



Housing Finance Policy under Dutch Disease Pressure:

The Mortgage Market in Trinidad and Tobago

Sebastián Auguste
Ramiro Moya
Sandra Sookram

**Inter-American
Development Bank**

Department of Research
and Chief Economist

TECHNICAL NOTES

No. IDB-TN-302

December 2011

Housing Finance Policy under Dutch Disease Pressure:

The Mortgage Market in Trinidad and Tobago

Sebastián Auguste
Ramiro Moya
Sandra Sookram



Inter-American Development Bank

2011

<http://www.iadb.org>

The Inter-American Development Bank Technical Notes encompass a wide range of best practices, project evaluations, lessons learned, case studies, methodological notes, and other documents of a technical nature. The information and opinions presented in these publications are entirely those of the author(s), and no endorsement by the Inter-American Development Bank, its Board of Executive Directors, or the countries they represent is expressed or implied.

This paper may be freely reproduced.

Abstract¹

This work analyzes housing finance in Trinidad and Tobago during the last 20 years. The period covered is influenced by an economic bonanza led by the energy sector. Housing prices in this period skyrocketed, but the demand for mortgage loans was low. The results suggest that this is explained by affordability problems in the dynamics of the new post-shock equilibrium, as housing prices increased more rapidly than wages. Public housing finance also played a role, but in recent times it has been more prudently managed than during the previous boom of the 1970s.

JEL Codes: N96, R2, R28

Keywords: Trinidad and Tobago, Housing, Housing finance

¹ This study was undertaken as part of the Latin American and Caribbean Research Network project “Housing Finance in Latin America and the Caribbean: What is Holding it Back?” We thank Gabriel Zaourak and Pablo Roccatagliata for their excellent research assistance. We also thank Arturo Galindo, Alessandro Rebucci, Frank Warnock, Veronica Cadac Warnock, and Patrick Watson for their invaluable comments. All remaining errors are our own responsibility. Sebastián Auguste and Ramiro Moya are affiliated with the Fundación de Investigaciones Económicas Latinoamericanas. Sandra Sookram is affiliated with the Sir Arthur Lewis Institute of Social and Economic Studies at the University of the West Indies.

1. Introduction

For a variety of reasons, housing has always been a sensitive topic in Trinidad and Tobago (T&T), an energy-dependent country with a small open economy. First, land is scarce, and housing competes with other uses. Second, the economy is influenced by international energy prices that have generated volatility; in the past, these prices were augmented by pro-cyclical fiscal policies. Third, and because of the size of the energy sector (approximately 50 percent of GDP and 80 percent of exports), the economy is subject to Dutch Disease problems that, among other things, affect the price of housing, a non-tradable. Since the energy sector employs only 7 percent of the total labor force, income shocks related to the energy sector's fortunes are not directly translated into higher wages. On the other hand, public sector resources increase significantly during booms and, in the past, the public sector has reacted to affordability problems during booms through spending more on housing, which might have aggravated the problem. In the current boom, the evolution of the mortgage market and that of the policy response have been different from what was observed in the 1970s.

The relationship between housing finance and the macroeconomic management of income shocks is one of the reasons why studying the case of T&T is interesting, but there are further reasons. The country's housing finance system is relatively well developed, and public intervention includes policies that range from the typical public housing programs of developing countries to more sophisticated interventions in the secondary market. The institutional and regulatory frameworks are appropriate, and the system has long-term funding from pension funds and insurance companies. Finally, T&T has better standards than the average Latin American country in terms of rule of law.

In spite of the attractiveness of the T&T case for economic analysis, and keen public interest in housing, there are not many studies in T&T analyzing housing finance, and data are rather scarce. The most recent study we have found is a report undertaken by Planning and Development Collaborative International (PADCO) in 1993, which generally analyzes housing, but not housing finance in particular.^{2,3} The aim of this paper is to fill this gap by providing a

² There are not updated measures of housing conditions, even though there are some databases, such as the Survey of Living Condition (SLC) and the Continuous Sample Survey of Population, which contains some limited information about housing. The available information regarding housing finance in the SLC has never been analyzed either. In addition, macro level statistics regarding housing finance are not readily available.

comprehensive study of the housing finance system in T&T. For this purpose we have made an effort to put together non-public information regarding housing finance, to upgrade standard measures of housing (such as quality and deficit) and to analyze for the first time housing finance data contained in the Surveys of Living Condition (SLC). Our analysis tracks the housing finance system since the early 1990s. We analyze the SLC of 1992 and 2005, which is particularly interesting since it gives us microdata before and after the boom. We also analyzed sector-level information gathered from several sources. We have complemented the data with interviews with the main actors in the private and public sector.

The period we analyze is characterized by a strong economic boom starting in 1994, ignited by the development of new natural gas reservoirs, after 10 years of severe economic contraction (between 1982 and 1993, GDP per capita measured in USD shrank by almost 50 percent). In the 2000s this boom was further stimulated by the increase in energy prices. In this period GDP grew by almost 7 percent per year, housing prices skyrocketed, aggregate liquidity was very high and interest was low. In spite of the wealth shock, however, mortgages contracted, falling from 18 percent of lending in 1995 to just 9 percent in 2007, or from 25 percent of the total credit to the private sector to 20 percent.⁴

In this paper we show that these stylized facts about the mortgage market and housing in T&T can be explained by two complementary factors. First, affordability issues during the boom limited the demand for mortgage. The income shock originating from the new reservoirs first, and high energy prices later, did not spread equally through the population, but land prices incorporated the shock very quickly. In T&T, between 2002 and 2007 the median house price increased by 72 percent and consumer prices by 35 percent, while real wages remained stagnant. This GDP growth did not translate immediately into wages, but it did push land prices up. Very high unemployment rates at the beginning of the boom (around 20 percent) allowed the economy to grow without wage increases for several years, although household income increased due to the additional worker effect (particularly in low-income households who were the most affected

³ The only additional documents we have found related to our topic is a public education series pamphlet elaborated by the Central Bank of Trinidad and Tobago that provides some basic descriptive statistics of the Mortgage Market for students and interest public (Public Education Pamphlet #3, The Residential Mortgage Market in Trinidad and Tobago, Central Bank of Trinidad and Tobago, 2007).

⁴ There is no official data for residential real estate prices, but the Central Bank estimates residential housing median prices using data supplied by the Association of Real Estate Agents (AREA) and private sector valuers.

by high unemployment rates).⁵ This means that housing became less affordable for a large part of the population during the boom, particularly for those who still did not have a house. In addition, those who benefited from the income shock directed the resulting liquidity to the housing market. The investment in real estate can be explained as a result of the lack of investment opportunities in a country that suffers from Dutch Disease. In other words, the loss of competitiveness for tradable goods and services other than those related to the energy sector did not generate opportunities for investment in the real sector (see Artana et al., 2008). Under these circumstances, as the income shock spread through the population, and in compensation for the under-investment of the 1980s, demand for housing and housing upgrading increased. Not surprisingly, in this period developers flourished in T&T, undertaking new large-scale projects for middle-income families and targeting a segment of the population with a demand for better quality housing. The real GDP of the construction sector increased 162 percent between 1993 and 2003, compared to a contraction of almost 40 percent between 1982 and 1993. The supply response, however, was insufficient to prevent an increase in housing real prices. Demand from expatriates,⁶ competition for land for other uses on a small island, and an increase in crime⁷ (which created a demand for new buildings in safe places) also fuelled prices. As a consequence, demand for mortgages declined in this period, since income did not follow the increase in house prices.

Second, there was a change in the government housing policy. In the previous oil boom of the 1970s, the government used the windfall for large-scale housing construction programs, creating a vicious cycle, pushing prices even higher and exacerbating Dutch Disease problems. The policy response of the government of T&T in the 2000s was different. It focused on quality upgrading through subsidies and regularization of squatters rather than on facilitating mortgages, as in the past; these policies targeted low-income families. This explains part of the relative fall

⁵ The unemployment rate at the end of 2006 was 5.9, compared to 20.4 percent at the end of 1990, and the labor participation rate increased from 58 percent in 1990 to almost 64 percent in 2006. Nevertheless, in this period the labor share of total output decreased, meaning that labor income did not follow GDP growth.

