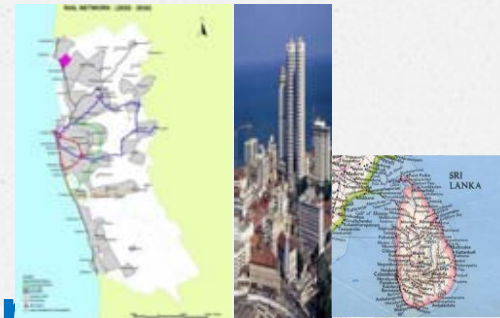


Appropriateness of Road Pricing System for the Sri Lanka as Transport Demand Management Tool

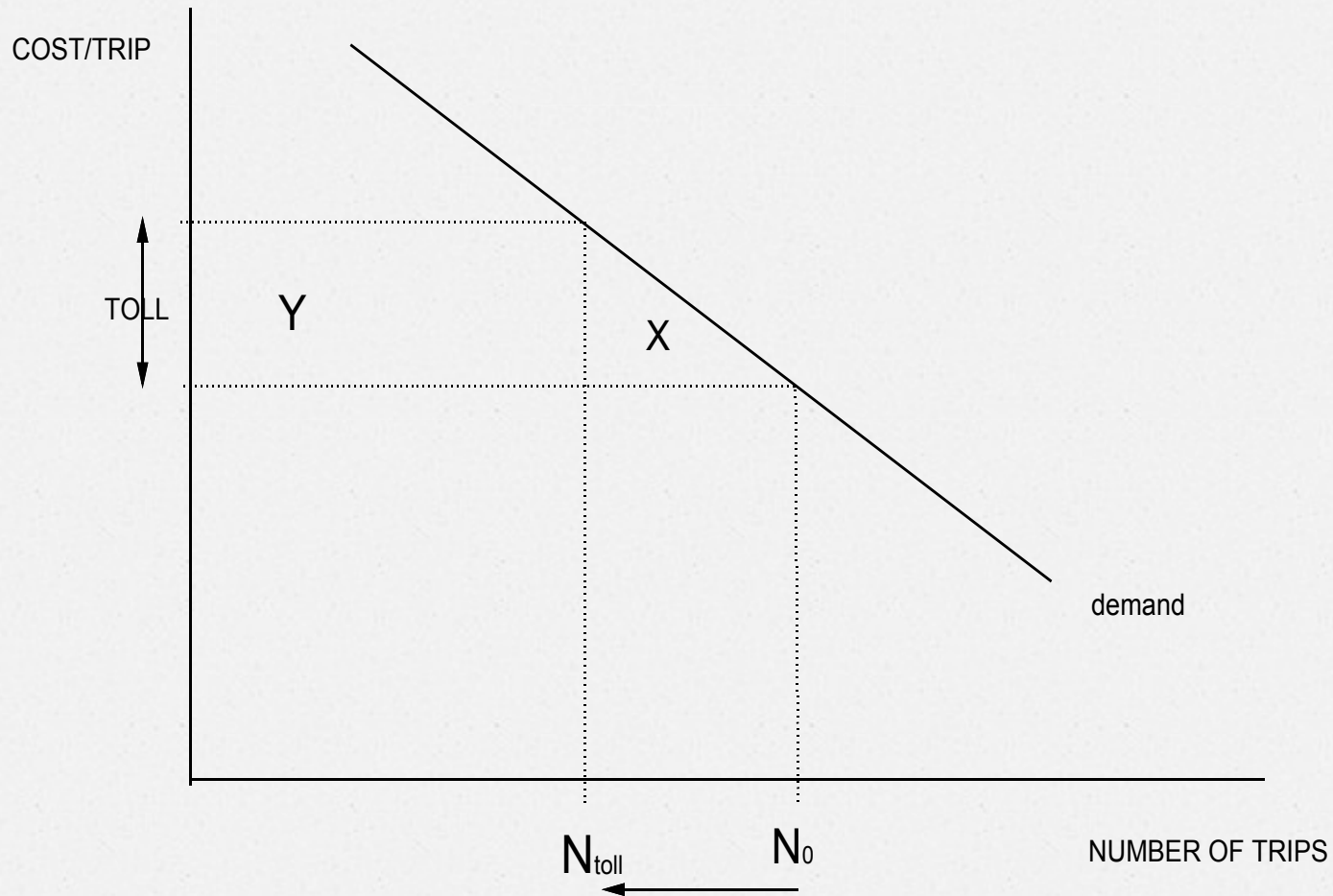
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By
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Transport and IT Consultant

