
Mozambique	Metical	11495.0000					
Namibia	SA Rand	5.4850	2.06		2.11	a	1.96
Nauru Is	Australian \$	1.5779					
Nepal	Nepalese Rupee	68.3300	40		40	a	16.5
Netherlands	Guilder	1.8745					
New Zealand	NZ \$	1.8561					
Nicaragua	Gold Cordoba	11.0000					
Niger Rep	CFA Fr	557.3600	340	425		a	290
Nigeria	Naira	86.5000	11				9
Norway	Nor. Krone	7.3825					
Oman	Rial Omani	0.3850	0.112	0.118		b	0.1
Pakistan	Pakist. Rupee	51.6575	22.25	23.73	25.92	b	9.75

*) Exchange rates according to Financial Times, 6.11.1998

Sources:

gtz Fuel Price Surveys 1991, 1993, 1995, 1998; ADAC Germany; Olade;
World Bank (all data from last quarter of each year)



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Country Table: Prices in Local Currency (November 1998)

3

Country	Currency	1 US \$ =	Fuel prices in local currency				
			Gasoline [a]	Super [b]	Unlead. [c]	Mainly used	Diesel
Panama	Balboa	1.0000					
Papua New Guinea	Kina	2.1414		0.887		b	0.6
Paraguay	Guarani	2825.0000					
Peru	New Sol	3.0790					
Philippines	Peso	29.9250					
Poland	Zloty	3.4225					
Portugal	Escudo	170.4150					
Puerto Rico	US \$	1.0000					
Qatar	Riyal	3.6405	0.55	0.6		a	0.55
Romania	Leu	9850.0000					
Russia	Roubel	15.9500	4	4.5	5	a	2.9
Rwanda	Fr	317.9800		230		b	230
San Marino	Ital. Lira	1644.0100					
Sao Tomé	Dobra	2390.0000					
Saudi Arabia	Riyal	3.7504	0.6	0.6		a	0.37
Senegal	CFA Fr	557.3600					
Sierra Leone	Leone	1850.0000					
Singapore	\$	1.6375					
Slovakia	Koruna	35.6260					
Slovenia	Tolar	159.8210					
Somali Rep	Shilling	2620.0000					
South Africa	Rand	5.4850		2.36	2.32	b	2.15
Spain	Peseta	141.3400					
Sri Lanka	Rupee	67.2700					
Sudan Rep	Dinar						
Suriname	Guilder	401.0000					
Swaziland	Lilangeni	5.4850	1.99	2.05	1.99	b	1.95
Sweden	Krona	7.8085					
Switzerland	Fr	1.3672					
Syria	Pound	45.0000	20.3	20.4	21	b	6.3
Taiwan	\$	32.5135					
Tajikistan	Tenge		230	250		a	100
Tanzania	Shilling	665.5000	420				380
Thailand	Baht	36.6350	10.27	11.15	-	b	9.85
Togo Rep	CFA Fr	557.3600	230	235		b	205
Trinidad / Tobago	\$	6.2450					
Tunesia	Dinar	1.0850	0.655	0.655	0.655	b	0.357
Turkey	Lira	291550.0000					
Turkmenistan							
U A E	Dirham	3.6729					
Uganda	New Shilling	1332.0000		1150		b	910
Ukraine	Hryvna	3.8100					
United Kingdom	Pound	0.6015					
United States (average)	US \$	1.0000					
United States (low)							
United States (high)							
Uruguay	Peso Uruguayo	10.6750					
Uzbekistan	Sum	440.0000	38	50	70	b	38
Vanuatu	Vatu	128.4200					
Vatican	Lira	1644.0100					
Venezuela	Bolivar	568.9750					
Vietnam	Dong	13899.0000					
Yemen	Rial	136.6600	35			a	10
Yugoslavia / Serbia							
Zambia	Kwacha	2145.0000	1141			a	1058
Zimbabwe	\$	37.4000	9.67		9.67	a	8.1

*) Exchange rates according to Financial Times, 6.11.1998

Sources:

gtz Fuel Price Surveys 1991, 1993, 1995, 1998; ADAC Germany; Olade;
World Bank (all data from last quarter of each year)



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- **Fuel Subsidy Policies**
- **Country-specific Fuel Subsidies**
- **Transport Sector Policy and Fuel Prices**
- **Problems Arising from Fuel-price Increases**
 - **Box: “Dozens die in price rise protests”**
- **Fuel Prices and Purchasing Power**
 - **Box: The “Egg Index”**

Fuel Subsidy Policies

While fuel taxation is taken for granted in industrialized countries, there are still a number of countries – primarily developing countries and former Eastern Bloc states – that pursue just the opposite policy, namely to subsidize the price of fuel.

"Let us not overlook the fact that developing countries are subsidizing energy at the rate of US \$ 230 billion per year. That is more than five times the current total of development assistance payments from North to South."¹

Such a – false – political decision in favor of general subsidization of fuels applies not only to the transportation sector (including the relevant fuels) but also to the energy sector per se (including power generation based mainly on diesel generators), and often even extends across a country's infrastructure, including agriculture (fuel for pumps, tractors, fishing boats, etc.).

Consequently, any change in such a country's policy of fuel subsidization often would have to be regarded as only one, if crucial, component of an overall shift in economic policy, or at least in the respective sector policy. Among developing countries, this often yields what is referred to as structural adjustment or, in erstwhile Eastern Bloc countries, a transition policy.

Country-specific Fuel Subsidies

In the present context, the term "fuel subsidies" is understood as the sum total of all official measures, which

- in the case of direct subsidization, make the fuel's pump price cheaper in comparison with a normal industrial good, or
- in the case of indirect subsidization via lower-cost domestic fuel production, make the pump price of the fuel cheaper in comparison with countries that have to depend on the world market.

¹ I. Serageldin, World Bank vice-president for environmentally sustainable development, in "Public Transport International", UITP – Brussels 2/1993, special issue, p. 30

The Global Ranking List of Diesel-subsidizing Countries:

Subsidy ranking among 160 countries	Name of country	Untaxed diesel price (US cents/liter)	Note
1	Iraq	1	Self-producer
2	Iran	1	Self-producer
3	Turkmenistan	5	Self-producer
4	Indonesia	7	Partly self-producer
5	Yemen	7	
6	Venezuela	8	Self-producer
7	Uzbekistan	9	Self-producer
8	Nigeria	10	Self-producer
9	Saudi Arabia	10	Self-producer
10	Burma/Myanmar	12	
11	Egypt	12	Self-producer
12	Belarus	13	
13	Tajikistan	13	
14	Kuwait	13	Self-producer
15	Syria	14	
16	Jordan	15	
17	Qatar	15	Self-producer
18	Algeria	16	Self-producer
19	Libya	17	Self-producer
20	Malaysia	17	
21	Brunei	18	Self-producer
22	Bahrain	18	Self-producer
23	Cuba	18	
24	Russia	18	Self-producer
25	Angola	19	Self-producer
26	Pakistan	19	
27	Colombia	20	Self-producer
28	Trinidad	20	Self-producer
By comparison:	India	21	
	China	25	
	USA (average)	27	Self-producer
	Japan	69	
	United Kingdom	111	Self-producer

The above ranking list was drawn up in comparison with the "untaxed retail pump price", which, together with a normal sales tax (VAT), would amount to between 18 and 21 US cents per liter diesel (cf. [Annex](#)).

■ Transport Sector Policy and Fuel Prices

There can be no doubt that a sound transport policy – as advocated by most bilateral and multilateral donors and banks – requires a sector policy which essentially comprises the following major steps:

- firstly, the elimination of fuel subsidies,
- secondly, taxation of transport fuels to cover road maintenance and road construction costs all over the country (often amounting to 10 US cents/liter of diesel and gasoline) and
- thirdly, further taxation to balance the entirety of transport sector expenditures (including railways and public transport)

Additionally, in the case of private passenger vehicles, many developing countries levy additional luxury taxes on gasoline prices to cover other government expenses.

These basic principles of national fuel-price policy constitute a major issue in the discussion about WTO (World Trade Organization) membership for developing countries. In the case of applications for EU (European Union) membership, the so-called *acquis communautaire* is applied. This requires that the country in question levy a minimum tax on diesel fuel such as to at least equal the lowest existing pump price in core-EU countries (i.e., Luxembourg).

■ Problems Arising from Fuel-price Increases

Fuel prices must be increased from time to time for the following two reasons:

- to compensate for the gradual "relative adjustment" to often quite considerable national inflation levels and/or as a direct result of local currency devaluation;
- to effect "structural price increases", e.g., in the new EU applicant countries, because a higher price level is targeted for the long term.

In developing countries, however, such price rises are frequently implemented in an unprofessional manner. After months or years of official passivity, all the incremental price hikes that should have been instituted in the past are suddenly lumped together and demanded of an unprepared population all at once.

Numerous past examples document how such irresponsible behavior on the part of governments can lead to riots and bloody conflicts – up to and including the government's own overthrow.

In some cases, such as in **Indonesia** and **Zimbabwe** in 1998, popular discontent has forced the state to rescind such price hikes.

Press report on fuel-price riots in Yemen:

Dozens die in price-rise protests

Some 34 people were killed and 102 injured in violence following recent increases in the price of fuel and food, the official news agency SABA reported on 30 June. Exiled Yemeni opposition sources claimed that up to 100 people had died in protests across the country since 19 June when the government announced the price rises.

At least 13 soldiers were reported to have been killed in fighting on 26 June when troops tried to open the Sanaa-Marib road, which had been blocked by tribesmen. U.S.-based Hunt Oil, which operates in the area, said on 29 June its oil pipeline from Marib to the Red Sea coast had been punctured by bullets causing two small leaks but was still operational. "Company officials noted the pipeline punctures are occurring in protest against IMF and World Bank reforms ending subsidies on fuel prices and some foods," it said. An oil ministry official says exports are proceeding normally. In the southern port city of Al-Mukalla, thousands of Yemenis were reported to have marched in a peaceful demonstration on 30 June, urging President Ali Abdullah Saleh to scrap the price reforms.

