

On the Sociology of Ground Transportation in Trinidad and Tobago

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**Transportation Symposium: Breaking Boundaries, Creating allies and Uniting
Lecture Theatre 2, 2nd Floor
Block 13, Faculty of Engineering
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St. Augustine**

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On the Sociology

- **Sociology as social physics – Auguste Comte (1798-1857)**
- **Sociology as a science of social universe and entities that impact societies**
 - **Social groups, Social institutions, social systems (structure)**
- **Sociology as a science permitting observations of characteristics features associated with social entities and temporal and spatial changes associated with such social entities**
- **Sociology as uncovering scientific laws about human behaviour**
- **As a science, sociology relies on observations reflected in the following:**
 - **Data collection**
 - **Critical thinking**
 - **The use of a sociological imagination**

Ground Transportation Systems

- **Ground/Land Transportation Systems**
 - Human-powered transport
 - Animal-powered transport
 - Machine-powered transport
- **The paper is not concerned with animal-powered transport**
- **The paper is primarily concerned with road transport, not water-based transport**
 - Human-powered transport – Walking and cycling
 - Machine-powered – motor vehicles
- **The main purpose of ground transport is to facilitate movement from a point of origin to a point of destination**

Commuters: The Unit of Analysis

- **Commuters – drivers, passengers, cyclists, motor-cyclists, pedestrians**
- **Passengers, goods or both**
 - Private car, taxi, bus, motor-cycle, bicycle
 - Train? Driver-less vehicle?
- **Pedestrians**
- **Water-based commuters – North-South Ferry Service**

Commuting for Life and Living

- **Material and spiritual well being**
- **Historical materialism**
- **Durkheim's mechanical vs organic solidarity**
- **Population Growth and Urbanization**
- **Commuting as an instantaneous demographic event**

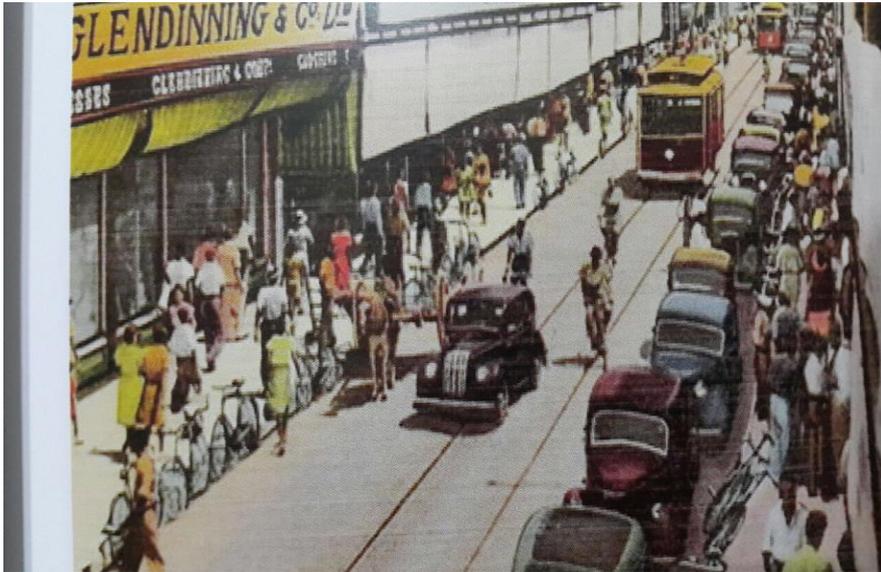
Commuters' Motives

- **To participate in Income Earning Activities**
- **To fulfill the conduct of commercial activities**
- **To attend classes in educational institutions**
- **To fulfill leisure time pursuits**
- **In addressing the above, the following is needed:**
 - **Demographic of commuters – age, sex, socio-economic status**
 - **Points of origin and destination**
 - **Periodicities – daily, weekly, fortnightly, monthly**
 - **Mode of transport**
 - **Peak travel periods**

Problem Setting

- **Don't wait until the problem arises to treat with it**
- **Be pro-active**
- **There is evidence of future trends in population dynamics based on population projections and they are quite robust**

Artist's Impression – Frederick Street Early 20th Century



Population Size in Census Years Port of Spain and San Fernando 1921-2011

Year	Port of Spain	San Fernando	Trinidad and Tobago
1921	61,580	10,610	365,913
1931	70,334	14,353	412,783
1946	92,793	28,842	557,970
1960	93,954	39,830	827,957
1970	62,680	36,879	940,719
1980	55,800	33,395	1,079,791
1990	48,042	28,957	1,169,772
2000	49,031	55,419	1,262,366
2011	37,074	48,838	1,328,019