Seminar Jointly organized by the Ministry of
environment Sri Lanka and ESE, India on December 10th,
2013, Colombo Sri Lanka



Welfare Losses Due to Traffic Congestion (Fuel Consumption and Public Cost)



Price Elasticity Estimates

Type of fuel	k	Income elasticity	Own-price elasticity	Cross-price elasticity	R ²
Gasoline	+1.76 (9.71) ^a	$\alpha_p = .296$ (6.78)	$\beta_p = -.078$ (1.49)	$\varphi = +.250$ (5.23)	0.67
Diesel	+1.83 (8.80)	$\alpha_d = .129$ (2.58)	$\beta_d = -0.136$ ()	$\gamma = +.105$ (1.75)	0.88

Figures in parentheses are t-statistics.

source: Author's Calculation, 2013 based on Ph.D. Thesis, November 2000, MIT

Elasticity on Operated Vehicle-km's

Vehicle category	Elasticity of the average private cost
Cars (Diesel/Petrol)	-0.349
Light Truck (Diesel)	-0.230
Medium Truck (Diesel)	-0.443
Heavy Truck (Diesel)	-0.260
Medium Buses (Diesel)	-0.150
Large Buses (Diesel)	-0.130
Motor Cycles (Petrol)	-0.462

Based on Ph.D. research at MIT up dated using data from 2000 to 2013

Traffic Flow of CMR

Name of the Road	Number of Vehicles						Total
	CAR	LGV	BUS	MCL	LBUS	3WH	
2013							
Hekitta - Mattakkuliya	2,148	988	36	2,938	10	2,432	8,554
Peliyagoda - Puttalam	10,646	5,212	730	8,760	2,647	9,517	37,512
Colombo - Kandy	27,587	15,243	2,050	16,785	6,823	10,562	79,050
Borella Rajagiriya	7,429	1,823	360	6,535	4,017	6,183	26,346
Colombo - Horana	22,306	5,046	495	6,863	1,599	8,417	44,726
Kollupitiya - Sri Jayawardanapura	41,153	8,735	287	15,228	287	12,536	78,226
Urugodawatta - Ambatale	2,951	1,873	242	5,914	1,806	7,400	20,188
Colombo - Ratnapura - Wellawaya - Baticaloa	23,569	5,325	306	11,359	3,465	10,032	54,056
Colombo - Galle - Hambantota - Wellawaya	25,931	7,060	1,143	9,901	4,552	14,025	62,612
	163,720	51,305	5,649	84,284	25,206	81,105	411,269
	40%	12%	1%	20%	6%	20%	100%

Daily Vehicle Km's Operated for Passengers who travel by roads(CMR) - 2013

Vehicle In kilometers						
CAR	LGV	BUS	MCL	LBUS	3WH	Total
120,293	63,239	1,524	152,797	663	77,832	416,349
596,162	333,558	30,646	455,542	169,389	304,553	1,889,851
1,544,873	975,554	86,085	872,813	436,665	337,987	4,253,978
149,861	123,994	6,804	300,327	116,253	207,348	904,587
416,027	116,659	15,123	339,795	257,083	197,853	1,342,540
1,249,146	322,912	20,796	356,859	102,356	269,358	2,321,426
2,304,579	559,020	12,068	791,869	18,389	401,139	4,087,063
165,280	119,882	10,161	307,547	115,606	236,815	955,290
1,319,856	340,807	12,862	590,673	221,760	321,026	2,806,984
358,215	208,955	31,364	308,547	281,385	201,453	1,389,918
998,824	281,965	18,833	406,805	81,358	246,023	2,033,808
1,452,118	451,865	47,993	514,860	291,302	448,801	3,206,939
10,675,233	3,898,411	294,256	5,398,434	2,092,209	3,250,188	25,608,732
42%	15%	1%	21%	8%	13%	100%