Prime Minister Abdulkarim al-Iryani told parliament that the government would stick to its decision to raise fuel, flour and basic food prices by up to 40 percent but would not increase fuel prices again until 2003. (Middle East Economic Digest, 3.7.98).

It is of particular interest to note that such revolts in opposition to fuel-price rises are always triggered by the relative increase (often 30 % or more), while the absolute increase (frequently only a few cents being added to "dirt cheap" fuel prices) plays practically no role at all.

This applies especially to **Nigeria** where fuel-price increases have repeatedly led to rioting, even though fuel had already become – viewed objectively – cheaper than drinking water.

When **Ghana** discarded its traditional cheap-fuel policy in the 1980s, and fuel prices nearly tripled within a relatively short time, the country got into big trouble. The only way to remedy the situation was for the government to temporarily interrupt the country's supply of fuel. Immediately, black-market traders from neighboring countries began selling fuel at four times the previous price level. After about four weeks, the government resumed its official imports, thus forcing the black-market price down by about one-half. This found the approval of the public at large, and the end result of the politically risky maneuver was that fuel cost twice as much as it did before.

The following logical consequence can be drawn from the above:

Whether for inflation-related or structural reasons, the dictates of mass psychology stipulate that **no fuel price increase should exceed more than 10 % of the fuel's pump price.**

Instead, long-term price strategies based on numerous regular but modest price increases are to be recommended.

One fuel price adjustment policy that has been politically quite successful was instituted in January 1996 by the **14 countries of the CFA Franc Zone in Western and Central Africa** (extending from Senegal across Cote d'Ivoire to Cameroon and the Central African Republic). Although that organization's currency was slashed in value by about 50 % practically overnight, the fuel prices were adjusted to the new exchange rate in a step-by-step manner.

Fuel Prices and Purchasing Power

Undoubtedly, in the macroeconomic sense, such imported goods as motor vehicles and fuels, even the streets and roads in some countries) due to their 75 % foreign-currency share of the overall cost) should be calculated on a foreign-exchange, i.e., US \$, basis because that is how the importer or the government has to render payment.

For the country's political leaders, however, it is important to know that local consumers the world over do not care about the world market; what they care about is their own purchasing power on the home market.

Thus, governments should not only be aware of price levels in neighboring countries, they should also heed the arguments of a protesting populace, i.e., the usual, popular "purchasing power argumentation". As such, in a cheap-fuel country like Nigeria, public debate according to the motto "once again, our fuel is cheaper than Coca Cola, which is little more than water" can be regarded as locally appropriate.

Purchasing-power indices are always relative by nature, and the public must be carefully prepared for any increase in fuel prices, particularly in the case of structural price changes in the aforementioned subsidizing countries.

General purchasing-power statistics like those published by the United Nations are of little help because they are not readily adaptable, and their genesis is practically impossible to investigate.

For the purposes of this publication, then, a universally obtainable, non-subsidized, locally produced and sold commodity was chosen as the benchmark criterion: a hen's egg (large, grade A).

Subjective assessment of fuel prices (according to purchasing power or "egg index")

The **"egg index" for calculating the purchasing-power value of fuels** is designed especially for application in developing and emerging countries where people do not tend to think in terms of world-market prices. Moreover, a country's own domestic currency may not serve reliably as a yardstick, and the people traditionally calculate and reflect in terms of farm-produce prices.

The price to be paid for a chicken's egg is particularly well-suited for use in the conduct of market-oriented price comparisons, because it is practically never state-regulated¹ and usually fully independent of extraneous factors, i.e., it is a strictly local price with no dependence on imports.

This applies as well to "development-assistance-relevant" donor countries within the EU (cf. category 4, above), where eggs cost about 20 US cents apiece.

Thus, the cost of fuel, converted into "egg quantities" on the basis of the global fuel price survey with its various country categories, breaks down as follows for the countries covered by the table below:

¹ With the exception of China which is presently in a state of transition.

Category	Country	Price of diesel [US cents/liter]	Price of gasoline [US cents/liter]	Price of eggs [US cents/egg]	Cost of diesel [eggs/liter]	Cost of gasoline [eggs/liter]
4 European Union high taxation of fuel	Luxembourg	61	78	20	3.1	3.9
	Germany	69	96	20	3.5	4.8
	Italy	93	119	20	4.7	6.0
	England	111	111	20	5.6	5.6
3 medium taxation of fuel	Tanzania	57	63	15	3.8	4.2
	Malawi	45	51	8	5.6	6.4
	Madagascar	33	47	12	2.8	3.9
	Macao	51	74	13	3.9	5.7
	North Korea	41	73	10	4.1	7.3
2 low fuel taxation	Ethiopia	25	36	7	3.6	5.1
	Ghana	30	32	13	2.3	2.5
	China ¹	25	28	(4 -) 12	(5.8 -) 2.1	(6.5 -) 2.3
	USA ²	27	32	12	2.3	2.7
1 subsidizing and oil-producing countries	Turkmenistan	5	9	14	0.4	0.6
	Indonesia ³	7	16	6	1.2	2.8
	Saudi Arabia	10	16	13	0.8	1.2

¹ Free price formation, with eggs costing more in supermarkets.

² Note: 1 US gallon = 3.785 liters

³ Eggs of average size

The results of purchasing-power comparison can therefore be summarized as follows:

- In Europe, diesel fuel costs via purchasing-power comparison 3 - 5 large chicken eggs per liter (average: 4 eggs); and gasoline costs 4 - 6 eggs per liter (average 5 eggs). That price is generally regarded as reasonable, social and just.
- In subsidizing and oil-producing countries (e.g., Turkmenistan, Indonesia and Saudi Arabia), diesel fuel in particular is likely to cost only one-quarter or even one-eighth as much (read: 1 or even 1/2 chicken egg). Such artificially low fuel prices are rightfully unlikely to find much understanding/acceptance in the international arena.
- In countries with low fuel taxes (e.g., Ghana, China and the USA) purchasing-power comparisons often yield similar results. Here, too, gasoline and diesel cost only about half as much as they do in Europe, namely ca. 2 1/2 chicken eggs. Thus, in case of economic difficulties in such countries, e.g., if the government were to be strapped for funds for road construction and maintenance, railroad rehabilitation, etc., there would still be substantial leeway for reasonable price hikes.
- In terms of purchasing-power units, the justifiability of fuel-price increases in countries with medium fuel taxation needs to be investigated on a case-by-case basis.

 General Taxation of Petroleum Products **Importance of Fuel Taxation for Overall State Revenues** **Potential State Revenues from Fuel Taxation (in million US \$)**

- Motorization
- Mileage and consumption
- Estimates for fuel tax revenues

 State Expenditures out of Fuel Taxes **Problems and Outlook**

- Loss of revenue through fuel smuggling
- Outlook on fuel taxation and resource bases

General Taxation of Petroleum Products

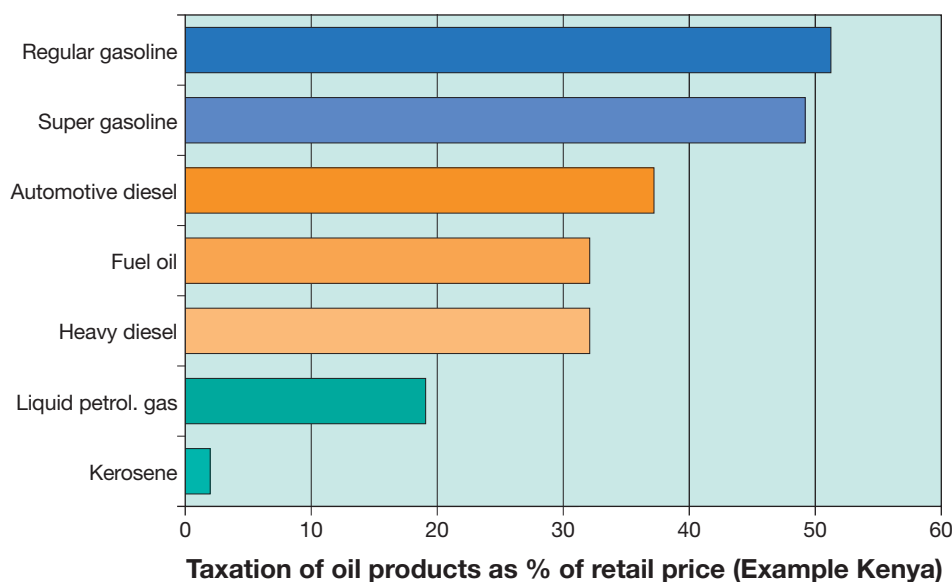
If the general economic policy is to avoid subsidization of fuels and to consider oil products as commercial goods, as outlined in chp. 5.1 - 5.3, the positive aspects of revenue and expenditures management by the state will require more detailed investigation.

The taxation of petroleum products affects 3 major sectors:

- the transport sector (mainly road, rail and air transport),
- the energy sector (mainly electricity production) and
- the household sector (in developing countries mainly the cooking of meals with kerosene)

It is general practice to differentiate the tax percentages on petroleum products according to their end uses, as exemplified for Kenya below:

Proportional share of taxation in retail prices of petroleum products in Nairobi, Kenya:



Source:

Bereket Kebede: "Petroleum Pricing and Taxation: The Case of Ethiopia, Kenya and Malawi", in: Afrepren: African Energy Policy Research Network, Newsletter No.21, September 1997, pp. 1-3

The taxation of oil products as percentages of retail prices, as illustrated above for Nairobi, may be regarded as a typical example of customary fuel taxation practice. The heaviest taxes are attached to regular and premium gasoline which, like non-commercial passenger vehicles, are often regarded as luxury goods.

Automotive diesel is taxed less severely because of its importance in mining and agriculture as well as for goods transportation by truck.

Fuel oil, heavy diesel, and especially LPG serve primarily in the generation of electricity and for driving industrial processes.