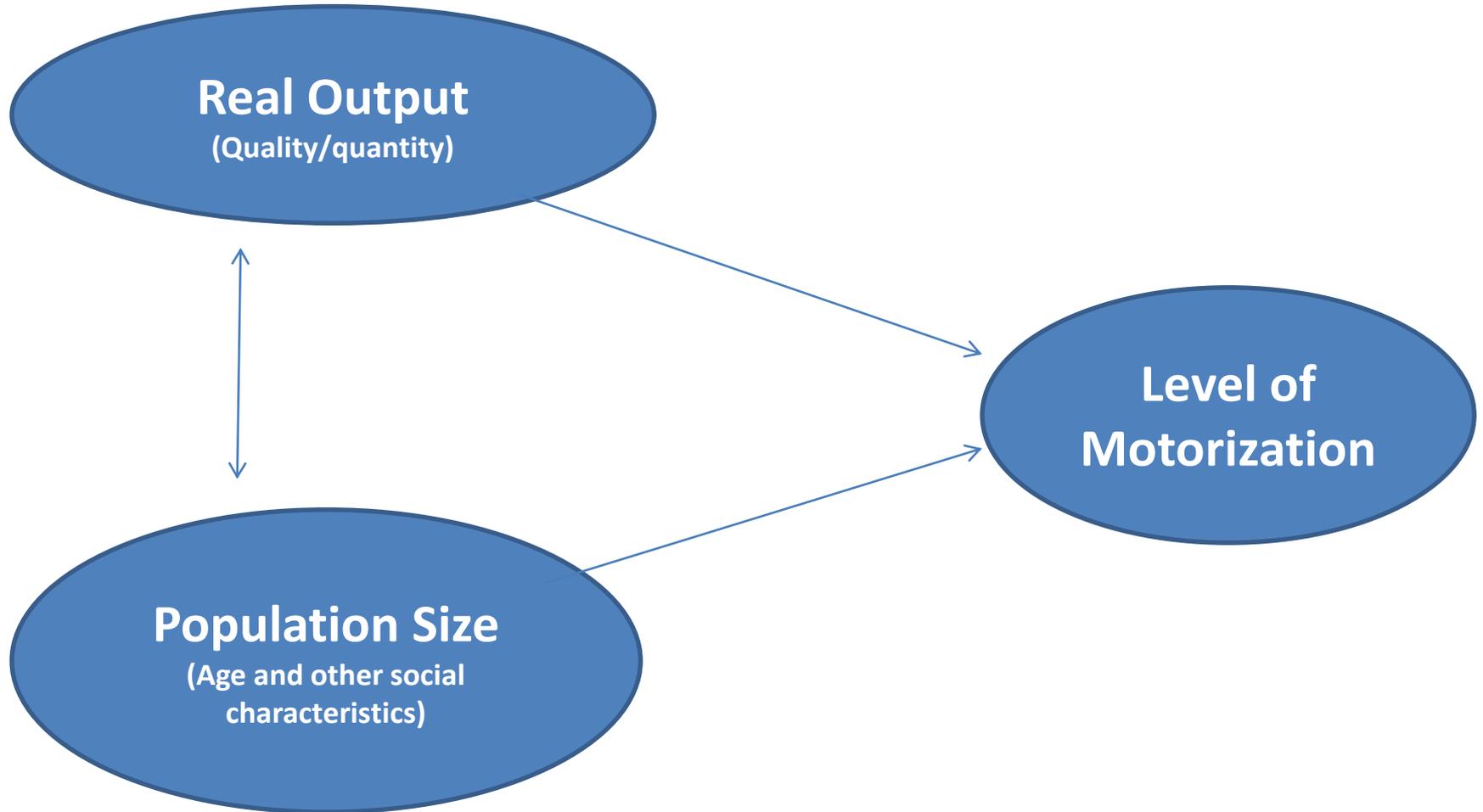
Temporal Events and Social Structure

- **Post-World War II Baby Boom**
- **National Independence**
- **Rapid Population Growth and Urbanization**
- **Disbanding of the Railway System**
- **Oil Boom 1974-1982**
- **Highway Construction**
- **Structural Adjustment**
- **Foreign-Used Car Market**
- **Oil and Gas 1994-2008**
- **Depopulation of Port of Spain**