⁶ Increased activity in the oil and gas sector has also had a spillover effect on the real estate market in terms of the increased demand for homes for the expatriate community (which typically are renters and not owners, and willing to pay for high-quality housing), and this has translated into an investment opportunity for many. Trinidad and Tobago is a net importer of migrant labor, such as doctors, nurses, construction workers, natural gas specialists and aluminum construction specialists. For instance, in 2001 the Government of Trinidad and Tobago issued 684 work permits for foreign workers, which increased to 4,434 in 2005, and 12,212 in FY 2007-2008.

⁷ Increasing problems with crime in the country generated a “gated-community phenomenon” in which the middle-income group increasingly demanded housing solutions with additional security features.

in mortgage loans: the public sector share in the total supply of mortgage loans fell from 35 percent in 1995 to 20 percent in 2007. At the macro level there was more prudent macroeconomic management of the boom as well. Particularly notable in this regard was the creation of the Heritage and Stabilization Fund (HSF), financed by excess oil and gas income, in order to protect the economy from the fluctuations of international oil prices. In spite of more prudent macroeconomic policy and the focus on upgrading, the recent boom in oil prices nonetheless translated into a sharp rise in the real estate property prices. In fact, the correlation of house prices and energy prices in T&T remains remarkably high. The median price of a three-bedroom house increased by 145 percent in the 1995-2007 boom, but the economic contraction of the following two years led to a strong correction in the housing market. From 1995 to 2009, this median price increase ebbed to 93 percent.

With housing price skyrocketing, the public sector reducing its share in the mortgage market, and wages not following GDP, the demand for mortgages, particularly for the middle income households (the natural target for mortgages loans) did not grow as fast as the GDP. These simple facts explain why a booming economy did not produce a booming mortgage market.

A closer view of the mortgage market during these years shows a U-shaped evolution. Wages started to increase by the mid 2000s and, not surprisingly, so did the demand for mortgage loans. The real demand for mortgage loans (adjusted by CPI) decreased by 0.5 percent yearly between 1995 and 2003, but from 2003 to 2009 it grew at 5 percent yearly year. Between 1995 and 2003, mortgage loans measured in terms of the median house price decrease by 7 percent yearly, but since 2003 they have increased by 10 percent annually. After the correction in house prices from 2007 to 2009, the demand for mortgage loans increased even more. In this changing market homeowners have to some extent replaced real estate investors—many of them forced to rebalance their portfolios in the wake of the international financial crisis.

The case of T&T is very interesting, as it illustrates the dynamics of the mortgage market when a developing economy with limited investment opportunities is favored by a large income shock. This case shows that affordability problems might be difficult to avoid and housing prices might overshoot, particularly in terms of wages. An expansive mortgage policy in the boom might not be desirable since it exacerbates un-affordability. Other policies, such as public rental or upgrading subsidies, might be temporarily more effective.

The rest of this paper is organized as follows: Section 2 presents the main characteristics of the housing finance system in T&T, Section 3 provides empirical evidence, and Section 4 summarizes the main conclusions.

2. Housing Finance in Trinidad and Tobago

2.1. The Housing Market

Both the public and private sectors undertake the supply and financing of houses in T&T. The state enters the housing market through the direct production of new houses, the provision of housing solutions such as squatter upgrading and public rentals, subsidies,⁸ public mortgages and a secondary market for mortgages. The public sector is an important player; it supplied around 50 percent of the new houses and almost 30 percent of the value of new mortgages loans in the period analyzed. Housing policy is set by the Ministry of Housing (MH), and the policy intervention is justified on distributional grounds.

The demand for housing is directly related to population growth (0.4 percent per year), new household formation is low and home ownership is high (77 percent according to the 2000 Population Census). Remarkably, home ownership rates are high even among the poorest, see Table 1. In fact, the ownership rate at the first quintile is close to the rate observed at the fourth quintile and there are no significant differences in ownership rates except for the top income group. On the other hand, renting from the private sector is positively related to income, whereas renting from the government and renting for free are concentrated at the bottom strata (which makes sense not only because government programs target the poorest, but also because there are constraints in rental price adjustment for rents below a given threshold, which might deter the entrance of the private sector in this segment of the market). Home ownership in T&T is high even for the Latin American and Caribbean standards, although the very high ownership in low income households is observed in the region (see Table 2).

⁸ The major categories of subsidies have been below-market-price rent of apartments, loans at subsidized interest rates and below-market-price sale of public houses.

Table 1. Tenure According to 2000 Census

	Average	Quintile				
		First	Second	Third	Fourth	Fifth
Owned	76.8%	76.2%	75.7%	75.0%	76.9%	80.2%
Rented Private	12.9%	10.8%	12.1%	13.9%	14.4%	13.5%
Rented Government	1.9%	2.3%	1.9%	1.8%	1.8%	1.4%
Leased Private	0.2%	0.2%	0.2%	0.1%	0.2%	0.3%
Leased Government	0.4%	0.3%	0.3%	0.4%	0.4%	0.5%
Rent Free	6.8%	8.6%	8.5%	7.6%	5.5%	3.5%
Squatted	0.5%	0.7%	0.6%	0.5%	0.3%	0.2%
Others	0.7%	1.0%	0.7%	0.6%	0.6%	0.4%

Source: Census of Population (2000).

Table 2. Home Ownership Rate from a Regional Perspective

	Average	Quintile				
		First	Second	Third	Fourth	Fifth
Bahamas (2001)	57.7	53.9	49.8	57.0	57.8	65.7
Haiti (2001)	67.5	55.2	71.1	73.6	75.9	61.9
Jamaica (2001)	60.9	68.2	65.8	52.4	57.6	57.9
Suriname (1999)	62.4	67.3	58.8	61.9	47.6	71.2
<i>T&T (Census 2000)</i>	76.8	76.2	75.7	75.0	76.9	80.2
<i>Central America</i>						
Dominican Rep. (2000)	68.1	72.3	71.3	65.2	65.1	67.7
Guatemala (2002)	72.1	87.5	78.5	67.8	63.7	67.4
Honduras (2001)	73.1	84.0	74.9	69.4	68.1	71.1
Mexico (2000)	74.4	78.0	71.9	72.1	73.4	76.4
<i>South America</i>						
Argentina (2000)	70.0	57.2	67.4	70.0	72.4	77.2
Brazil (2001)	68.7	62.0	64.0	67.7	71.1	76.0
Chile (2000)	64.9	53.1	62.4	67.5	70.2	67.6
Paraguay (2001)	76.7	81.2	79.3	76.0	74.6	74.2
Uruguay (2000)	68.4	40.4	58.9	68.0	75.7	84.1

Source: Authors' compilation for T&T; SEDLAC for other countries.

According to the government, there is still an acute shortage of housing, with the quality of housing being the main concern; no updated statistics, however, are available to estimate the shortage (Information Memorandum from the Housing and Development Corporation, January 29, 2009). At the same time, public records from the Ministry of Housing show there are 107,000 applicants for housing in a country with 1.3 million inhabitants. Most of these applicants do not have enough resources to access a mortgage, which means that affordability is an issue.

With microdata from the 2000 Census we compute different measures of quality, showing that unobserved differences in homeownership by income are offset by lower quality in low-income households, as seen in Figure 1. For instance, 84 percent of homes in the richest quintile have outer walls of brick and concrete, 80 percent have access to a water pipeline and 91 percent access to sewerage or a septic tank, whereas in the poorest quintile these indicators are only 57 percent, 50 percent and 59 percent, respectively. We do not find significant differences in type of dwelling by income, except for the category of Barracks, Out-Room and Group Dwelling, which, as expected, is relatively more concentrated in low income quintiles. Nonetheless, this represents only around 2 percent of total houses.