Daily Fuel Consumption by Passenger who travel to Colombo -2013

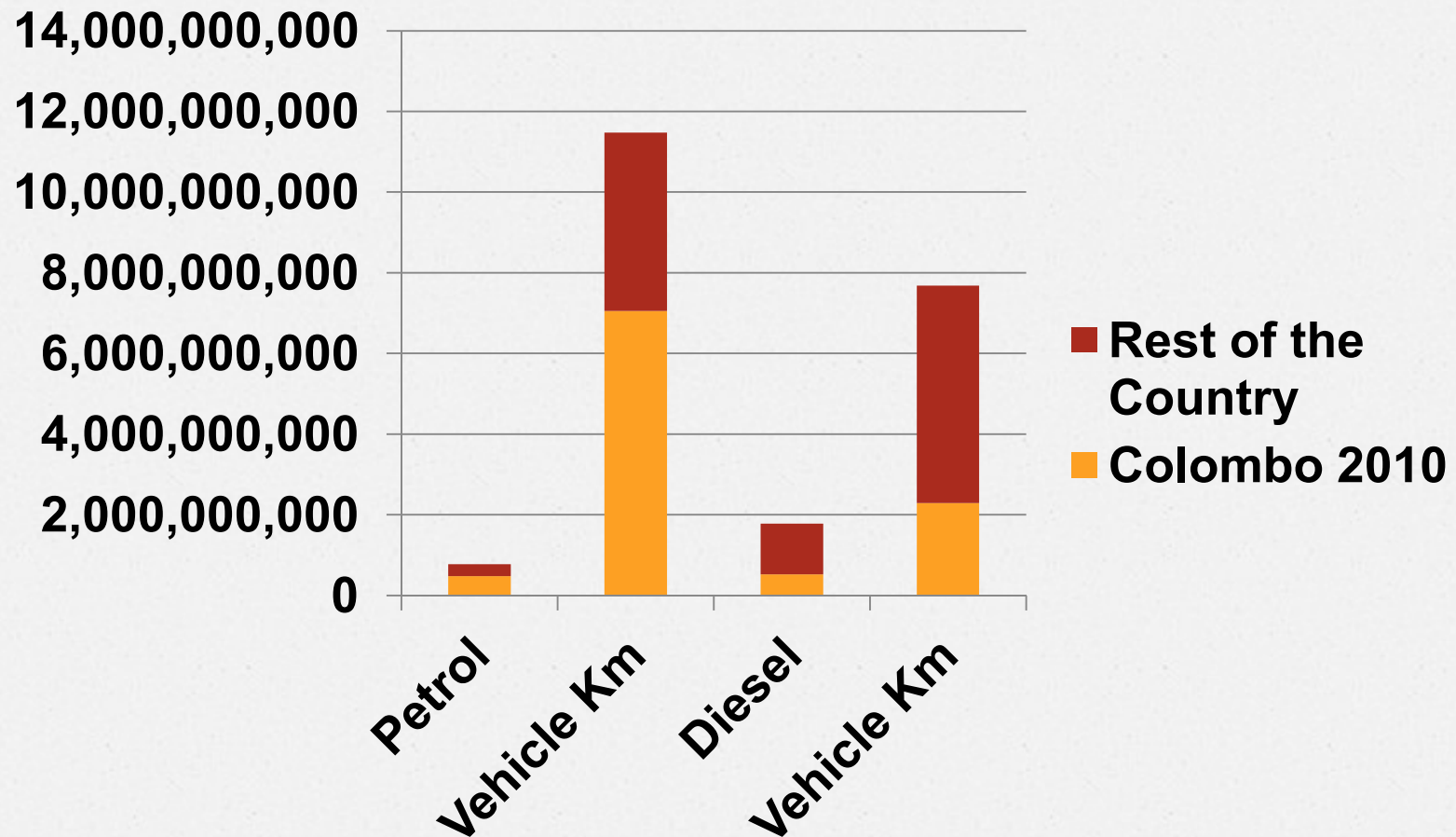
CAR	LGV	BUS	MCL	LBUS	3WH	Total
12,662	9,034	339	5,093	190	2,780	30,098
62,754	47,651	6,810	15,185	48,397	10,877	191,674
162,618	139,365	19,130	29,094	124,761	12,071	487,039
15,775	17,713	1,512	10,011	33,215	7,405	85,632
43,792	16,666	3,361	11,327	73,452	7,066	155,663
131,489	46,130	4,621	11,895	29,245	9,620	233,000
242,587	79,860	2,682	26,396	5,254	14,326	371,105
17,398	17,126	2,258	10,252	33,030	8,458	88,521
138,932	48,687	2,858	19,689	63,360	11,465	284,992
37,707	29,851	6,970	10,285	80,396	7,195	172,403
105,139	40,281	4,185	13,560	23,245	8,787	195,197
152,854	64,552	10,665	17,162	83,229	16,029	344,491
1,123,709	556,916	65,390	179,948	597,774	116,078	2,639,815
40%	26%	2%	7%	20%	5%	100%