Methodology and Data

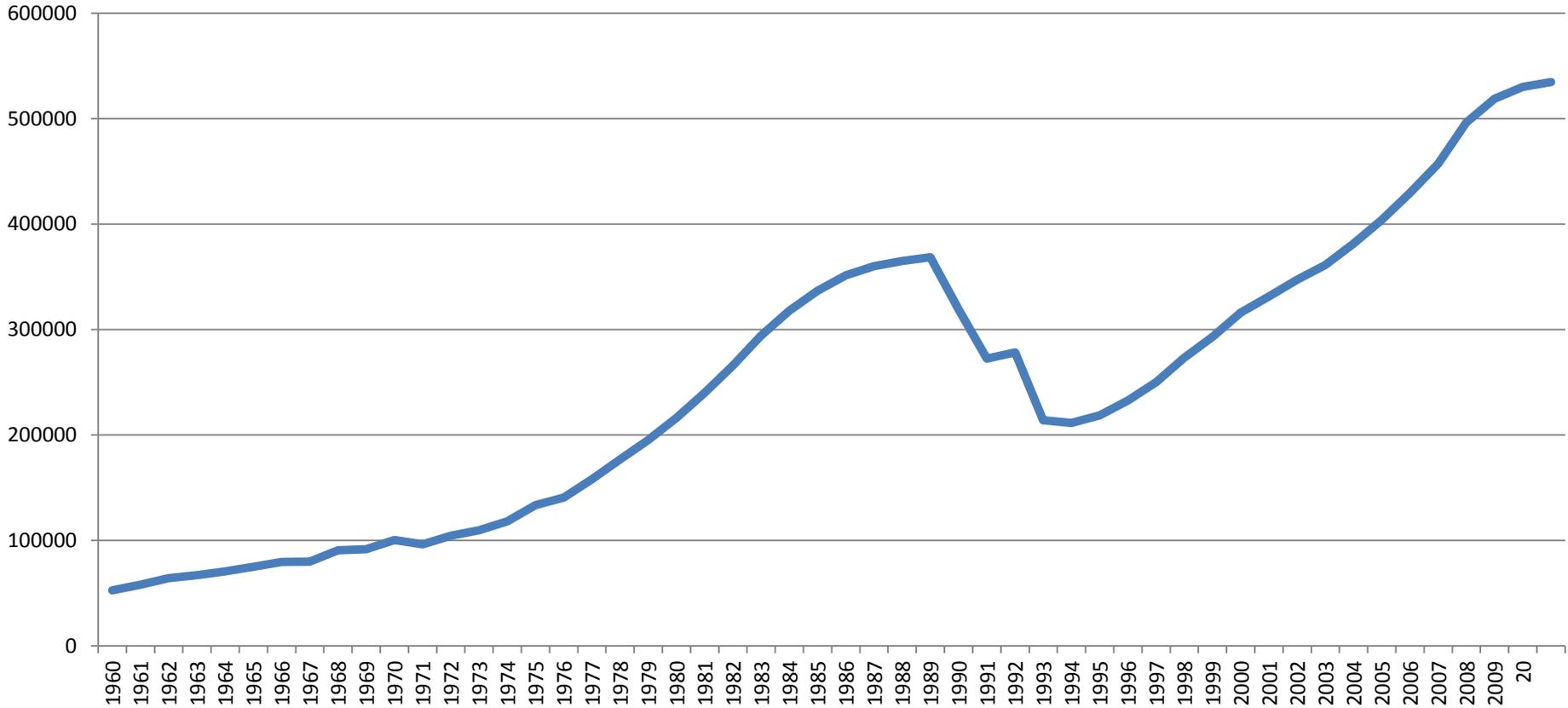
- **Secondary Data Analysis**
 - **Census Data: 1960, 1970, 1980, 1990 , 2000 and 2011**
 - **UN Population Projections 2015-2050**
 - **St. Bernard, Cuffie and Rodriguez (2016)**
- **Key Variables of Interest**
 - **Level of motorization as a factor influencing road traffic congestion**
 - **Estimates of real output**
 - **Past, Current and Projected Population Sizes: National and Persons aged 15-79 years**
 - **Ageing Indicators**
 - **Indicator of Spatial Redistribution**
 - **Tried analyzing data from countries but encountered inconsistencies**