Figure 1. Quality of Housing by Income Quintile

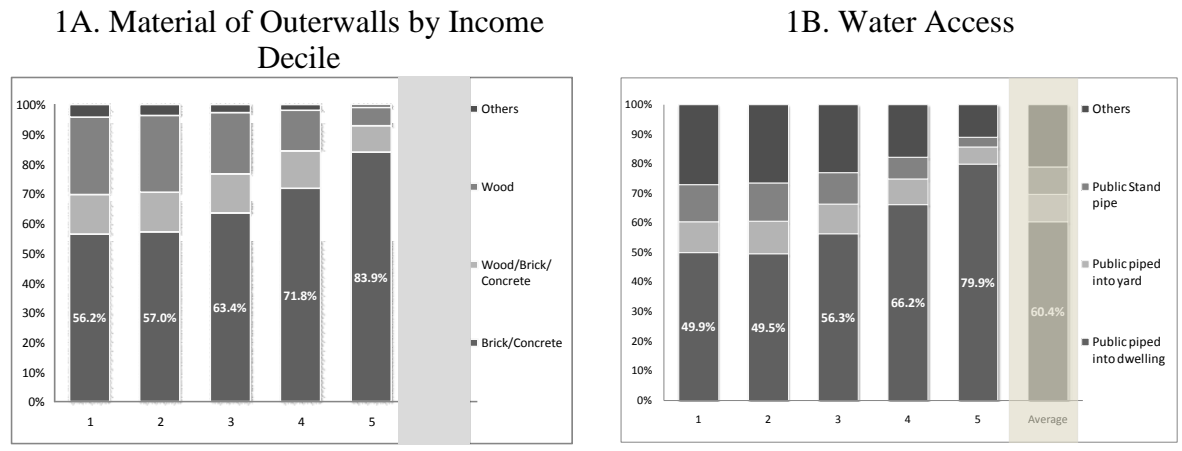
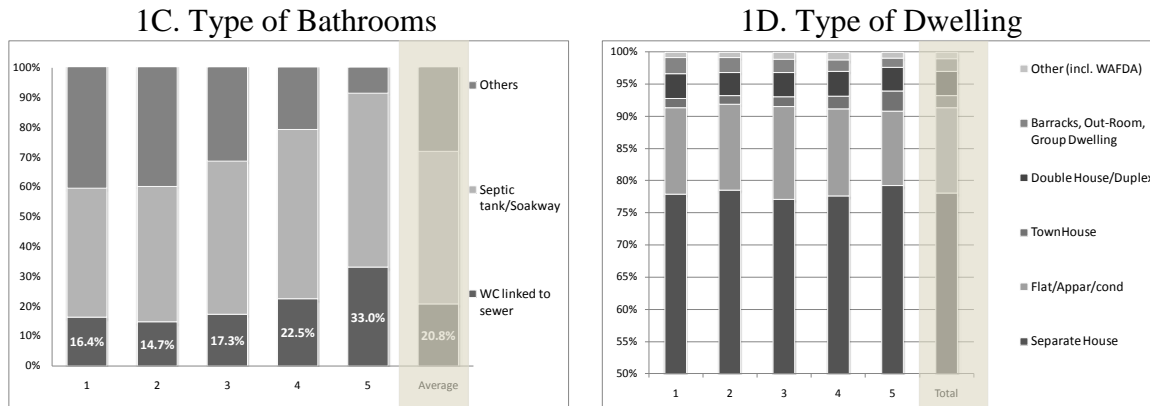


Figure 2., continued



Source: Authors' compilation based on Census of Population (2000).

2.2. Policy Interventions

T&T has been implementing a housing policy for over 60 years, with several significant changes. After independence, housing finance was formulated to provide assistance to build houses to address the large housing deficit. This policy changed in the 1970s, as a rich government benefiting from large oil shock revenues (with GDP growing by a whopping 73 percent from 1970 to 1977) moved to the direct construction of homes. By 1975 the government launched a massive public building program that would built would more than 32,000 housing units in the following 11 years; in 1975 T&T's population was 1.01 million. This program originated public mortgage loans to repay the house, at subsidized rates, managed by the Trinidad and Tobago Mortgage Finance Company Limited (TTMF), a state-owned institution which has been in operation since 1961.⁹

The massive programs of the 1970s are largely responsible for the high ownership rates of T&T and the high ratio of mortgage to GDP of the 1980s. Homeownership increased from 65 percent in 1980 to 74 percent in 1990. In the 1970s, with the oil boom, not only did personal income increase, but the government also promoted housing by implementing massive public housing programs, increasing expenditure on subsidized housing and following a very expansionary monetary policy. High liquidity and lax regulations allowed the expansion of

⁹ TTMF was created soon after independence, with 80 percent owned by the Commonwealth Development Corporation and 20 percent was owned by the Government of Trinidad and Tobago, to provide mortgage finance to the purchasers of dwelling houses, including land. In 1974 the National Insurance Board was included among the stockholders. In 1980 the CDC share was bought by the Government of Trinidad and Tobago, and it became a locally owned company (51 percent Government of Trinidad and Tobago and 49 percent NIB).

commercial mortgages as well, with newly established financial houses and local commercial banks that increased systemic risk. Workers' Bank, for instance, introduced a novel product, the Varinstall mortgage; at the beginning of the loan there is a deferment of the repayment of principal, with initial part payment of interest and a variable amortization installment that increased over the term of the mortgage loan. This product allowed Workers' Bank to become the leading commercial bank, but its position was based on lending to risky borrowers and on secondary mortgages on the same asset. The end of the oil boom and poor management practices resulted in chronic liquidity problems that eventually caused its technical insolvency and the ultimate intervention of the Central Bank in April of 1989. In this period, four banks in addition to Worker's Bank, collapsed, as nonperforming loans in the system peaked at almost 40 percent of total mortgage loans.

The decline in petroleum prices in the 1980s led to a sharp contraction of the economy in terms of both output and unemployment. After the major public programs were completed, construction collapsed: its share of GDP fell from 15 percent in 1982 to 8 percent in 1990. In this period, the construction industry's GDP contracted 67 percent, whereas the entire economy contracted 28 percent. Given that the construction sector was T&T's main employer at that time, the unemployment rate increased sharply from 10 percent in 1982 to 22 percent in the late 1980s.

The burst of the 1970s boom led to a period of underinvestment and increasing squatting activities on both private and public lands. Most construction activity in the late 1980s and early 1990s was limited to minor road building, some hotel, housing and factory construction. Although the construction sector continued to be seen as key to providing employment, lack of resources limited public intervention.

After 1991, the focus changed to the provision of serviced housing lots, supplemented with highly subsidized loans. Housing projects were also becoming more sophisticated (including self-help schemes), after improper design and construction had made government housing projects unpopular in previous years. The Government of Trinidad and Tobago has adopted a more integrated approach to housing using a combination of policies and programs directed at building more housing units and providing mortgages, and improving the regulatory framework of the sector.

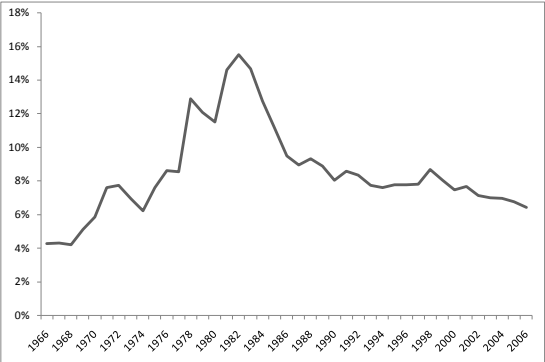
In this period housing policy changed from the large public housing programs of the past to squatter regularization and quality upgrading through subsidies; this explains why public

mortgages (and mortgages in general) fell as a percent of GDP in this period. It was followed by upgrading and expansion of public rental housing and rent-to-own programs. In this period, public intervention targeted low-income households through subsidies and by providing liquidity in the secondary market for mortgages through the Home Mortgage Bank (HMB), a public/private partnership—HMB is the only institution operating in the secondary mortgage market, buying mortgage backed-securities (MBS) issued by primary lenders.