Daily Operated Passenger Km's – CMA -

2013

Passenger Km						
CAR	LGV	BUS	MCL	LBUS	3WH	Total
300,733	347,813	30,472	259,755	27,860	163,448	1,130,082
1,490,406	1,834,569	612,913	774,422	7,114,357	639,561	12,466,228
3,862,183	5,365,546	1,721,696	1,483,783	18,339,940	709,773	31,482,922
374,652	681,968	136,072	510,555	4,882,635	435,431	7,021,314
1,040,067	641,627	302,450	577,652	10,797,476	415,491	13,774,762
3,122,864	1,776,017	415,920	606,660	4,298,946	565,651	10,786,058
5,761,447	3,074,611	241,353	1,346,177	772,330	842,392	12,038,310
413,200	659,350	203,213	522,831	4,855,435	497,310	7,151,338
3,299,639	1,874,438	257,238	1,004,144	9,313,938	674,155	16,423,552
895,538	1,149,252	627,282	524,529	11,818,180	423,050	15,437,831
2,497,060	1,550,809	376,662	691,569	3,417,017	516,648	9,049,765
3,630,294	2,485,259	959,856	875,262	12,234,681	942,482	21,127,834
26,688,083	21,441,259	5,885,128	9,177,338	87,872,795	6,825,394	157,889,996
17%	14%	4%	6%	56%	4%	100%

Fuel Consumption and Operated Km's 2013 (CMR Vs. Country)