Methodology and Data



Annual Trend in Levels of Motorization 1960-2010

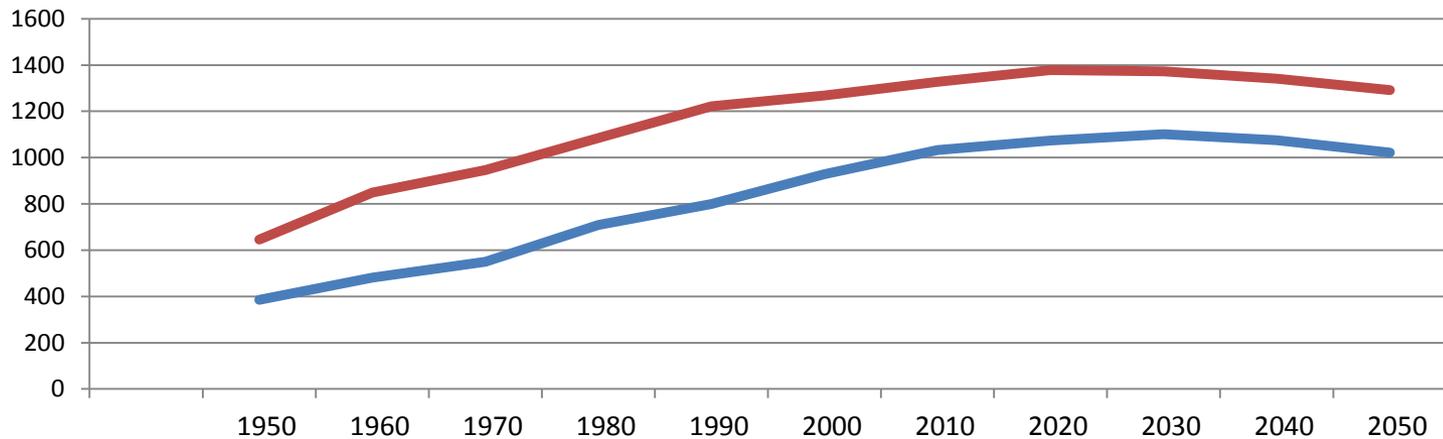
Trinidad and Tobago



Population Projections 1950-2050

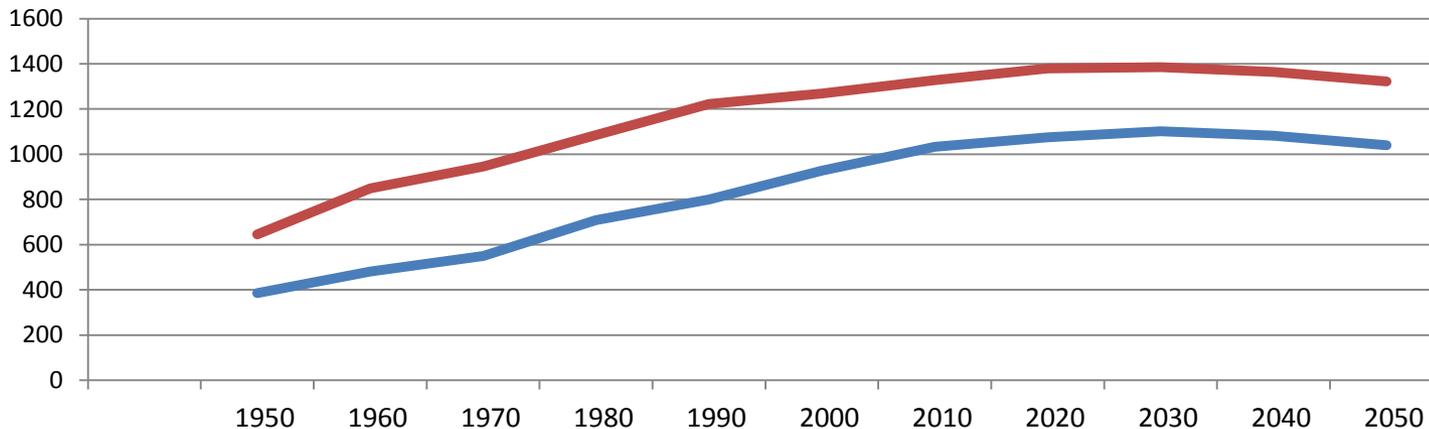
Ten Year Intervals - Trinidad and Tobago