Kerosene, which is used mainly by lower income groups, frequently remains untaxed, both for social reasons and to help prevent massive deforestation.

The main statement of the above diagram is to delimit the ranking of taxation on petroleum products, i.e.:

- Of all fuels, transport fuels carry the highest taxation,
- industrial fuels are taxed less,
- cooking energy may be tax-exempt or even subsidized.

There is, in fact, a general rule of thumb, according to which the taxation of transport fuels – like regular and super gasoline in the above Kenyan case – generally paves the way for taxation of fuels and energy in other sectors as well.

The size of the fuel-consuming sectors and the structure of ultimate energy consumption may vary from country to country, but OLADE¹ has calculated the following average shares for Latin America as a whole:

- 31.6 % for transportation
- 33.4 % for industry
- 35.0 % for residential and other purposes.

Importance of Fuel Taxation for Overall State Revenues

Within the highly sophisticated tax systems of industrialized countries, fuel taxes play an increasingly important role.

In developing countries, collection of income taxes and sales taxes as the main sources of state revenue is quite difficult and much in arrears.

Thus, in sub-Saharan Africa the fuel tax on petroleum products accounts for **35 % of the government's total tax revenues** for 1990.²

In some cases, the tax on fuel may even become the single most important tax.

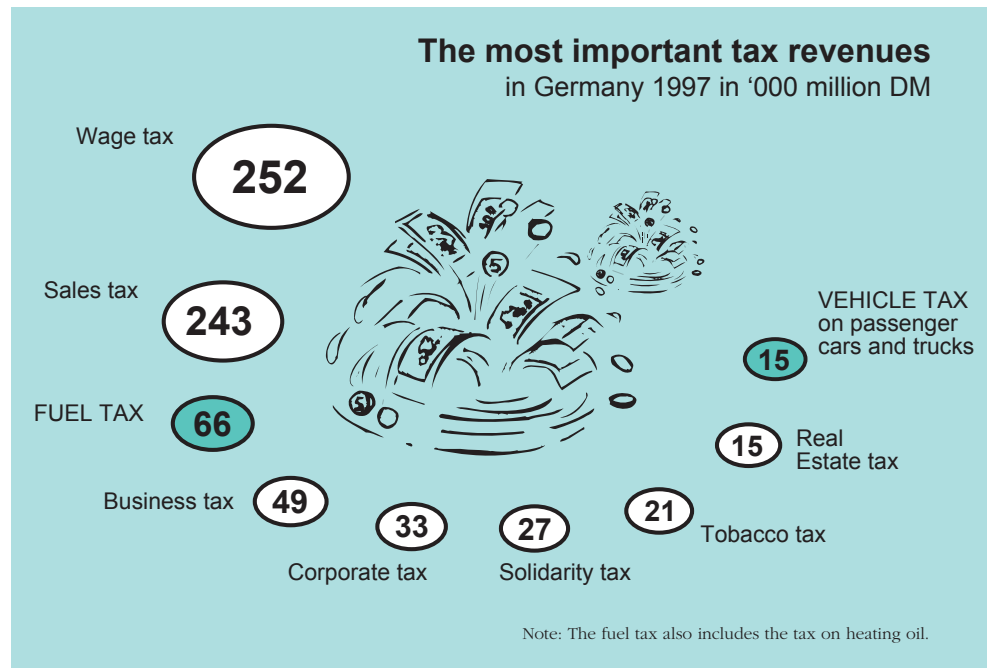
This holds true in countries where civil war has broken out and the governmental organization, including collection of income and sales taxes, has broken down. In such a situation, the fuel tax can easily – or "automatically" – be collected by the oil companies and remitted to the government along with additional collection charges.

In countries like Lesotho, Swaziland, Namibia and the emerging state of The West Bank and Gaza, fuel tax transfers from the respective customs union (of South Africa or Israel, respectively) form the very basis of the government's finances.

¹ OLADE, Organisation Latinoamericana de Energia, Energy Magazine, April – June 1998, p. 34

² Berekt Kebede, "Petroleum Pricing and Taxation, the Case of Ethiopia, Kenya and Malawi", in AFREPREN, African Energy Policy Research Network, Newsletter no. 21, Sept. 1997.

In European countries, fuel taxes frequently constitute the **third-most-important tax**, as illustrated by the following German federal budget table:



Thus, German taxes on fuel and vehicles in the year 1997 yielded:

$(66\,000 + 15\,000) = 81\,000$ million DM or 48 800 million US \$.

This enormous amount is the result of **a systematic policy of fuel tax increases over the past 40 years (1956 through 1996)**, as outlined in the following table³:

German fiscal year	Applied gasoline tax rate [DM/100 l]	Pump price of super gasoline [DM/100 l]	Applied diesel tax rate [DM/100 l]	Pump price of diesel [DM/100 l]	Value added tax VAT (on total price)	Total amount of fuel tax collected in Germany per fiscal year [million DM]
1956	31	71	15	50	0 %	1 415
1966	32	61	30	52	2 %	8 016
1976	44	95	42	89	11 %	18 121
1986	53 (46 unleaded)	108	45	99	14 %	25 644
1996	108 (98 unleaded)	161	62	122	15 %	68 251

The above example of fuel-tax evolution in Germany over the past 40 years illustrates the historical background of the present situation in high-tax countries (EU and Japan), as indicated in the global diagrams (pages 50/51) as "category IV" for the year 1998 only.

³ ARAL –Verkehrstaschenbuch 1998/9 (Source: Federal Finance Ministry BFM) pp. 388 - 398

Potential State Revenues from Fuel Taxation (in million US \$)

Estimates of potential state revenues from fuel taxation are meaningful not only for the finance ministry, but also for the ministry of transport/public works. Indeed, they are practically indispensable for the sector approach generally taken by international donors and banks.

All such revenue estimates should be based on fuel consumption volumes and expressed in liters per year.

For cases in which statistical data on annual fuel consumption are restricted, unreliable or even nonexistent (holds true in many developing countries), estimates can instead be based on the number of vehicles, mileage/distance traveled per year by each type of vehicle, and average fuel consumption (e.g., per 100 km).

Motorization

Detailed motorization figures (vehicles per 1000 inhabitants) for individual countries are shown in the tables included in [chp. 7](#), and present-population figures in addition to per-capital GNP have been annexed to the table in [chp. 7](#).

Mileage and consumption

Average aggregate distance traveled per year (in kilometers; 1970 and 1996) per vehicle category in Germany⁴ (1996 population: 82 186 000) may be postulated as follows:

	Average distance traveled in 1970	Average distance traveled in 1996	Number of vehicles in 1996	Average fuel consumption per 100 km in 1996
Mopeds	3,500 km	2,300 km	2,470,451	3.8 liters
Motorcycles	5,000 km	3,900 km	2,470,451	3.8 liters
Passenger cars and vans	15,300 km	12,600 km	40,987,547	8.9 liters
Large busses	46,500 km	43,100 km	89,954	30.6 liters
Trucks	25,500 km	23,100 km	2,273,473	30.0 liters
Trailers (horses)	56,500 km	77,200 km	1,899,874	30.0 liters
Other or special vehicles	9,300 km	8,100 km		

Based on those figures, the annual fuel consumption levels (gasoline and diesel, expressed in liters per year) can be estimated and the potential tax revenues calculated.

⁴ ARAL –Taschenbuch 1999 acc. to German Ministry of Transport/DIW

Assuming a 1 US cent per liter increase in the fuel tax on diesel and gasoline, the resultant additional tax revenues, in millions of US \$ p.a., would read as follows (taking Russia as an example):

Country: Russia

Russia (1996)	No. of vehicles	Average distance traveled	Average fuel consumption	Total fuel consumption	Additional revenue from a 1 US cents/liter price increase
	[millions]	[km p.a.]	[liters/100 km]	[1000 million liters p.a.]	[million US \$ p.a.]
(1)	(2)	(3)	(4)	(2)x(3)x(4)	
Passenger cars	15.81	15,000	10	23.715	237.1
Commercial vehicles	4.97	25,000	30	37.275	372.8
Additional state revenues* in Russia deriving from a fuel price increase of only 1 US cent/liter					609.9
Or: additional state revenues* in Russia deriving from a fuel price increase of 10 US cents/liter					6 099.0

*rough estimate based on generalized fuel consumption patterns.

Further estimates for potential tax revenues deriving from fuel price increases are given in the following section.

Estimates for Fuel Tax Revenues

The State Revenues Increase (in million \$ per year) if fuel price (on diesel and gasoline) is increased by 1 US cent per liter, is indicated below.

The estimates are based on 1996 figures for fuel consumption.

Fuel consumption by motor vehicles in 1996					Potential state revenues for a fuel price increase of 1 US cent per liter
Country	Gasoline	Diesel	Gasoline	Diesel	[in million US \$ p.a.]
Africa					
- Benin	30	78	40,000,000	91,764,706	1.3
- Burkina Faso	70	50	93,333,333	58,823,529	1.5
- Kenya	380	498	506,666,667	585,882,353	10.9
- Morocco	333	1,469	443,520,000	1,727,658,824	21.7
America					
- Bolivia	413	393	551,000,000	462,494,118	10.1
- Mexico	20,700	10,900	27,600,000,000	12,823,529,412	404.2
Asia					
- Japan	38,967	37,004	51,955,664,000	43,534,161,176	954.9
- Korea, South	7,748	11,511	10,331,048,000	13,542,188,235	238.7
- Thailand	3,860	9,050	5,146,666,667	10,647,058,824	157.9
- Azerbaijan	601	560	801,333,333	658,823,529	14.6
- Yemen	979	607	1,304,666,667	714,000,000	20.2
Europe					
- Germany ^c	28,373	22,780	37,830,000,000	26,800,000,000	646.3
- The Netherlands	5,309	5,070	7,078,400,000	5,964,164,706	130.4
- Sweden	5,523	1,636	7,364,240,000	1,925,223,529	92.9

Note:

- a** Data source: International Road Federation, World Road Statistics 1999, Geneva 1999. The figures indicate total consumption of gasoline and diesel used in road vehicles.
- b** The figures for quantity in liters were calculated using the figures for consumption in tons and average densities of 0.75 g/cm³ for gasoline and 0.85 g/cm³ for diesel.
- c** An increase in gasoline and diesel fuel prices to the amount of 1 US cent per liter could yield 646.3 million US \$, whereas an increase in fuel tax to the amount of 1 US cent per liter could, thanks to the addition of 16 % VAT, yield additional revenues amounting to 1.16 x 646.3 = 749.4 million US \$.