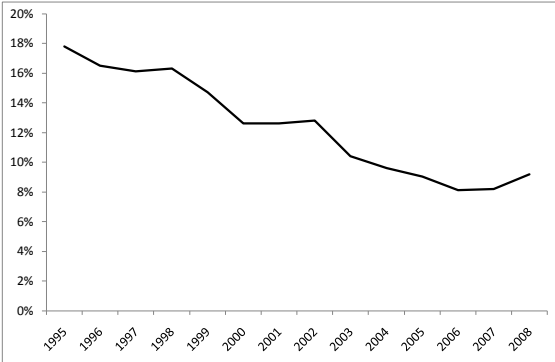
Public pressure due to the large increase in housing prices and the alleged lack of response from the private sector in providing more mortgages led to a further change in government policy, emphasizing public construction and public mortgages. In 2004 HMB began to lend in the primary market as well, but with more favorable loan conditions than private banks: lower interest rates and administrative costs, and a higher loan-to-value ratio (LTV up to 95 percent), with no penalties for early repayment. The change in policy was justified by the slowdown in the secondary market, due to excess liquidity in the system and private banks' lack of interest in using the secondary market more intensively.

Figure 3. Evolution of Construction and Mortgage Loans

2A. Share of Construction and Quarrying on GDP



2B. Evolution of Stock of Mortgage loans to GDP ratio



Source: Authors' compilation based on data from the Central Bank of Trinidad and Tobago.

Like HMB, TTMF has broadened its activities and now makes large mortgage loans for private housing. Its programs are designed to supporting housing acquisitions of low and middle-income families. The loans are usually undertaken at a heavily subsidized interest rate (currently at about 2 percent per annum), a longer term (up to 30 years) and up to the full value of the property (LTV of 100 percent).

The Housing Development Corporation (HDC) replaced the National Housing Authority with an expanded mandate, offering assistance to low to middle-income families. Of particular note is the Rent-to-Own Program, in which clients who have been allocated a public housing unit but do not qualify for a mortgage can rent the house for five years with the option to purchase. At the end of the five-year period, two-thirds of the rental payments are applied as a deposit for the purchase of the property and the rent is converted to mortgage payment.

Another policy intervention of note is the Approved Mortgage Company Program, introduced in the 1970s. This program has been traditionally an important anchor of the residential mortgage market. Most private lenders participate in this program, which seeks to facilitate home acquisition by low and middle-income families. It provides for subsidized rates for mortgage loans, up to certain limits. In addition to a subsidized interest rate set by the government, the borrower received full tax exemption for interest payments on the mortgage loan. Until 2005 the benefit for the lender was also tax exempted. With the change in the tax legislation, the program was no longer attractive to lenders. In 2001, 25-30 percent of total loans from private mortgage institutions were under the Approved Mortgage Company Program; currently there are just a few. TTMF has replaced the private sector share, increasing its participation, having currently almost 80 percent of its mortgage portfolio in the program.

In addition, there are several policies and programs that provide non-mortgage public financing, and often, just subsidies:

- The Accelerated Housing program, implemented in 2003, consists of three components: Infill Lots, Joint Venture and the Urban Housing program. New homes are allocated to first-time home-owners according to the Cabinet approved Allocation Policy: i) 75 percent are allocated to public applicants through the computerized random selection process; ii) 10 percent are reserved for the Joint Protective Services—the Police, Army, Prisons, Coast Guard and Fire Services; and iii) 15 percent are reserved to deal with Special Emergency Cases, Senior Citizens and Disabled Persons.
- The *Home Improvement Grant* and *Home Improvement Subsidy* are provided by the Ministry of Planning, Housing and the Environment to assist low-income households in carrying out critical repairs to their homes, thereby

maintaining the existing housing stock. The Home Improvement Grant is a non-repayable grant of up to \$15,000.00 that is disbursed in two tranches of \$7,500.00 each. The Home Improvement Subsidy provides a non-repayable dollar-for-dollar matching subsidy of up to \$20,000.00.

- The *Beneficiary Owned Land Program* provides subsidies for construction for low-income individuals who are owners of their land.

2.3. Structure of the Mortgage Market in T&T¹⁰

The primary mortgage market in Trinidad and Tobago is comprised of commercial banks, trust companies and mortgage institutions, merchant banks and insurance companies.¹¹ Most of the trust companies and merchant banks are affiliated with commercial banks. In addition to these private sector institutions, mortgage financing is provided by TTMF and HMB, as well as some pension funds and credit unions (CBTT, 2007).

Table 3. Main Actors in the Mortgage Market in T&T

Main Commercial Banks	Other Financial Institutions
Scotiabank Trinidad and Tobago Limited	Home Mortgage Bank Limited (HMB)
RBTT Bank Limited	Trinidad and Tobago Mortgage Finance Company Limited (TTMF)
Republic Bank Limited	Guardian Life Insurance Limited
Citibank (Trinidad and Tobago) Limited	Maritime Financial Limited
First Citizens Bank Limited	Sagicor Limited
Intercommercial Bank Limited	CL Permanent
	Eastern Credit Union Society

Source: The Residential Mortgage Market in Trinidad and Tobago, Central Bank of Trinidad and Tobago (2007).

HMB is the only player in the secondary mortgage market financed with long term funding. TTMF is financed through the issuance of long-term bonds and long-term loans from institutions such as the Inter-American Development Bank.

¹⁰ Based on CBTT (2007).

¹¹ Some insurance companies provide mortgage lending to policy holders through their mortgage administration departments, although they are limited by law to lend up to the equivalent of 20 per cent of total assets. Pension funds also invest in mortgages, but with similar limitations as the insurance companies, usually lending directly to their membership.

In the past, the public sector provided most mortgage lending, but this has changed as the private sector has quickly expanded. In the private sector, the primary mortgage market was dominated by trust and mortgage institutions until 2004 (accounting for almost 50 percent of total mortgage loans extended by private institutions). These institutions were affiliated with commercial banks, as a response to higher reserve requirements for banks (18 percent compared with 9 percent before the change). In 2003 the reserve requirement for commercial banks was reduced to 11 percent, which induced a change in the strategy of private banks, and many trust and mortgage companies were absorbed by their parent company. Overall (adding both types of loans), there was no change in total mortgage lending in the private sector before and after the policy change, suggesting that reserve requirements were not constraining the mortgage market).

Another important change in the banking system was the increase in liquidity held by outstanding entities, reducing the incentives to issue MBS in the secondary market. This helps to explain the reduction in the secondary market activity in recent years. In fact, interview responses from commercial banks indicate that they do not use the secondary markets to sell mortgage loans through HMB Limited.

Currently, 78 percent of outstanding mortgage loans are in private institutions and 62 percent in commercial banks. The public sector still has 22 percent of mortgage loans, having lost market share since 1995. In fact, the decline in the housing intervention of the National Housing Authority (NHA) and the state owned insurance company (NIB) could not be compensated by the active participation of TTMF, which still represents around 20 percent of total mortgages granted in the country.

The typical mortgage loan in T&T is on a variable-interest rate basis, with a maximum term of 25 years (though occasionally 30-year mortgages are available). In practice, however, the rate is adjusted rather infrequently. Sometimes, there are penalty fees for prepayments. Installment income ratios vary from 30 to 35 percent, depending on the entity. TTMF demands a relationship of 33.3 percent of the installment payments to income, whereas the commercial banks requires on average 35 to 40 percent. Some commercial banks differentiate between the mortgage debt service ratio, which must be 30 percent, and the client's total debt service ratio of 40 percent. Other eligibility criteria in addition to the installment ratio are indebtedness (ratio of borrower's total debt service to total income) and repayment risk measures such as the loan-to-value ratio. Loan-to-value ratios are generally around 75 percent, although the public-owned

entity offers up to 95 percent in some cases. At least two of the main commercial banks indicated that their average loan to value ratio is between 80 to 90 percent. Specifically, the loan to value ratio for land only is up to 80 percent, and for land with a building it is up to 90 percent, with mortgage indemnity insurance to cover the excess over 75 percent financing.