Medium Variant



Total Population
Pop 15-79 years

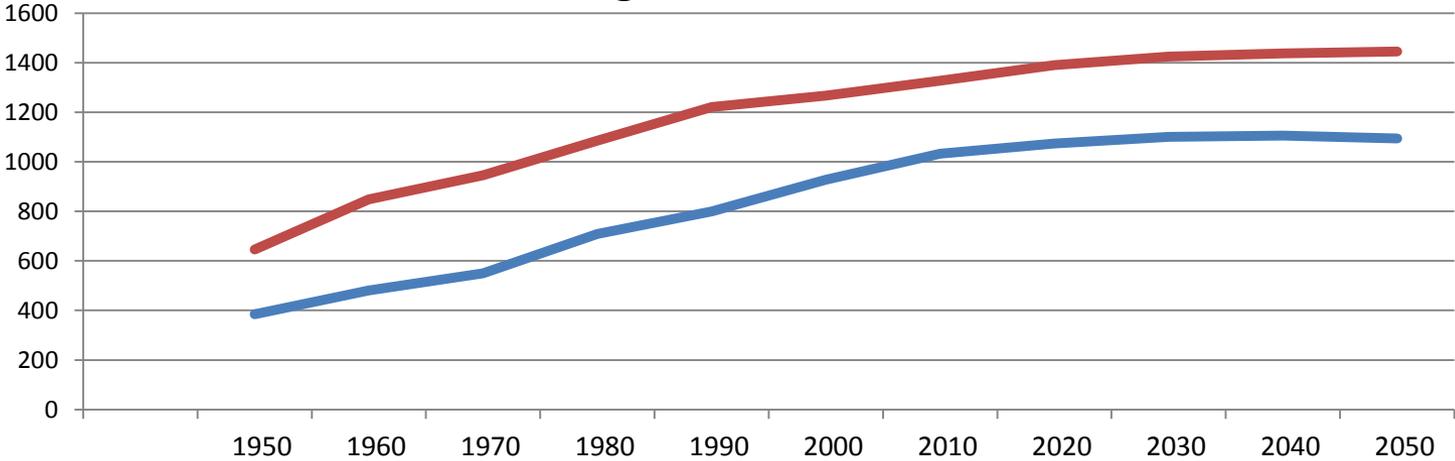
Constant Variant



Population Projections 1950-2050

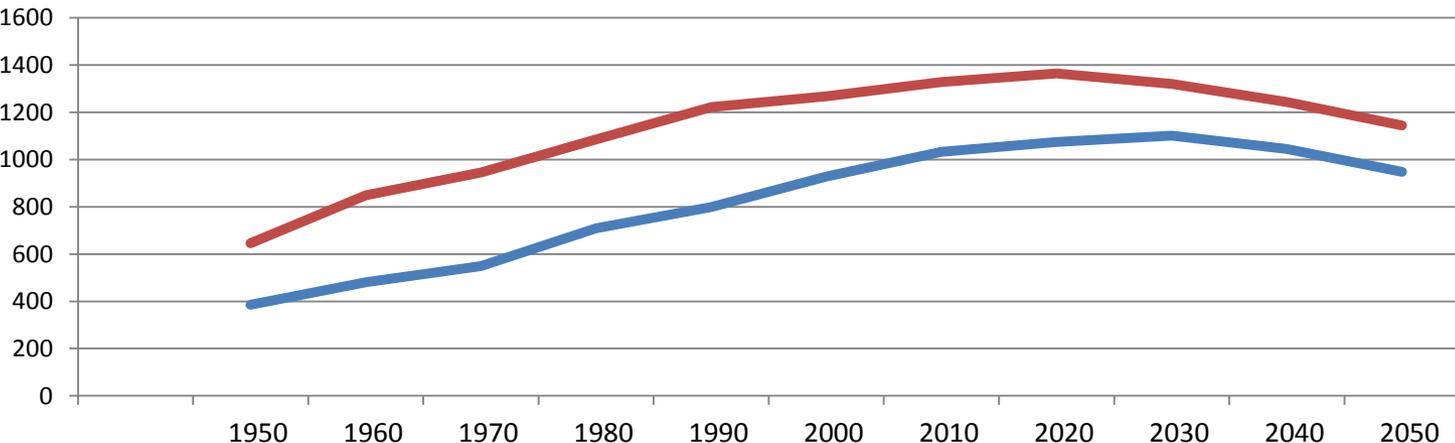
Ten Year Intervals - Trinidad and Tobago

High Variant



Total Population
Pop 15-79 years

Low Variant



Census Population Sizes and Intercensal Population Growth Rates

Year	Population Size	Intercensal Population Change Absolute	Intercensal Population Change Relative	Average Annual Growth Rate
1851	82978	na	na	na
1861	99848	16870	20.3	1.9
1871	126692	26844	26.9	2.4
1881	171179	44487	35.1	3.0
1891	218381	47202	27.6	2.4
1901	273899	55518	25.4	2.3
1911	333552	59653	21.8	2.0
1921	365913	32361	9.7	0.9
1931	412783	46870	12.8	1.2
1946	563222	150439	36.4	2.1
1960	834350	271128	48.1	2.8
1970	945210	110860	13.3	1.2
1980	1079791	134581	14.2	1.3
1990	1213733	133942	12.4	1.2
2000	1262366	48633	4.0	0.4
2011	1328019	65653	5.2	0.5

Projected Population Sizes 2015-2060

Five-Year Age Intervals

	Projected Population	Under 15 Years	15-24 Years	25-64 Years	65+ Years
2015	1360	283	183	766	128
2020	1378	278	173	776	151
2025	1380	260	182	762	176
2030	1373	237	188	744	204
2035	1359	222	178	745	214
2040	1341	216	161	740	224
2045	1319	215	147	719	238
2050	1291	211	141	672	267
2055	1259	203	141	631	284
2060	1223	192	141	610	280