State Expenditures out of Fuel Taxes

Contrary to the traditional belief that all taxes from whatever source have to merely satisfy the common state revenue budget, it is understood that nowadays – pursuant to the general goal of economic growth – the allocation of taxes has to follow certain principles.

In the case of transport fuel taxes **5 principles** (called concepts) have to be considered and applied in strict hierarchical order:

The user-pays concept for the "road fee"

This denotes that the fee for using and damaging the road is generally not levied by special toll stations but by way of a fuel surcharge. Thus, roads & highways-sector

financing via fuel surcharges is the primary pricing-policy task in all countries. On a global average, some 80 % to 90 % of all transport-sector revenues derive from fuel taxes. The remaining 10 % to 20 % consist mainly of annual vehicles taxes, whereas small passenger vehicles naturally pay less than large trucks.

- According to past experience, the general magnitude of road-financing fuel taxes is situated at about 10 US cents/l diesel or gasoline in such industrialized countries as the USA. There, that is enough to cover all direct expenditures for the roads & highways sector (maintenance, refurbishment, new construction and capital recovery for the roads & highways departments)¹. Thus, the average US federal tax rate amounts to 18 cents per gallon (= 5 cents per liter), and another 18 cents per gallon is added as the state highway tax rate for roads and highways financing.
- Due to the lower traffic density, i.e., to the presence of fewer vehicles, in the developing countries of Africa and elsewhere, however, 10 US cents/liter only covers day-to-day and periodical road maintenance expenditures but no new construction or capital recovery for the roads and highways network. That standard rate of 10 US cents/per liter fuel (plus a vehicle tax of 75 US \$ per annum for small passenger vehicles and 500 US \$ for medium-size trucks) was adopted by the World Bank within the scope of the International Road Maintenance Initiative².

The road network concept for limited cross-subsidization

Contrary to the traditional practice of justifying new road investments via cost-benefit analysis on a road-by-road project basis, the existing road system is generally regarded as a unified network in which the more heavily frequented, "better-off" roads are expected to help finance the less heavily frequented, "worse-off" roads.

- Industrialized countries like the U.S. with a federal highway trust fund (FHTF) or the like even expect their "better-off" states to help subsidize their "worse-off" states, as indicated by the following 1993 funds-apportionment table (fiscal year: Oct.1 - Sept.30)³:

Cross-subsidization in the U.S. highway system

U.S. State - 1993 (Examples)	Payments into the Federal HTF [million US \$]	Apportionments from the FHTF [million US \$]
Alaska	35.863	215.828
California	1 825.449	2 090.789
Hawaii	43.899	310.330
Texas	1 223.679	1 196.548
Wyoming	68.584	140.182
U.S. TOTAL for the year 1993* (allocations for all states together)	16 046.324	20 186.800

* In the year 1993 only – for technical reasons – overall expenditures exceeded revenues by 25 %.

- In developing countries, cross-subsidization takes place between national roads of the main network on the one hand and rural roads on the other. While most fuel revenues stem from the main roads in countries like Tanzania and Zambia,

20 % - 25% of the road fund is earmarked for rural roads.

¹ US Federal Highway Administration FHWA-PL-95-028, Our Nation's Highways, Washington, D.C., p. 6

² World Bank, Ian Heggie, Technical Working Paper No. 275, p. 75

³ FHWA-PL-95-028, p. 43

The sector concept: "transport finances transport" for the balance of state transport budgets

Modern economic thinking – as outlined in the structural adjustment process for the so-called transition and developing countries – requires a balanced transport sector budget at the national level. This means that deficits for other transport undertakings, often including the railways, which cannot be eliminated in the short run, have to be covered by the profits/surplus achieved in other sub-sectors of the "transport family". This refers primarily to fuel revenues from road transport.

In Germany, for instance, this means that DM 0.155 (= 9 US cents/liter) is reserved for covering the deficits of regionalized railways, and DM 0.052⁴ (= 3 US cents/liter) is invested in solutions for urban traffic problems. In the USA, the fuel-tax-fed highway trust fund is tapped for "surface transportation program", "air quality improvement" and "highway safety program" expenditures.⁵

The concept of surplus "luxury" taxation of gasoline for non-commercial (private) passenger vehicles

The global fuel price tables shown on pages 50/51 illustrate that practically all over the world taxes on gasoline are higher than taxes on diesel. Notwithstanding the fact that heavy goods vehicles cause much more damage to roads than do light passenger cars, the political decision-makers generally view the taxation of gasoline-driven passenger car transport as more justified than the taxation of commercial diesel-driven vehicles. Consequently, gasoline often costs 30% - 50% more than diesel at the pump. As such, the additional "luxury tax" on gasoline need not be earmarked for any particular use.

The commercial VAT concept of value added tax, or sales tax, for general state taxation purposes

The basic understanding of the transport sector as a commercial sector implies that all goods (including vehicles and fuels) are subject to a value added tax. That tax is needed to help defray the cost of general state administration and is calculated on the basis of the goods' sales value, including all other previous taxes.



Problems and Outlook

Loss of revenue through fuel smuggling

Taxation is generally deemed an act of national sovereignty. Often, however, a comparison with the price situation in neighboring countries is left out of the internal political decisionmaking process.

The continent-by-continent fuel price tables included in chapter 4 summarize the cross-border situation.

For instance, the comparison of fuel prices in Nigeria and Cameroon yields a fuel price ratio of 1 : 5. And since most developing countries' borders can not be effectively controlled, there is enormous potential for fuel smuggling – and that potential is being exploited.

⁴ According to the "Gemeinde-Verkehrs-Finanzierungs-Gesetz GVFG"

⁵ FHWA-PL-95-028, p.41

It has been estimated that some 20 % to 50 % of all fuel consumed in Benin, Togo, Ghana, Burkina Faso, Mali, Niger, Cameroon and Chad is of non-taxed origin.⁶

This equates to millions of US \$ in lost national revenues, while the state budget frequently does not even suffice to pay the salaries of state employees on time (with such payments often lagging a quarter of a year behind schedule).⁷

The price data and other figures stated in this report provide a basis for a more detailed calculation of the effects of fuel smuggling. However, the only real remedy for the problem may lie in international agreements on harmonization of taxation levels on the basis of regional customs unions (e.g., ECOWAS and UDEAC in West and Central Africa).

Outlook on fuel taxation and resource bases

It has been mentioned in this report that fuel taxes often represent one of the best-yielding forms of taxation and that there is a global trend toward yet higher taxation of transport fuel. That trend is also being advocated by a waxing number of pressure groups, who cite the following reasons:

- strengthening of the government's tax base (often in place of other taxes that are more difficult to collect);
- financing of the transport infrastructure via commercially secured funds;
- application of a socially acceptable form of taxation (in consideration of the fact that transport requirements tend to expand with rising personal income);
- protection of the environment through avoidance of resource wastage and minimization of CO₂ emissions by the transport sector (to the extent possible).

Simultaneously, the horizon for fuel utilization has been extended beyond the formerly estimated limits. At the moment, petroleum reserves with the capacity for production at today's low world market prices are expected to last another 41 years⁸, i.e., through the year 2040. After that, substantial additional reserves can still be tapped, albeit at higher production costs.

Thus, the issue of fuel prices is bound to become more pressing in the years to come.

⁶ Ian Heggy, *Managing and Financing of Roads*, p. 68

⁷ Metschies, G., *Note on fuel taxation in Togo*, dated Dec. 6, 1995

⁸ Shell Oil Prognosis, cf. *Internet and Frankfurter Rundschau*, May 24, 1999

Data on 4-Wheel and 2-Wheel Motor Vehicles, Population and Gross National Product (GNP)

Motor Vehicles with Four Wheels or More

- Geographical Presentation: Africa
- Geographical Presentation: America
- Geographical Presentation: Asia and Australia
- Geographical Presentation: Europe

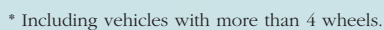
Two-wheel Motor Vehicles

- Geographical Presentation: Africa
- Geographical Presentation: America
- Geographical Presentation: Asia and Australia
- Geographical Presentation: Europe

Country Table Motorization:

- Population, GNP, Vehicles in use, 1996

4-Wheel* Motor Vehicles per 1000 Inhabitants



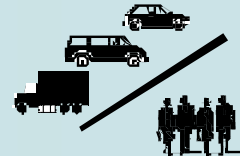
Data Sources: International Road Federation (IRF): World Road Statistics 1999, Geneva 1999. The figures refer to 1996.



Motorization

4-Wheel* Motor Vehicles per 1000 Inhabitants

- America -



* Including vehicles with more than 4 wheels.

Data Sources:

International Road Federation (IRF):
World Road Statistics 1999, Geneva 1999. The figures refer to 1996.

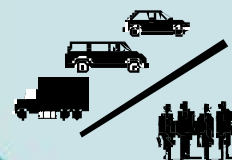


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Motorization

4-Wheel* Motor Vehicles per 1000 Inhabitants

- Asia and Australia -



* Including vehicles with more than 4 wheels.

Data Sources:

International Road Federation (IRF): World Road Statistics 1999, Geneva 1999.
The figures refer to 1996.