Table 4. Evolution of the Stock of Mortgage Loans by Institutions 1995-2009

	In millions of TT\$														
	1995	1996	1997	1998	199	2000	2001	2002	2003	200	200	2006	2007	2008	2009
Private Sector															
Deposit Taking Institutions															
Commercial Banks	922	881	856	844	817	733	765	838	593	231	445	5401	6776	8290	9842
Trust and Mortgage	1433	1565	1753	1963	217	2488	2680	2949	3475	224	834	681	596	331	273
Financial C. and Building	56	50	47	59	63	43	139	49	47	68	74	91	50	36	16
Trustee Funds Under	385	401	416	449	440	463	325	263	292	272	508	567	405	517	464
Sub-Total	2796	2897	3072	3316	349	3726	3909	4098	4407	488	586	6739	7827	9174	1059
Non Deposit-Taking															
Insurance Companies	607	587	573	660	588	495	645	608	644	649	686	738	920	1491	1168
Pension Funds	223	271	191	283	303	287	402	281	418	334	288	283	256	227	201
HMB										66	97	139	233	299	297
Sub-Total	830	859	764	943	891	782	1047	888	1062	104	107	1160	1409	2017	1666
Total Private Sector	3626	3756	3836	4259	438	4508	4956	4986	5469	593	694	7899	9237	1119	1226
Public Sector															
N.H.A./H.D.C.	781	751	720	692	661	629	600	571	536	498	473	465	460	426	397
N.I.B.	617	542	514	485	444	407	360	321	274	232	182	150	120	84	70
T.T.M.F.	625	657	715	775	823	943	1034	1333	1093	137	146	1411	1481	2287	3047
Total Public Sector	2022	1950	1949	1952	192	1979	1994	2225	1903	210	211	2026	2061	2796	3515
Total Mortgage loans	5648	5705	5785	6211	630	6488	6949	7211	7372	803	905	9925	1129	1398	1577

Source: Based on CBTT.

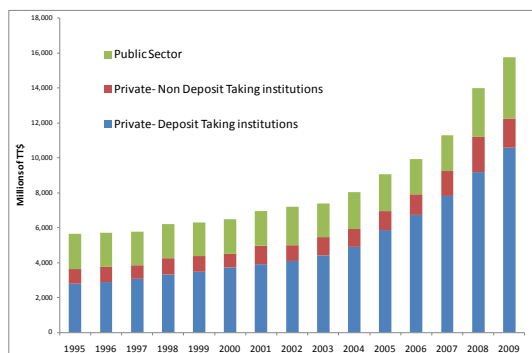
Note: National Housing Authority (NHA), National Insurance Board (NIB) and Trinidad and Tobago Mortgage Finance Company Limited (TTMF).

2.4. Recent Evolution of the Mortgage Market

The stock of mortgage loans (both public and private issued mortgages) has been growing, but not as fast as nominal GDP. Consequently, the mortgage to GDP ratio fell from 18 percent in 1995 to 9 percent in 2009. Mortgage loans have been growing in real terms, when we use CPI as a deflator. If instead we use the evolution of the median house price, mortgage loans in real terms have decreased for almost the entire period except for the last two years, when we observe a significant fall in housing prices. Median housing prices (three-bedroom house) decreased by 12 percent in 2008 and 10 percent in 2009, coming back to the prices observed in 2004 in nominal terms, but the prices of 1999 in real terms. The international financial crisis has initiated significant decreases in house prices in T&T, which has led many state analysts to talk about the existence of a “bubble.” Nevertheless, energy prices, which seem to be a fundamental issue in explaining housing price evolution, also fell significantly from 2007 to 2009.

Figure 4. Evolution of Mortgage Loans in Real Terms

A. Evolution of Mortgage Loans (in millions of TT\$)



B. Stock of Mortgage loans as percentage of GDP

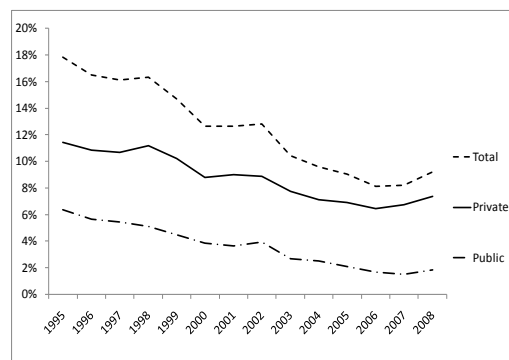
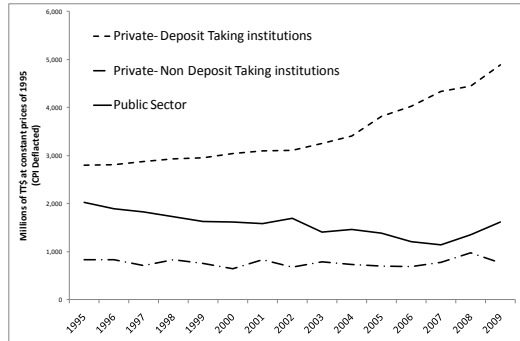
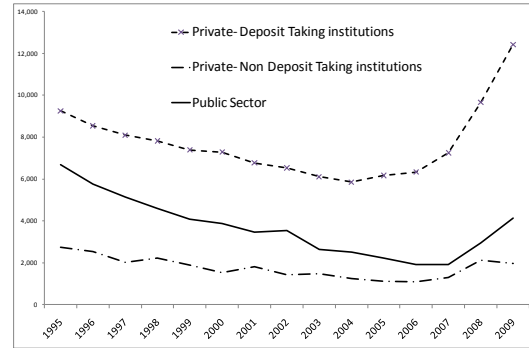


Figure 5., continued

C. Mortgage by lender at constant prices of 1995 deflated by CPI



D. Ratio of the Stock of Mortgage Loans by Institution type to the median price of a 3 bedroom house



Source: Authors' compilation based on data from the Central Bank of Trinidad and Tobago.

As Artana et al. (2009) discuss, the income shock was so big that, in spite of the more prudent fiscal management of the boom (particularly compared to policies in the 1970s), the economy shows some symptoms of Dutch Disease, and the non-petroleum sector has been growing very slowly with very poor productivity growth. Since the energy sector is not labor intensive, productivity has not been growing much in the non-energy sector. If we add the fact that unemployment rate was around 20 percent when the economy started to grow (1994) after a long 10-year period of recession, it is not surprising that wages did not initially increase much. Between 1994 and 2004 nominal wages increased below the inflation rate, and well below the median house price.

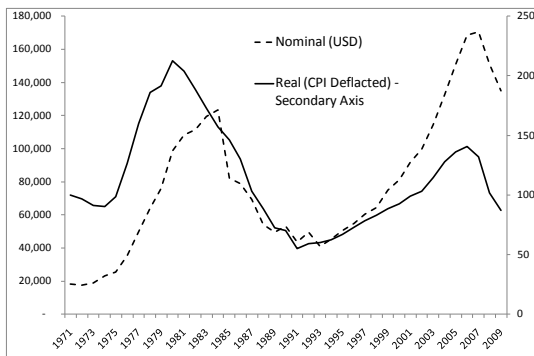
If we look at the long run history of house prices, we find that: i) real prices have previously been at these high levels in the oil price boom of the 1970s; ii) there is a surprisingly very high correlation between the real price of housing (deflated by the T&T CPI) with the real World Trade Index (WTI deflated by the US PPI)—the same is observed if both variables are measured in (current) USD; and iii) the current evolution of housing prices compared to WTI is slightly different in the boom of the 2000s, compared to that of the 1970s, which might be a consequence of more prudent macroeconomic management. This latter point is very important to understand the current evolution. During the previous boom in T&T in the 1970s, the economy grew fast but also growing equally as fast was domestic credit to the private sector. The previous crisis and the recession of the 1980s proved that in the 1970s optimism was excessive. House

prices fell following oil prices, and domestic credit to the private sector plunged as well. In the current growth boom domestic credit to the private sector has grown less than GDP, and the public sector has also been more conservative (public mortgages increased even less than private mortgages). In spite of this more conservative behavior, the price of housing nonetheless increased significantly, and this time not fostered by the mortgage market.