Age Structure of the and Intercensal Population Growth by Municipality Census Years 2000 and 2011

	2000	2011	2000-2011
Trinidad and Tobago	1262366	1328019	5.2
0-4 years	6.8	7.1	...
5-14 years	18.5	13.5	...
15-64 years	67.6	70.4	...
65+ years	7.1	9	...
City of Port of Spain	49031	37074	-24.4
0-4 years	5.9	6.2	...
5-14 years	16.6	12	...
15-64 years	64.5	67	...
65+ years	13	14.8	...
City of San Fernando	55419	48838	-11.9
0-4 years	6	6.4	...
5-14 years	16.7	12.5	...
15-64 years	67.7	68.9	...
65+ years	9.6	12.2	...
Borough of Arima	32278	33606	4.1
0-4 years	6.8	6.9	...
5-14 years	17.9	13.3	...
15-64 years	67.8	70	...
65+ years	7.5	9.8	...
Borough of Chaguanas	67433	83516	23.9
0-4 years	6.9	6.9	...
5-14 years	18.4	13.2	...
15-64 years	69.9	73.1	...
65+ years	4.8	6.8	...
Borough of Point Fortin	19056	20235	6.2
0-4 years	6.5	7.9	...
5-14 years	20.3	13.8	...
15-64 years	64.3	69.4	...
65+ years	8.9	8.9	...
Couva/Tabaquite/Talparo	162779	178410	9.6
0-4 years	6.8	7.1	...
5-14 years	18.7	13.3	...
15-64 years	69	72.3	...
65+ years	5.5	7.3	...
Diego Martin	105720	102957	-2.6
0-4 years	6.9	6.6	...
5-14 years	17.6	13.2	...
15-64 years	66.6	67.9	...
65+ years	8.9	12.3	...

Mayaro/Rio Claro	32143	35650	10.9
0-4 years	7.9	7.6	...
5-14 years	21.3	14.9	...
15-64 years	65.1	70.1	...
65+ years	5.7	7.4	...
Penal/Debe	83609	89392	6.9
0-4 years	6.3	6.6	...
5-14 years	17.9	12.6	...
15-64 years	69.9	72.7	...
65+ years	5.9	8.1	...
Princes Town	91947	102375	11.3
0-4 years	7	7.4	...
5-14 years	19.5	13.4	...
15-64 years	67.3	71.3	...
65+ years	6.2	7.9	...
San Juan/Laventille	157295	157258	0.0
0-4 years	7.3	7.6	...
5-14 years	18.6	14.1	...
15-64 years	66.1	68.9	...
65+ years	8	9.4	...
Sangre Grande	65680	75766	15.4
0-4 years	7.6	7.8	...
5-14 years	20.8	15.1	...
15-64 years	64.9	69.4	...
65+ years	6.7	7.7	...
Siparia	81917	86949	6.1
0-4 years	6.5	7.2	...
5-14 years	19.5	13.3	...
15-64 years	66.3	70.3	...
65+ years	7.7	9.2	...
Tunapuna/Piarco	203975	215119	5.5
0-4 years	6.7	6.6	...
5-14 years	17.7	13.4	...
15-64 years	69.7	71.3	...
65+ years	5.9	8.7	...

Elder Prevalence by Municipality

Census 2000 and 2011 Trinidad and Tobago

Region	Percent 65+ 2000	Percent 65+ 2011	Intercensal Population Growth
Trinidad and Tobago	7.1	9.0	5.2
City of Port of Spain	13.0	14.8	-24.4
City of San Fernando	9.6	12.2	-11.9
Borough of Arima	7.5	9.8	4.1
Borough of Chaguanas	4.8	6.8	23.9
Borough of Point Fortin	8.9	8.9	6.2
Couva/Tabaquite/Talparo	5.5	7.3	9.6
Diego Martin	8.9	12.3	-2.6
Mayaro/Rio Claro	5.7	7.4	10.9
Penal/Debe	5.9	8.1	6.9
Princes Town	6.2	7.9	11.3
San Juan/Laventille	8.0	9.4	0.0
Sangre Grande	6.7	7.7	15.4
Siparia	7.7	9.2	6.1
Tunapuna/Piarco	5.9	8.7	5.5
Tobago	7.8	9.3	12.6

Source: St. Bernard (2014)

Urban/Rural Population Sizes and Share of Population by Municipality – Census 2000 and 2011