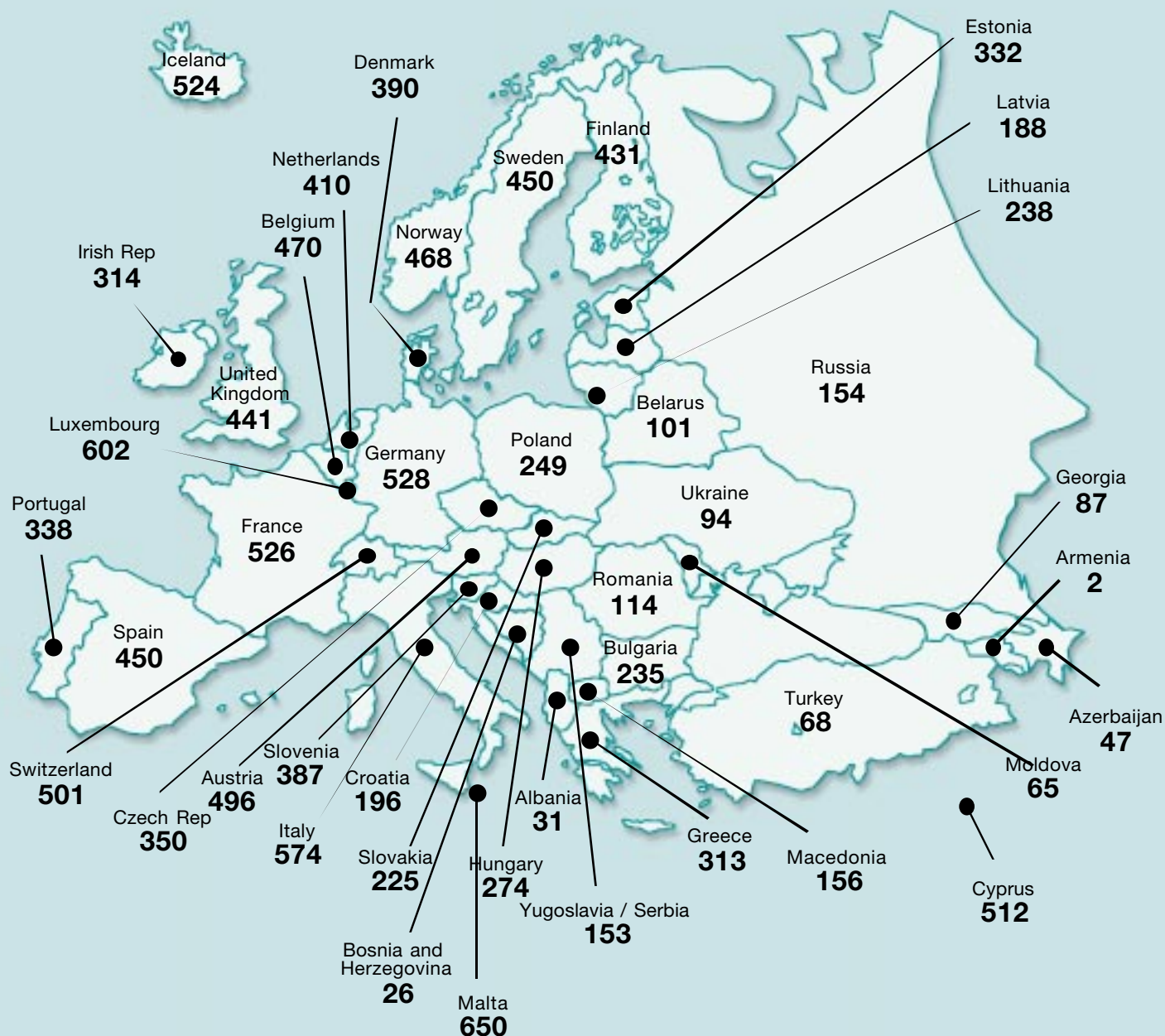
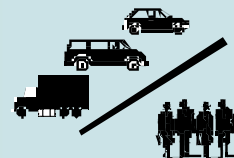


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Motorization

4-Wheel* Motor Vehicles per 1000 Inhabitants

- Europe -



* Including vehicles with more than 4 wheels.

Data Sources:

International Road Federation (IRF); World Road Statistics 1999, Geneva 1999.
The figures refer to 1996.

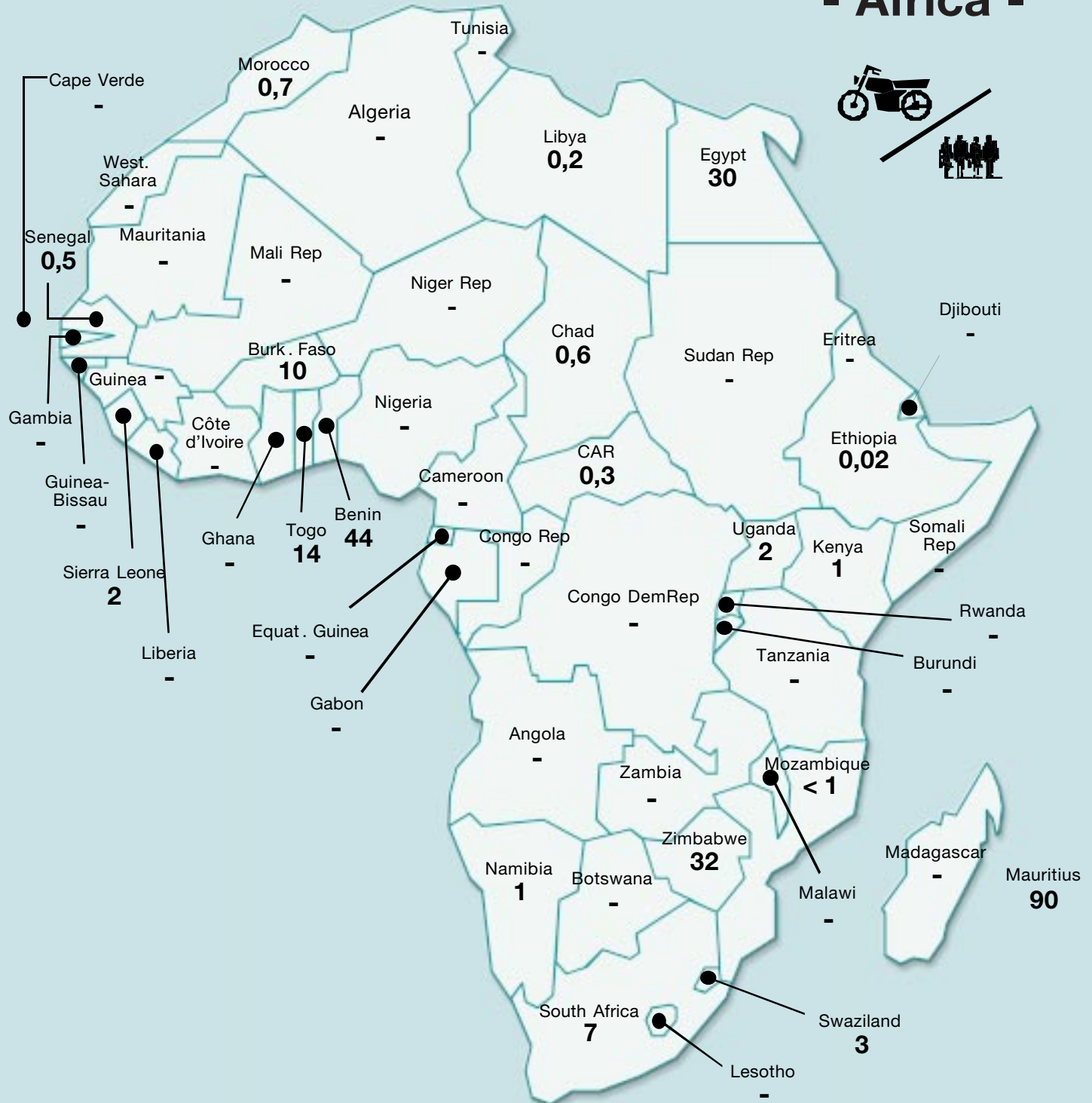


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Motorization

2-Wheel Motor Vehicles per 1000 Inhabitants

- Africa -



Data Sources:

International Road Federation (IRF): World Road Statistics 1999, Geneva 1999.
The figures refer to 1996/7.

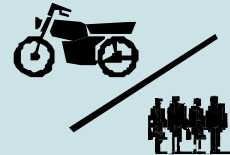


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Motorization

2-Wheel Motor Vehicles per 1000 Inhabitants

- America -



Data Sources:

International Road Federation (IRF):
World Road Statistics 1999, Geneva 1999. The figures refer to 1996/7.