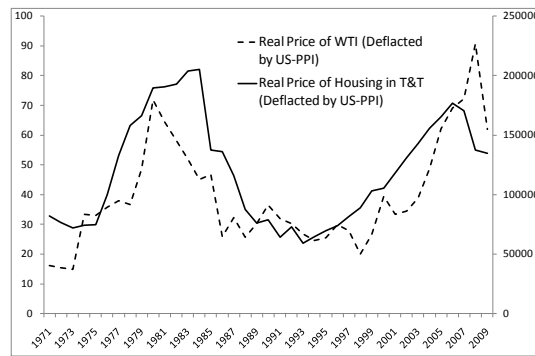
When the international financial crisis began, deposit institutions started to behave more prudently and the ratio started to fall to previous levels, but this fall was stopped, as we observe a very strange increase in the last two years. This effect is related to an active policy by the Central Bank of Trinidad and Tobago (CBTT), which exerted pressure on commercial banks to hold mortgage interest rates low in a period when monetary policy was tighter. The *CBTT Monetary Policy Report (2009)* makes this position clear. According to the report, the CBTT intends to continue its tight monetary policy stance to curb bank credit expansion except for mortgage and small business loans, where the goal is to restrict interest rate increases through non-conventional monetary instruments, such as dialogue with the commercial banks. The evolution of the basic prime lending rates and real estate mortgage rates confirms that since March of 2008, the prime lending rate has been more than (or at least equal to) mortgage rates.

Figure 6. Long-Run Trend of the Price of Housing in T&T, 1971-2009

**Nominal and Real Median House Price
(3 bedroom house)**



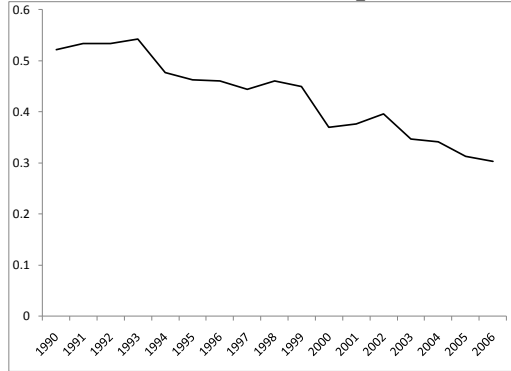
Median House Price vs. WTI



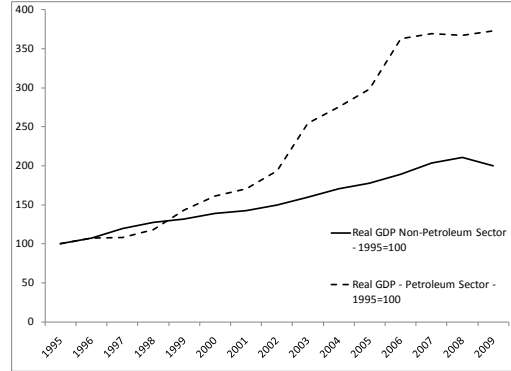
Source: CBTT.

Figure 7. T&T, A Dual Economy

Share of Compensation of Employees on Total GDP (factor cost, current prices)



Real GDP Growth in T&T, 1991-2009 Petroleum vs. Non-Petroleum Sector

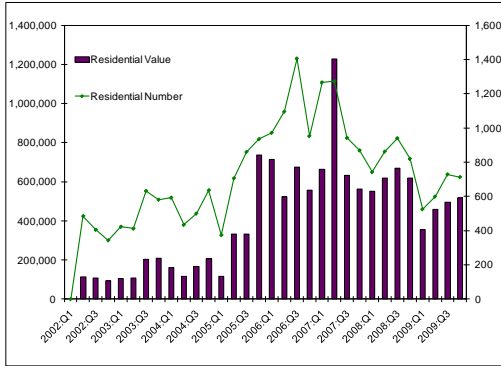


Source: CBTT.

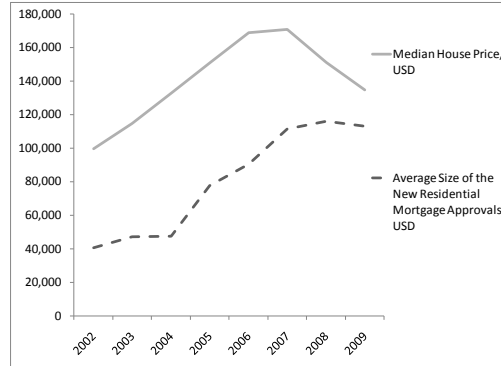
Figure 6 shows the recent evolution of residential real estate mortgage approvals by commercial banks and trust and mortgage companies. As illustrated in the figure, mortgage loan approvals increased significantly by the end of 2005, but with the beginning of the international financial crisis the expansion stopped. The increase was both in the number of approvals as well as in the average loan size; the latter increased following the increase in the median house price (see Panel B of Figure 6). The growth of loans from deposit-taking institutions came as a consequence of the increase in the mortgage’s average size and not in the deepening of mortgage operations. In fact, outstanding mortgage loan contracts grew by 13 percent in 10 years, practically the same rate as other loans granted by these institutions. However, average mortgage loan size almost doubled in domestic currency, even more than property prices. The comparison of the average size to the median house price denotes that the LTV grew from 36 percent to 58 percent in the period, which suggests that private institutions’ expansion probably came through reaching higher income strata demand rather than widening the spectrum to the entire population.

Figure 8. Residential Real Estate Mortgage, New Approvals by Commercial Banks and Trust and Mortgage Companies

A. New Approvals, Value and Number



B. Mean Size compared to Median House Price

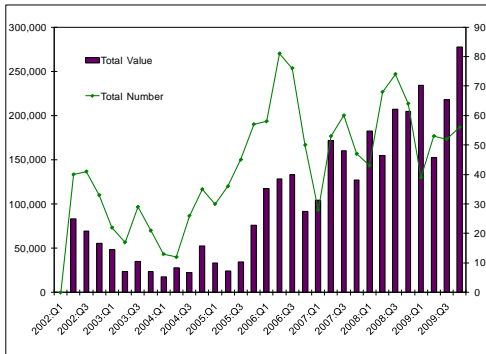


Source: CBTT.

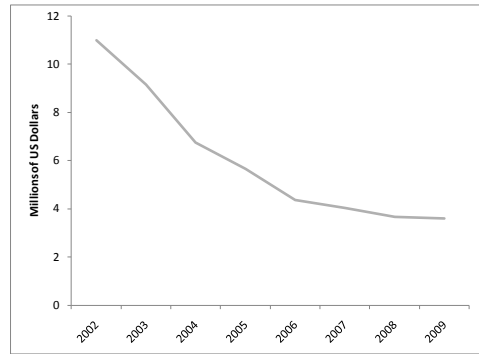
Commercial mortgage approvals show a similar trend than residential loans in terms of value, but the crisis did not affect commercial loans much. The mean size of commercial loans follows an opposite pattern than residential loans, falling from USD 11 million in 2002 to USD 3.6 million in 2009.

Figure 9. Commercial Real Estate Mortgage, New Approvals by Commercial Banks and Trust and Mortgage Companies

A. New Approvals, Value and Number



B. Mean Size compared to Median House Price



Source: CBTT.

The expansion of mortgage loans in the 2000s cannot be entirely explained by interest rates. Although it is true that repossession rate reductions at the beginning of 2004 reduced mortgage interest rates, it was short-lived since interest rates started to increase in the fourth quarter of 2005 as monetary policy tightened. Another intervention was that HMB began originating mortgage loans in 2004, with low interest rates, and it did not increase rates when monetary policy tightened (remaining at 8 percent variable or 8.5 percent fixed for 10 years).

2.5. Current Boom Compared to the 1970s

The expansion of the mortgage market in the current boom is much more moderated than what was observed in the 1970s. This is explained by a more moderated expansion of public mortgages, more prudent macroeconomic management of the boom, and improvements in regulatory and supervisory practices. There are, though, vulnerabilities such as the mismatch between long-term assets and short-term liabilities in commercial banks (aggravated by the fact that these institutions are not using the secondary market, or the increase in the ratio of mortgage loans outstanding to income, as housing prices increased faster than income). Nevertheless the system is more robust now than in the previous boom. The proportion of mortgage loans in the total loans of the financial system now stands at 15.5 percent, compared with an average of around 40 per cent in the 1980s.