Municipalities	Census 2000					Municipalities	Census 2011				
	Total	Urban	Rural	Percentage Urban	Percentage Rural		Total	Urban	Rural	Percentage Urban	Percentage Rural
City of Port of Spain	49031	49031	0	100.0	0	City of Port of Spain	37074	37074	0	100.0	0.0
City of San Fernando	55419	55419	0	100.0	0	City of San Fernando	48838	48838	0	100.0	0.0
Borough of Arima	32278	32278	0	100.0	0	Borough of Arima	33606	33606	0	100.0	0.0
Borough of Chaguanas	67433	67433	0	100.0	0	Borough of Chaguanas	83516	83516	0	100.0	0.0
Borough of Point Fortin	19056	19056	0	100.0	0	Borough of Point Fortin	20235	20235	0	100.0	0.0
Couva/Tabaquite/Talparo	162779	77235	85544	47.4	52.6	Couva/Tabaquite/Talparo	178410	82501	95909	46.2	53.8
Diego Martin	105720	105720	0	100.0	0	Diego Martin	102957	102957	0	100.0	0.0
Mayaro/Rio Claro	32143	4635	27508	14.4	85.6	Mayaro/Rio Claro	36650	5201	31449	14.2	85.8
Penal/Debe	83609	53838	29771	64.4	35.6	Penal/Debe	89392	57157	32235	63.9	36.1
Princes Town	91947	26840	65107	29.2	70.8	Princes Town	102375	31192	71183	30.5	69.5
San Juan/Laventille	157295	155335	1960	98.8	1.2	San Juan/Laventille	157258	154694	2564	98.4	1.6
Sangre Grande	65680	22523	43157	34.3	65.7	Sangre Grande	75766	32957	42809	43.5	56.5
Siparia	81917	30984	50933	37.8	62.2	Siparia	86949	32783	54166	37.7	62.3
Tunapuna/Piarco	203975	195801	8174	96.0	4	Tunapuna/Piarco	215119	205040	10079	95.3	4.7
Tobago	54084	34075	20009	63.0	37	Tobago	60874	37429	23445	61.5	38.5
St. George	5364	0	5364	0.0	100	St. George	6875	0	6875	0.0	100.0
St. Mary	2965	0	2965	0.0	100	St. Mary	3297	0	3297	0.0	100.0
St. Andrew	15830	15830	0	100.0	0	St. Andrew	17536	17536	0	100.0	0.0
St. Patrick	14011	14011	0	100.0	0	St. Patrick	15560	15560	0	100.0	0.0
St. David	7504	1163	6341	15.5	84.5	St. David	8733	1193	7540	13.7	86.3
St. Paul	5412	1812	3600	33.5	66.5	St. Paul	6048	2089	3959	34.5	65.5
St. John	2998	1259	1739	42.0	58	St. John	2825	1051	1774	37.2	62.8
Trinidad	1208282	896128	312154	74.2	25.8	Trinidad	1267144	927751	340394	73.2	26.8
Trinidad and Tobago	1262366	930203	332163	73.7	26.3	Trinidad and Tobago	1328019	965180	363839	72.7	27.3
Tobago	54084	34075	20009	63.0	37	Tobago	60874	37429	23445	61.5	38.5