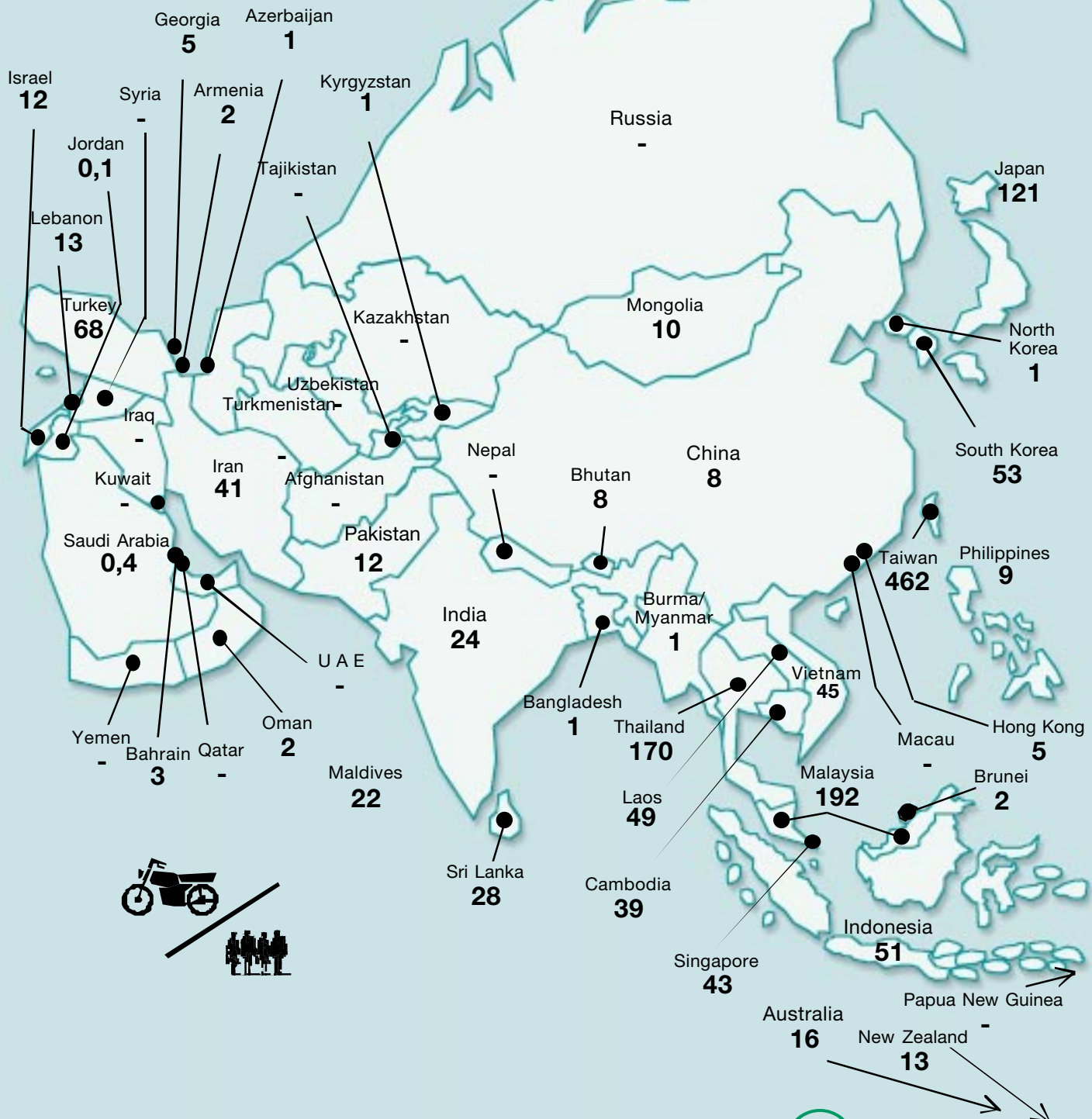


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Motorization

2-Wheel Motor Vehicles per 1000 Inhabitants

- Asia and Australia -



Data Sources:

International Road Federation (IRF): World Road Statistics 1999, Geneva 1999.
The figures refer to 1996/7.

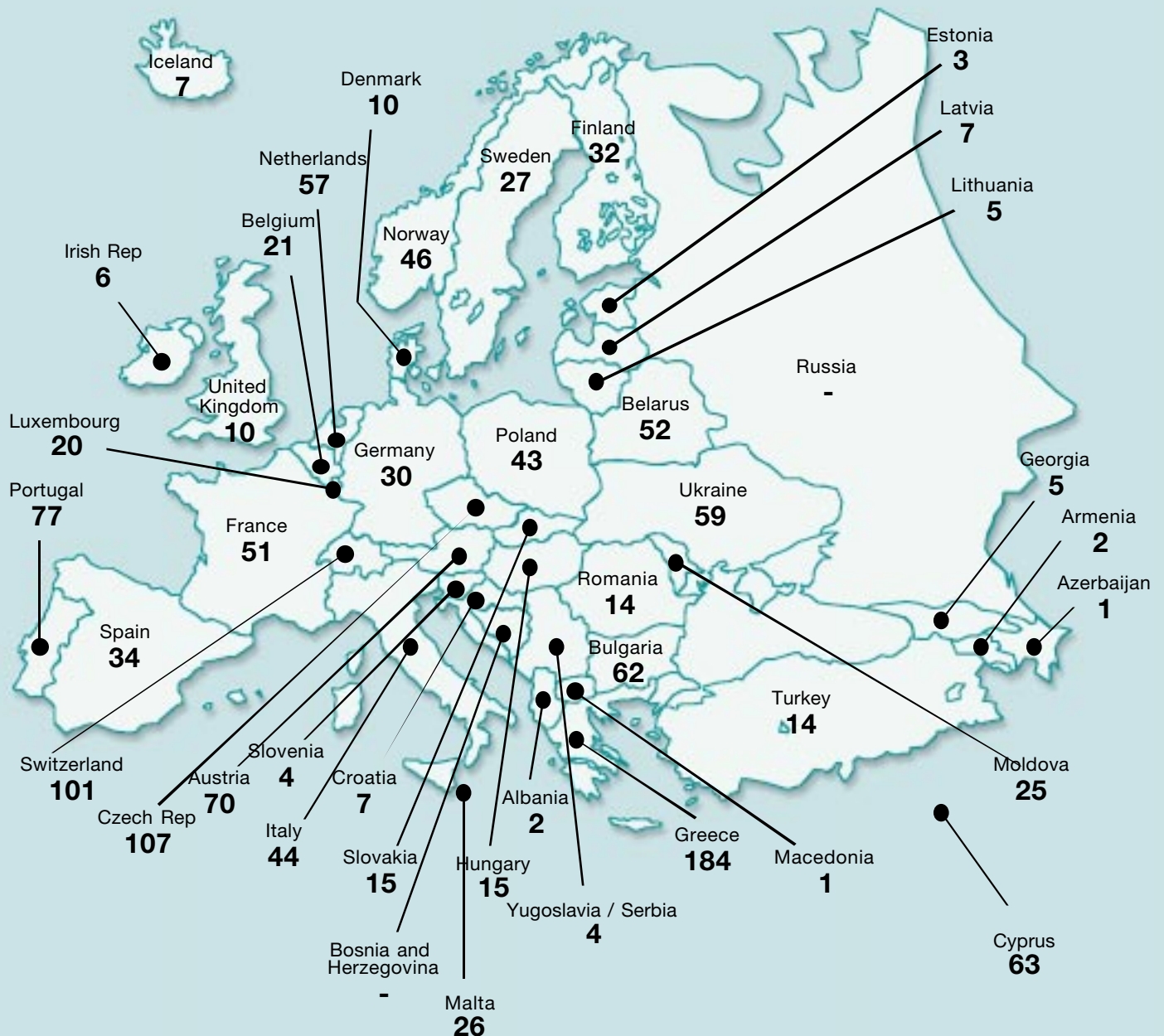
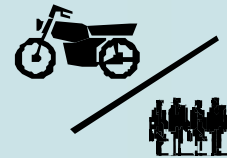


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Motorization

2-Wheel Motor Vehicles per 1000 Inhabitants

- Europe -



Data Sources:

International Road Federation (IRF): World Road Statistics 1999, Geneva 1999.
The figures refer to 1996/7.



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Country Table Motorization: Population, GNP, Vehicles in use 1996

1

	Population	GNP [US \$]	vehicles in use 1996			Percentage of each vehicle group 1996		
Country	thousands 1996	per capita 1996	Passenger cars	Commercial vehicles	Two- wheelers	Passenger cars	Commercial vehicles	Two- wheelers
Africa								
Algeria	28734	1520	725000	780000	..	..	..	..
Angola	11100	270	207000	25000	..	..	..	..
Benin	5632	350	37772	10678	250000	12.6	3.6	83.8
Botswana	1480	..	22540	44000	..	..	..	..
Burkina Faso	10669	230	38220	20380	105000	23.4	12.4	64.2
Burundi	6423	170	19200	18240	..	..	..	..
Cameroon	13676	610	98000	64350	..	..	..	..
Cape Verde	389	1010	3280	820	..	..	..	..
Central African Rep.	3344	310	358	285	1067	20.9	16.7	62.4
Chad	6611	160	10560	16950	3640	33.9	54.4	11.7
Comoros	505	450	9100	4950	..	..	..	..
Congo (DemRep)	45234	130	787000	598000	..	..	..	..
Congo (Rep.)	2705	670	37240	15520	..	..	..	..
Côte d'Ivoire	14347	660	293000	16300	..	..	..	..
Djibouti Republic	619	..	9200	2040	..	..	..	..
Egypt	59272	1080	1354000	496000	418000	59.7	21.9	18.4
Equatorial Guinea	410	530	1520	540	..	..	..	..
Eritrea	3698	..	5940	..	..	..	..	..
Ethiopia	58234	100	52012	41044	1151	55.2	43.6	1.2
Gabon	1125	3950	24750	16490	..	..	..	..
Gambia	1147	..	8640	9000	..	..	..	..
Ghana	17522	360	90000	45000	..	..	..	..
Guinea	6759	560	14100	21000	..	..	..	..
Guinea-Bissau	1094	250	7120	5640	..	..	..	..
Kenya	27364	320	278000	109620	32000	66.3	26.1	7.6
Lesotho	2023	660	12610	25000	..	..	..	..
Liberia	2810	..	9400	32000	..	..	..	..
Libya	5167	..	809514	377791	1112	68.1	31.8	0.1
Madagascar	13705	250	62000	17030	..	..	..	..
Malawi	10016	180	27000	29700	..	..	..	..
Mali Rep.	9999	240	26190	18240	..	..	..	..
Mauritania	2332	470	18810	10450	..	..	..	..
Mauritius	1134	3710	70867	25425	101754	35.8	12.8	51.4
Morocco	27020	1290	1018142	305269	19874	75.8	22.7	1.5
Mozambique	18028	80	4900	7520	..	..	..	..
Namibia	1584	2250	74875	70506	1520	51	48	1
Niger Rep	9335	200	38220	15200	..	..	..	..
Nigeria	114568	240	773000	606000	..	..	..	..
Rwanda	6727	190	13000	17100	..	..	..	..
Sao Tomé	135	330	4000	1540	..	..	..	..
Senegal	8534	570	85488	36782	4062	67.7	29.1	3.2
Seychelles	77	526	7120	1980	..	..	..	..
Sierra Leone	4630	200	20674	5490	10120	57	15.1	27.9
Somali Rep	9805	..	1020	6440	..	..	..	..
South Africa	37643	3520	4004000	1664000	262000	67.5	28.1	44.4
Sudan Rep	27272	..	285000	53000	..	..	..	..
Swaziland	926	1210	30289	33172	2727	45.8	50.1	4.1
Tanzania	30494	170	23760	122280	..	..	..	..
Togo Rep	4230	300	79200	35860	59000	45.5	20.6	33.9
Tunesia	9132	1930	269000	321000	..	..	..	..
Uganda	19741	300	35361	50473	36994	28.8	41.1	30.1
Zambia	9215	360	157000	81000	..	..	..	..
Zimbabwe	11248	610	323000	39520	362000	44.6	5.4	50