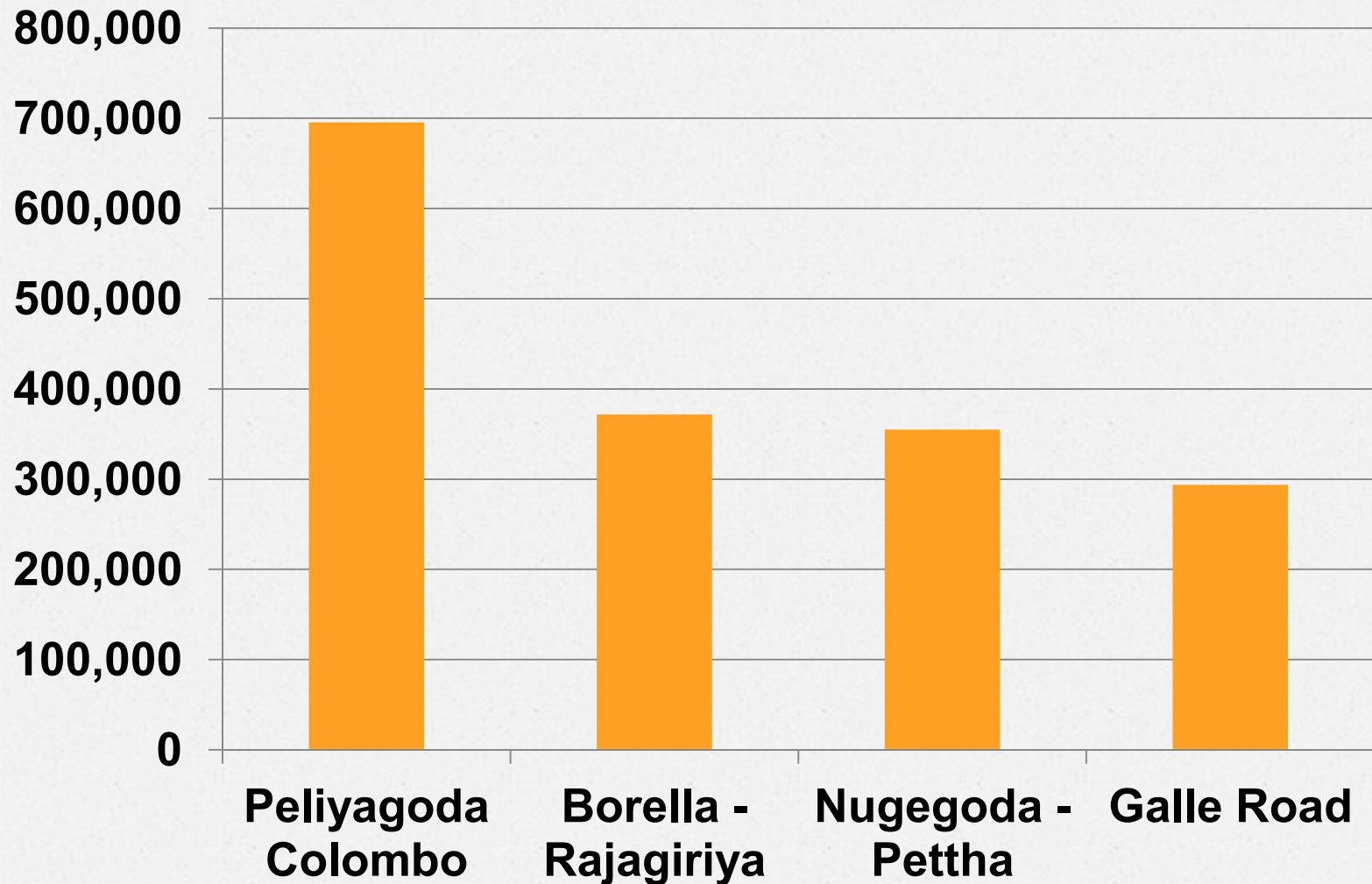
TRIP PROFILE OF NATIONAL AND CMR

TRIP PURPOSE	NATIONAL	CMR
WORKS	44%	30%
SERVICES	22%	26%
SCHOOLS	20%	24%
BUSINESS	10%	14%
OTHER	04%	06%
TOTAL	100%	100%

Modal Share of Daily Passenger Traffic in the City of Colombo -2013

MODE	PASSENGER TRIPS	MODAL SHARE
RAILWAYS	220,000	03%
CARS	1,369,236	20%
VANS	1,026,545	15%
MEDIUM BUSES	228,958	03%
MOTO CYCLES	606,074	09%
LARGE BUSES	2,724,340	39%
THREE WHEELERS	756,311	11%
TOTAL	6,931,464	100%

Daily Passenger Flow by Corridor -2013





Thank You `