3. Data Analysis

In this section we use microdata to characterize the mortgage market in T&T and its current evolution. For this purpose we use the 1992 and 2005 Survey of Living Conditions (SLC), which give us an excellent perspective of before and after the income shock, the Population Census of 2000 and data facilitated by the Central Bank of Trinidad and Tobago. We complement this information with qualitative and quantitative data we collected through a survey of the main actors (such as banks, authorities, real estate companies and academic scholars).

3.1. Mortgage Loans' Characteristics

Based on CBTT information we analyze the evolution of the mortgage market. 1999 is a year where real wages were still low, and 2009 is the most recent year available. As Table 5 shows, in this period the increase in the number of mortgage loans followed the trend of total loans, but the

average value lent for housing has increased significantly as housing became more expensive. The median house price in this period increased by 81 percent, but the average mortgage loan size increased by 194 percent, probably reflecting the increase in real wages during the 2000s.

Table 5. Deposit-Taking Institutions: Mortgage Characteristics

	1999	2009	Change
# Total Loans	529,768	592,745	12%
# Mortgage loans	18,058	20,371	13%
# Mortgage loans/Total Loans	3.4%	3.4%	0.03
% residential mortgage/total loans	13.1%	13.6%	0.47
AVG total loans size (TT\$ 000's)	30.4	84.5	177%
AVG mortgage loan size (\$TT 000's)	168.9	497.3	194%
Median House Price	472	853.8	81%
AVG Mortgage size %	35.8%	58.2%	

Source: Based on CBTT.

Note: Deposit taking institutions includes Commercial Banks, Trust and Mortgage Finance Companies, Finance Companies and Merchant Banks.

Table 6 presents the information for new mortgages rather than outstanding loans. It shows that the significant change happened by the middle of the 2000s, and the implicit loan-to-price ratio has increased significantly, particularly in the last three years.

**Table 6. New Real Estate Mortgage Approvals
Commercial Banks and Trust & Mortgage Companies**

	Avg. mortgage size (TT\$ 000's)	# approvals	Median House Price		TTMF # approvals
			TT\$	%	
2002	255.9	1,645	627.4	40.8%	964
2003	296.0	2,048	721.5	41.0%	1,309
2004	298.2	2,163	835.5	35.7%	1,029
2005	489.8	2,875	951.3	51.5%	1,023
2006	568.8	4,426	1,065.0	53.4%	1,094
2007	702.5	4,350	1,077.0	65.2%	1,466
2008	731.0	3,364	930.0	78.6%	1,410
2009	712.3	2,566	853.8	83.4%	1,448

Source: Based on CBTT and TTMF.

The number of approvals of the private sector institutions grew at a rate similar to that of TTMF approvals (56 per cent between 2002 and 2009 compared to 50 percent for TTMF).

Table 7 shows information for TTMF. The loans of this institution are supposed to be target to low income families, and data corroborates this. In 2009, for instance, TTMF average mortgage size was TT\$369,600 (approximately US\$58,000), almost half the size of private lenders. TTMF grants mortgage at very favorable conditions to low-income households too; implicit interest rates were about 8 percent in 2005, below the 10 percent estimated for private lenders. Currently, around 17 percent of new loans are granted at rates below 5 percent and the implicit subsidy is slightly higher (see Table 8).

Table 7. Mortgage Loans Granted by TTMF

	# Mortgage loans granted		Mortgage Loans MM TT\$		Avg mortgage size		Interest on loans	
	New loans	Stock	New loans	Stock	000'S TT\$	% house price	MM TT\$	% implicit
2005	1,023	11,966	250.8	1,357.5	245.1	26%	110.6	8.5%
2007	1,466	13,535	569.1	1,846.7	388.1	36%	118.9	7.4%
2008 *	1,410	13,500	510.2	2,242.9	361.8	39%	149.3	7.3%
2009	1,448	14,948	535.3	2,577.6	369.6	43%	178.0	7.9%

* Estimated Value of new loans.

Source: Based on TTMF Financial Statements, various years.

Table 8. Distribution of New Loans by Interest Rate

Year	TTMF				Commercial Banks
	Distribution of New Loans by interest Rate			Average Interest Rate	Average Interest Rate
2 - 5%	6 - 8%	9 - 12%			
1994	0.0%	62.5%	37.5%	8.3	
1998	0.0%	78.2%	21.8%	7.8	
2002	2.1%	59.4%	38.5%	8.3	12.19
2003	5.3%	88.2%	6.4%	7.0	12.08
2007	9.9%	90.1%	0.0%	6.7	11.75
2008	16.6%	83.4%	0.0%	6.4	11.96

3.2. *Who Are the Mortgage Holders? How Did their Composition Change?*

The previous information shows characteristics of the mortgage loans from the perspective of the financial system. Here we explore the characteristics of mortgage holders based on information from the 1992 and 2005 Surveys of Living Conditions.

The first result shows that there was a reduction in the coverage of mortgage loans. In 1992, 15.6 percent of owners (or 12 percent of total households) were making mortgage payments for the dwelling in which they live, a ratio that declined to 13 percent in 2005 (or 10 percent of total households). There is, nevertheless, a slight increase in homeownership, from 76 percent in 1992 to 78 percent in 2005, with a more pronounced increase among the poorest households.

Table 9. SLC Ownership and Mortgage Coverage

	Ownership	Mortgage Coverage	
	Rate	% of Owners	% of Total
1992	76%	15.6%	12%
2005	78%	13.0%	10%

Source: Authors' compilation based on SLC 1992 and 2005.

To measure income we use family expenditure per capita (which is a better proxy of permanent income).¹² Comparing 2005 with 1992 we find an increase in per capita permanent income of just 41.8 percent (measured as nominal income), which gives an equivalent per capita growth rate of 2.7 percent yearly. This rate is consistent with the change in variable compensation to employees according to the National Accounts, which was 42.04 percent in nominal terms (in the same period). The increase in nominal income was quite below the nominal GDP growth and below the increase in the price of housing (353 percent).

¹² SLC includes income variable but we found inconsistencies in the data.

Table 10. SLC: Summary Statistics

	Gini Coef.	Rent paid				Mortgage Payment			
		For total HH Exp	Mean HH Exp.	Median	Mean	St dev	Median	Mean	St dev
1992	0.440	29,177	27,478	300	381	326	700	1,146	1,141
2005	0.471	41,361	42,816	550	824	2,096	1400	1,676	1,333
		41.76%	56%	83%	116%		100%	46%	

Source: Authors' compilation based on SLC 1992 and 2005.

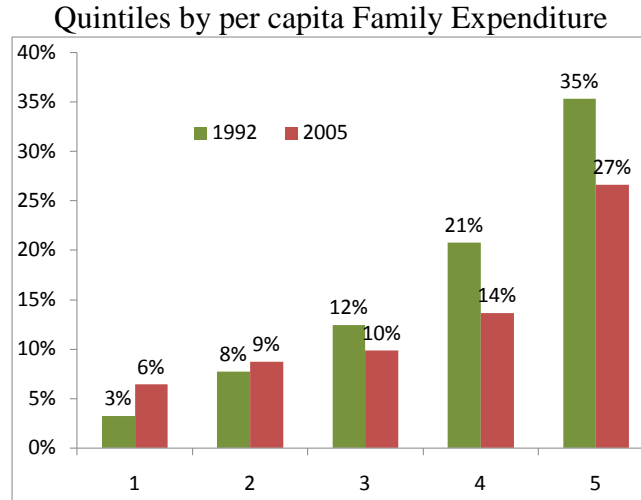
None of the SLC includes data on the price of housing, but it does include the value of the rent paid (as well as the rent value that an owner estimates he would have to pay if he had to rent his own house). According to this variable, the rent paid increased (in nominal terms) between 1992 and 2005 by 116 percent, more than twice the increase in per capita income. For mortgage payments we observe an increase slightly above per capita income, without an increase in the standard deviation, which suggests that on average the ratio of mortgage payment to income has not changed much.