Sources:

World Road Statistics 1999, World Bank Atlas 1998



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Country Table Motorization: Population, GNP, Vehicles in use 1996

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	Population	GNP [US \$]	vehicles in use 1996			Percentage of each vehicle group 1996		
Country	thousands 1996	per capita 1996	Passenger cars	Commercial vehicles	Two-wheelers	Passenger cars	Commercial vehicles	Two-wheelers
Asia								
Afghanistan	24167	..	31000	25000	..	..	..	..
Bangladesh	121671	260	55034	68336	140864	20.8	25.9	53.3
Bhutan	715	390	..	..	5959	..	..	..
Brunei	290	..	149738	21693	553	87.1	12.6	0.3
Burma / Myanmar	45883	..	27000	42000	..	..	..	..
Cambodia	10275	300	46800	12253	397300	10.2	2.7	87.1
China	1215414	750	3894000	6655000	9760000	19.1	32.8	48.1
Hong Kong	6311	24290	349332	152241	30166	65.7	28.6	5.7
India	945121	380	4189000	5801000	23111000	12.7	17.5	69.8
Indonesia	197055	1080	2639523	611402	11735707	17.6	4.1	78.3
Japan	125761	40940	46868712	22060648	15262000	55.7	26.2	18.1
Korea North	22451	..	..	..	..	..	..	..
Korea South	45545	10610	7586474	2826953	2552669	58.5	21.8	19.7
Laos	4726	400	16320	4200	231000	6.5	1.7	91.8
Macau	461	..	..	..	..	..	..	..
Malaysia	20565	4370	2945992	788761	3951931	38.3	10.3	51.4
Maldives Is	256	1080	1080	1580	5640	13	19	68
Mongolia	2516	360	30001	46502	25952	29.3	45.4	25.3
Nepal	22037	210	..	..	..	..	..	..
Pakistan	133510	480	604842	712526	1579551	20.9	24.6	54.5
Philippines	71899	1160	702578	251033	621599	44.6	15.9	39.5
Singapore	3044	30550	365568	159798	131290	55.7	24.3	20
Sri Lanka	18300	740	107000	197680	513000	13.1	24.2	62.7
Taiwan	21700	13233	4146475	761785	9283914	29.2	5.4	65.4
Thailand	60003	2960	1661000	2854721	10239000	11.3	19.3	69.4
Vietnam	75355	290	..	..	3369000	..	..	..
Middle East								
Bahrain	599	..	143878	31220	1739	81.4	17.6	1
Iran	62509	..	1793000	692000	2565585	35.5	13.7	50.8
Iraq	21366	..	772986	361146	..	..	..	..
Israel	5692	15870	1184765	289094	69011	76.8	18.7	4.5
Jordan	4312	1650	213874	83381	369	71.8	28	0.2
Kuwait	1590	..	538000	155000	..	..	..	..
Lebanon	4079	2970	1217000	86640	54450	89.6	6.4	4
Oman	2173	..	211000	97020	4500	67.6	31	1.4
Qatar	658	..	126000	64000	..	..	..	..
Saudi Arabia	19409	..	1744000	1192040	8460	59.2	40.5	0.3
Syria	14502	1160	139592	281930	..	..	..	..
U A E	2532	..	201000	50370	..	..	..	..
Yemen	15778	380	240567	294586	..	..	..	..
Australia and Pacific								
Australia	18312	20090	8879000	2129470	301000	78.5	18.8	2.7
Fiji Is.	803	2470	30000	29000	..	..	..	..
Kiribati	82	920	..	..	..	..	..	..
Marshall Is.	57	1890	..	..	..	..	..	..
Micronesia	109	2070	..	..	..	..	..	..
Nauru Is	11	7205	..	..	..	..	..	..
New Zealand	3635	15720	1674000	388700	47000	79.3	18.4	2.3
Papua New Guinea	4401	1150	31000	85000	..	..	..	..
Solomon Island	404	2292	..	..	..	..	..	..
Tonga	107	1820	1140	780	..	..	..	..
Tuvalu	10	800	..	..	..	..	..	..
Western Samoa	168	1044	..	..	..	..	..	..
Vanuatu	173	1290	4000	2000	..	..	..	..

Sources:

World Road Statistics 1999, World Bank Atlas 1998



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Country Table Motorization: Population, GNP, Vehicles in use 1996

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Table 3	Population	GNP [US \$]	vehicles in use 1996			Percentage of each vehicle group 1996		
Country	thousands 1996	per capita 1996	Passenger cars	Commercial vehicles	Two-wheelers	Passenger cars	Commercial vehicles	Two-wheelers
Europe								
Albania	3286	820	67031	36893	5541	61.2	33.7	5.1
Andorra	71	..	..	..	..	..	..	..
Austria	8059	28110	3782544	736154	575744	74.2	14.5	11.3
Belgium	10159	26440	4307704	500982	209015	85.8	10	4.2
Bosnia + Herzegovina	..	..	96182	11106	..	..	..	..
Bulgaria	8356	1190	1707023	270075	521710	68.3	10.8	20.9
Croatia	4771	3800	835714	99517	31917	86.4	10.3	3.3
Cyprus	740	..	226832	106844	46855	59.6	28.1	12.3
Czech Rep	10315	4740	3349008	417694	1105457	68.7	8.6	22.7
Denmark	5262	32100	1741000	299000	50000	83.3	14.3	2.4
Estonia	1466	3080	406598	78133	4680	83.1	16	0.9
Finland	5125	23240	1942752	266930	162788	81.9	11.2	6.9
France	58375	26270	25500000	5255000	..	..	..	..
Germany	81912	28870	40987547	4263301	2470451	85.9	8.9	5.2
Greece	10475	11460	2339421	940805	1927432	44.9	18.1	37
Hungary	10193	4340	2434241	353993	157500	82.6	12	5.4
Iceland	3626	26580	124909	16623	1950	87	11.6	1.4
Irish Rep	3626	17110	987000	121580	23280	87.2	10.7	2.1
Italy	57380	19880	30600000	2915500	2530750	84.9	8.1	7
Latvia	2490	2300	379895	136102	18444	71.1	25.5	3.4
Liechtenstein	31	..	..	..	..	..	..	..
Lithuania	3709	2280	785088	104765	19402	86.4	11.5	2.1
Luxembourg	416	45360	231666	25529	8406	87.2	9.6	3.2
Macedonia	1980	990	274680	31594	1734	89.2	10.2	0.6
Malta	373	..	152081	36825	9884	76.5	18.5	5
Moldava	4327	590	166757	72135	109822	47.8	20.7	31.5
Monaco	32	..	21120	2850	5400	71.9	9.7	18.4
Netherlands	15517	25940	5740000	655000	878000	78.9	9	12.1
Norway	4381	34510	1661247	392087	200485	73.7	17.4	8.9
Poland	38618	3230	8054448	1608716	1649079	71.2	14.2	14.6
Portugal	9930	10160	2671000	952300	778200	60.7	21.6	17.7
Romania	22608	1600	2408000	636550	329000	71.4	18.9	9.7
San Marino	25	16900	..	..	..	..	..	..
Slovakia	5343	3410	1058425	216639	79479	78.1	16	5.9
Slovenia	1991	9240	727554	91088	8022	88	11	1
Spain	39260	14350	14753809	3200304	1308208	76.6	16.6	6.8
Sweden	8843	25710	3654920	326504	236834	86.7	7.7	5.6
Switzerland	7074	44350	3268073	650455	716511	70.5	14	15.5
Turkey	62697	2830	3456850	871035	854150	66.7	16.8	16.5
United Kingdom	58782	19600	21172000	3011000	609000	85.4	12.1	2.5
Vatican	0,5	..	..	..	..	..	..	..
Yugoslavia / Serbia	10574	..	1583943	310293	39388	81.9	16.1	2.0
CIS								
Armenia	3774	630	1300	15240	7200	5.5	64.2	30.3
Azerbaijan	7581	480	273656	118635	9583	68.1	29.5	2.4
Belarus	10298	2070	1035750	29407	533934	64.8	1.8	33.4
Georgia	5411	850	427000	56550	28130	83.5	11	5.5
Kazakhstan	16471	1350	997539	398854	..	..	..	..
Kyrgyzstan	4576	550	146000	18430	4200	86.6	10.9	2.5
Russia	147739	2410	15815000	4967600	..	..	..	..
Tajikistan	5927	340	680	8190	..	..	..	..
Turkmenistan	4598	940	..	..	..	..	..	..
Ukraine	50718	1200	4736015	..	3000516	..	..	..
Uzbekistan	23228	1010	..	..	..	..	..	..