Urban/Rural Population Growth by Municipality – Intercensal Period 2000 - 2011

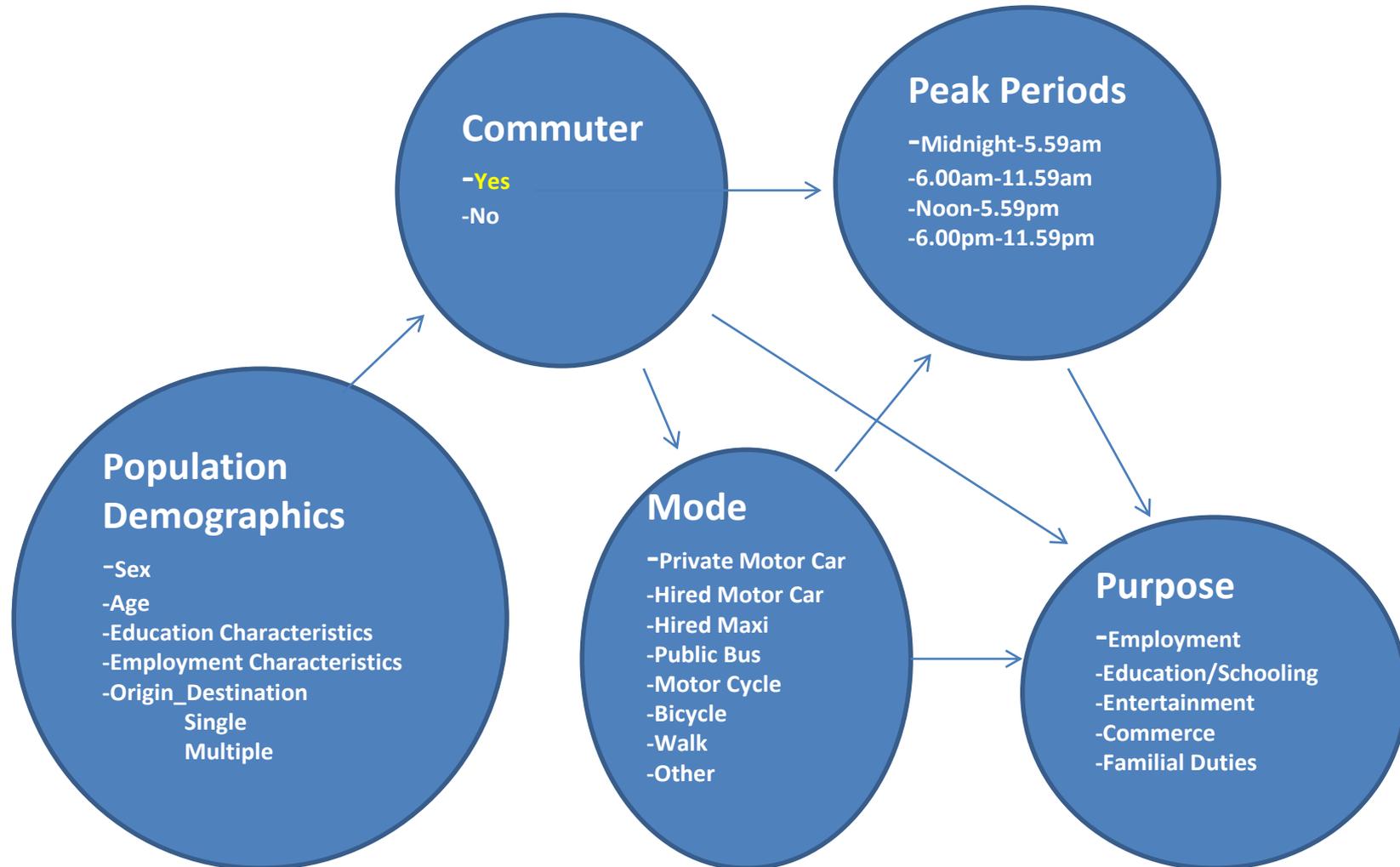
Municipality	Urban Growth	Rural Growth
City of Port of Spain	-24.4	0.0
City of San Fernando	-11.9	0.0
Borough of Arima	4.1	0.0
Borough of Chaguanas	23.9	0.0
Borough of Point Fortin	6.2	0.0
Couva/Tabaquite/Talparo	6.8	12.1
Diego Martin	-2.6	0.0
Mayaro/Rio Claro	12.2	14.3
Penal/Debe	6.2	8.3
Princes Town	16.2	9.3
San Juan/Laventille	-0.4	30.8
Sangre Grande	46.3	-0.8
Siparia	5.8	6.3
Tunapuna/Piarco	4.7	23.3
Tobago	9.8	17.2
St. George	0.0	28.2
St. Mary	0.0	11.2
St. Andrew	10.8	0.0
St. Patrick	11.1	0.0
St. David	2.6	18.9
St. Paul	15.3	10.0
St. John	-16.5	2.0
Trinidad	3.5	9.0
Trinidad and Tobago	3.8	9.5
Tobago	9.8	17.2

Macro-Level Insights

- **The motor vehicles have already flooded the roadways. Many are here for the long haul**
- **Projected population sizes sustained at post 20th century levels up until at least 2050 despite ageing population**
- **Motor vehicle usage may be still sustained at a high level albeit in different directions for different purposes**
- **We have to use our sociological imagination**
- **Population projections by age, sex and municipality could help**

Micro-Level Insights

Controlling for Periodicities



Towards an Interdisciplinary Approach

Concluding Remarks

- **Need for continuous demographic projections at national and spatial levels**
- **Micro-level household surveys of commuting behaviour and pattern – every five years**
- **Education planning and school placement**
- **Economic Development policy – The emergence of new industries and their respective locations. Also, careful monitoring of international economic environment**

Towards an Interdisciplinary Approach

Concluding Remarks

- **Criminological Insights – Fear of Crime, Reducing Crime and Violence, Promoting Personal Safety, Maintenance of Law and Order**
- **Workplace practices in particular nurseries and day care facilities. What about virtual work spaces/working from home.**
- **The changing nature of work in response to the IT revolution and overcoming the digital divide – Some sociological imagination needed here**

Thanks for Your Attention