Sources:

World Road Statistics 1999, World Bank Atlas 1998



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Country Table Motorization: Population, GNP, Vehicles in use 1996

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Table 4	Population	GNP [US \$]	vehicles in use 1996			Percentage of each vehicle group 1996		
Country	thousands 1996	per capita 1996	Passenger cars	Commercial vehicles	Two-wheelers	Passenger cars	Commercial vehicles	Two-wheelers
Middle America								
Antigua	66	7330	..	..	..	..	..	..
Bahamas	284	..	46000	12000	..	..	..	..
Barbados	264	..	35000	9000	..	..	..	..
Belize	222	2700	9282	10585	607	45.3	51.7	3
Costa Rica	3442	2640	277888	170597	51433	55.6	34.1	10.3
Cuba	11019	..	216575	284390	215921	30.2	38.7	30.1
Dominica	74	3090	..	..	..	..	..	..
Dominican Republic	7964	1600	224000	151550	..	..	..	..
El Salvador	5810	1700	168234	217189	38330	39.7	51.3	9
Grenada	99	2880	..	..	..	..	..	..
Guatemala	10928	1470	102000	97000	..	..	..	..
Haiti	7336	310	32000	21000	..	..	..	..
Honduras	6101	660	..	..	..	..	..	..
Jamaica	2547	1600	104000	22000	..	..	..	..
Mexico	93182	3670	8607000	4426000	..	..	..	..
Nicaragua	4503	380	73000	68690	22770	44.4	41.8	13.8
Panama	2674	3080	203760	74637	7243	71.3	26.2	2.5
Puerto Rico	3783	..	878000	190000	..	..	..	..
Saint Kitt & Nevis	42	7785	..	..	..	..	..	..
Saint Lucia	151	5312	14550	1070	600	89.7	6.6	3.7
Saint Vincent & the G.	119	4226	..	..	..	..	..	..
Trinidad and Tobago	1297	3870	122000	24000	..	..	..	..
North America								
Canada	29964	19020	13217336	586825	32179	95.5	4.2	0.2
United States	265284	28020	1,3E+08	76636815	3871237	61.7	36.5	1.8
South America								
Argentina	35220	8380	4459000	955000	35640	81.8	17.5	0.7
Bolivia	7588	830	223829	138546	66113	52.3	32.3	15.4
Brazil	161365	4400	..	..	..	..	..	..
Chile	14419	4860	1017052	586825	32179	62.2	35.9	1.9
Colombia	37451	2140	762000	672000	..	..	..	..
Ecuador	11698	1500	464902	55589	20870	85.9	10.3	3.8
Guyana	839	690	..	..	..	..	..	..
Paraguay	4955	1850	71000	50000	..	..	..	..
Peru	24288	2420	1420000	1510000	..	..	..	..
Suriname	432	433	50250	16600	30000	51.9	17.1	31
Uruguay	3203	5760	485109	63036	328406	55.3	7.2	37.5
Venezuela	22311	3020	1520000	434000	..	..	..	..

Sources:

World Road Statistics 1999, World Bank Atlas 1998



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 Factors in the Calculation of Untaxed Fuel Prices

- The Crude Oil Price
- World Market Prices f.o.b.
- Border Price
- Untaxed Wholesale Price
- Untaxed Retail Pump Price
- Untaxed Retail Pump Price as global reference price ("benchmark price")
- Fuel taxation and value added tax VAT

 Literature

Factors in the Calculation of Untaxed Fuel Prices

Calculations of fuel taxation are generally based on so-called world market prices, which are normally quoted globally as spot prices, crude oil indicators, f.o.b. prices or, in more countryspecific terms, as border prices, untaxed wholesale prices and untaxed retail pump prices.

The "untaxed retail pump price", as reference price for diesel and gasoline, has been used in the foregoing chapters of this brochure.

This annex sets out some basic factors in the calculations, starting with the crude oil price and leading to the chosen benchmark price. It is evident that prices vary according to prevailing market and country conditions but, nevertheless, the application of a global average "untaxed retail pump price" for diesel and gasoline is justified as the country-specific price differences are minimal, in particular if they are compared to the large differences in country-specific fuel taxation (cf. graphs on pages 50 and 51).

The following price indices and calculation examples also serve as a rough indication of the effects of possible crude oil price variations and its influence on the retail price.

The Crude Oil Price

The world crude oil market today broadly consists of two segments: Marker Crudes (such as Brent, West Texas Intermediate, Dubai) and the large "producing countries' market". Nevertheless, the world oil market is unified. Prices for the same quality crude oils from different parts of the world, adjusted for ocean freight rates, do not deviate from each other and practically eliminate arbitrage opportunities in global crude trading.

Global fuel price comparisons are possible on the basis of unified World Market Prices for Crude Oil, which may vary according to the current trends on the international markets. The fuel price survey of this report was carried out at the beginning of November 1998; the relevant trend for crude oil spot prices for the previous months and years are given below:

Spot Prices for "Brent" North Sea Crude Oil [in US \$/barrel] ¹				
Yearly average 1996	Yearly average 1997	Monthly average July 1998	Monthly average October 1998	Monthly average November 1998
20.7	19.1	12.1	12.7	11.5

Generally there are three crude oil indicators – which differ slightly - in use on the international crude oil markets. Example as at 28 October 1998²:

Origin of Crude Oil on Marker Crudes Market	28 October 1998 Crude Oil [US \$ / barrel]	28 October 1998 Crude Oil [US cents / liter]
"Dubai-Fateh" Non-OPEC	12.6	7.9
"Brent dated" North Sea	12.4	7.8
"WTI" West Texas Intermediate (NYMEX)	14.3	9.0

Conversion rate: 1 barrel = 159 liters

¹ HWWA Rohstoffindex, as published in WIRTSCHAFTSWOCHE Nr. 48/1998

² Middle East Economic Digest MEED, Nov. 1998

The price differentials between WTI and BRENT roughly reflect the cost of ocean freight for shipping from the North Sea to the US Gulf Coast.³

World Market Prices f.o.b.

Treatment of the crude oil in the refinery yields the products gasoline and diesel. Examples of fuel product prices free on board (f.o.b), i.e. before shipping, are given for the destination of Namibia/Southern Africa as at October 1998⁴:

Namibian Fuel Import Statement of October 1998	f.o.b. prices [US cents / liter]
Gasoline, leaded	10.9
Gasoline, unleaded	11.5
Diesel	10.6

Comparison with the crude oil prices above shows that the crude oil treatment at the refinery costs approximately 3 US cents/liter, less for diesel, but more for unleaded gasoline.

Border Price

Border Prices are understood as the price of fuel arriving at the bonded warehouse in the respective country. Example: Walvis Bay / Namibia:

Namibian Fuel Import Statement of October 1998	Border price [US cents / liter]
Gasoline, leaded	12.3
Gasoline, unleaded	13.2
Diesel	12.1

Comparison with the f.o.b. prices indicates that total shipping costs were between 1.4 and 1.7 US cents/liter in the above case.

Untaxed Wholesale Price

The wholesale price, without individual state taxes, is calculated by adding industry margins and oil company service fees (together approx. 4.3 cents/liter)

Namibian Fuel Import Statement of October 1998	Untaxed wholesale price [US cents / liter]
Gasoline, leaded	16.6
Gasoline, unleaded	17.5
Diesel	16.4

(Note: "Untaxed" means without levies or taxes, such as: customs and excise duties, accident levy, road fund levy, fuel tax, statistical tax, National Energy Reserve Tax, etc. and also without the final sales or turnover tax)

³ cf. Overview of World Petroleum Markets, in: Matthews/CEPAL/GTZ "Referencias para determinar el costo de suministro de productos petroleros en America Central y el Caribe" , Oct. 1997.

⁴ Ministry of Transport, Windhoek, Fuel Rate Calculation Namibia as of October 1998

Untaxed Retail Pump Price

If the dealer margin, which is approx. 3.4 US cents per liter on average and varies according to local sales conditions, is added to the above wholesale price, we obtain the Untaxed Retail Pump Price for the end consumer at the highway filling station⁵:

Untaxed prices [US cents / liter]	Untaxed retail pump price USA [US cents / liter]	Untaxed retail pump price Namibia/Africa [US cents / liter]	Untaxed retail pump price Europe/Germany [US cents / liter]
Gasoline, unleaded	18.9	21.2	22.0
Diesel	14.8	19.0	-

Untaxed Retail Pump Price as global reference price ("benchmark price")

Price differences in untaxed pump prices should not be accorded too much importance, as the statistical basis varies from country to country. In addition, the lack of competition in some countries may also play a role.

For this reason, it may be misleading to examine price differentials in individual countries, and more advisable to calculate an average.

For the worldwide overview of the fuel tax situation in November 1998 (as given in the benchmark line of the global fuel price tables in chapter 4), the following average prices may be assumed:

Average "Untaxed Retail Fuel Pump Price" for Nov. 1998:	
Gasoline	21 US cents/liter
Diesel	18 US cents/liter

Fuel taxation and value added tax (VAT)

The above "untaxed retail fuel pump prices" are used in the international discussion on transport sector financing as reference prices. However, the discussion (chiefly political) on appropriate fuel price levels may be misleading if the whole difference between the untaxed pump price and the actual – often highly taxed – pump price is attributed solely to "state fuel tax" as this difference normally also includes a Value Added Tax (VAT) – the proceeds of which go into the general budget, and not into the specific transport budget.

According to European Transport Policy as outlined by the European Commission, transport (and its constituent parts, such as tariffs, infrastructure costs, vehicles and fuels) basically should not be subsidized, but should instead be considered "as any other industrial good".

In this sense a final Value Added Tax on (not specifically taxed) fuels should be understood as "normal" and not incorporated into the "state fuel tax". Thus a global benchmark line for fuel could include 15 – 20% Value Added Tax (turnover tax). This would lead to an increase of approximately 3 US cents per liter to the untaxed pump prices quoted above.

⁵ acc. to American Petroleum Institute, Background Paper July 1998; Namibian Fuel Slate Calculation/MOT Windhoek; ARAL Verkehrstaschenbuch 1998/99 and ACE Lenkrad 4/99

⁶ acc. to ACE Lenkrad 4/99, p.10

Thus, the reference level for judging whether a fuel is subsidized or non-subsidized may rise to 25 US cents per liter for gasoline and 21 US cents per liter for diesel.

These price levels are in line with the rule of thumb, as used mainly in the US, which states that unsubsidized gasoline may never be cheaper than 1 US dollar per gallon, i.e. 26 US cents/liter, whereas taxed gasoline may cost 3 US dollars per gallon even in African developing countries (cf. cover page).

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