We also explore changes in inequality. Per capita permanent income is more unequal in 2005 than in 1992 according to any of the standard inequality indexes. Gini coefficient, for instance, increased from 0.44 in 1992 to 0.471 in 2005. In terms of per capita income by tenure type, we find that income for renters increases slightly above that for owners. We also find an increase in the standard deviation of the rent paid. Both might be related to the influence of expatriates, who generally are renters, have higher incomes, and demand higher-quality housing.

Next we analyze the distribution of mortgage holders (as a ratio of total owners) by income quintile. We find that the percentage of owners with mortgage payments increases with income, as expected, but the curve was steeper in 1992. In particular, we observe that whereas 35 percent of owners in the richest quintile had a mortgage in 1992, in 2005 the ratio was 27 percent. A similar reduction in coverage is not observed for the poorest quintile, where in fact the coverage of mortgage increased from 3 percent of owners to 6 percent. The first two quintiles are precisely the focus of most public housing policies in this period, so the differential behavior can

be presumably explained by this effect. Unfortunately, SLC does not identify whether the mortgage is coming from a public program or from a private institution.

Figure 10. Percentage of Owners with Mortgage Payments by Income Quintiles



Source: Authors' compilation based on 1992 and 2005 SLC.

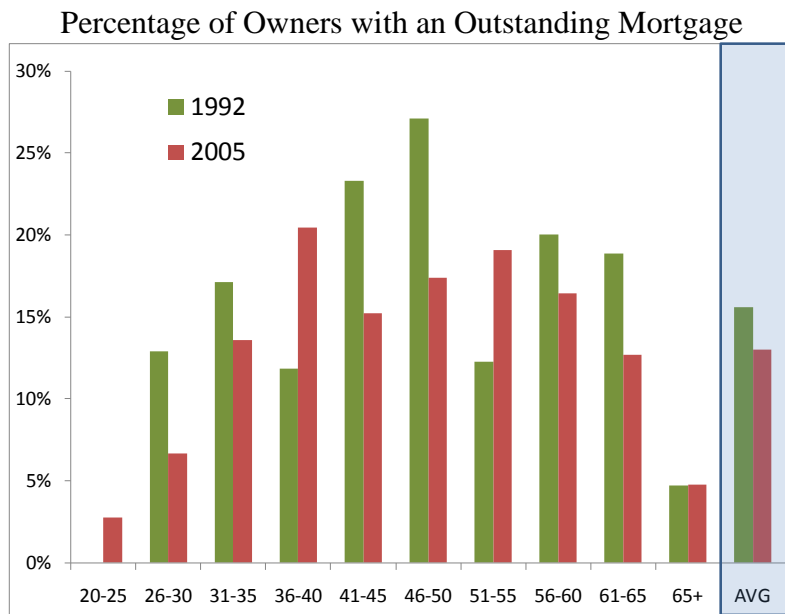
Another exercise is to see how mortgage loans are distributed within the population. To do this we classify households with mortgage payments in quintiles by expenditure per capita (see Table 11). We find that mortgages are more evenly distributed in 2005 than in 1992. In particular, the poorest quintile increases its share in the total of households with mortgages from 4 percent to 10 percent between 1992 and 2005, being the two richest quintiles who have lost share.

Table 11. Distribution of Mortgage Holders by Income Level

Quintile (by expenditure per capita)	SLC 1992	SLC 2005
1	4%	10%
2	12%	14%
3	16%	15%
4	25%	21%
5	43%	40%
	100%	100%

The literature on housing finance and life cycle shows that mortgage access is usually more difficult for younger households. We classify households according to the age of the head of household. We find in T&T, as expected, that mortgage holders are concentrated among middle-aged head of households, but comparing 2002 with 2005 we do not observe a clearly different pattern. In particular, in 1992 coverage is higher for most of the age range, but the most frequent payee in 1992 was in 46-50 years old, whereas in 2005 that range was notably younger at 35-40.

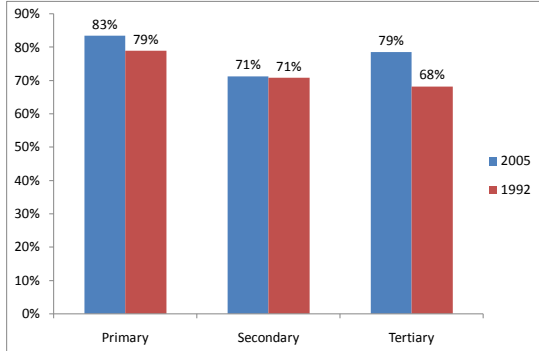
Figure 11. Mortgage Loans and the Age Profile



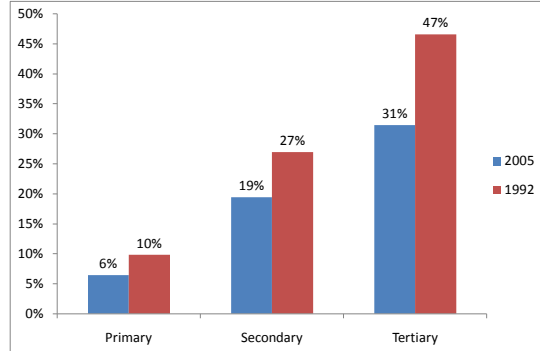
In terms of education of the head of household, we find a high homeownership rate in low educational levels, such that there is not a pattern of ownership by education. On the other hand, there is a clear pattern in terms of mortgage coverage and education: more educated people are more likely to have a mortgage loan, but the curve was steeper in 1992 than in 2005.

Figure 12. Ownership Rate and Mortgage Coverage by Education

A. Ownership Rate



B. Mortgage Coverage
(% of owners with mortgage payments)



Source: Based on 1992 and 2005 SLC.

As pointed out earlier, the ratio of mortgage payments to income was relatively similar in 1992 and 2005 (43 percent vs. 44 percent)—due to the existence of outliers, the median is systematically lower, around 29-31 percent in both periods, more in line with the bank’s requirements. In 1992, by income quintile, only the poorest quintile had a higher ratio, while in 2005 the ratio is very similar for all quintiles. We do not find a major difference in terms of the life cycle or the education level of the head of household.

Table 12. Installment Payments to Income Ratio

Income Quintile	SLC 1992 and 2005					
	1992			2005		
	Average	Median	Obs.	Average	Median	Obs.
1	91.9%	59.6%	7	88.3%	33.7%	23
2	65.4%	29.2%	18	61.1%	40.0%	44
3	28.8%	28.0%	27	44.0%	31.7%	46
4	46.3%	27.6%	49	39.5%	29.8%	65
5	35.3%	28.5%	71	32.6%	28.3%	138
Total	42.8%	28.6%	172	43.7%	30.9%	316

Source: Based on 1992 and 2005 SLC.

Finally, Table 13 explores the changes in monthly rent payment (for those households renting) by expenditure per capita decile. The main finding is that the increase was relatively homogeneous. Assuming the price of the median house collected by the Central Bank is representative of the 10th decile of housing, the relative increase in the price of housing compared to the rental price implies that rental yield decreased from 6.4 percent in 1992 to 3 percent in 2005.

Table 13. Average Monthly Rent Payment

Decile (expenditure)	1992	2005	Increase
1	312.1	580.0	86%
2	337.7	734.8	118%
3	370.5	815.4	120%
4	445.1	939.6	111%
5	480.1	912.6	90%
6	472.3	947.2	101%
7	583.4	1,091.4	87%
8	548.0	1,238.7	126%
9	651.1	1,430.8	120%
10	1,121.6	2,309.3	106%

3.3. What Is Holding Back the Mortgage Market? Actors' Opinions

Here we present the main results of our series of interviews with key players in the mortgage market. The prevailing opinion is that the mortgage market has been growing due to economic growth and an increase in disposable incomes. Furthermore, there have been some changes in the mortgage market environment, one of which has been the decentralization of mortgage lending as banks move mortgages from trust companies to the banks themselves. This has allowed banks to use their network of branches to promote mortgages, and facilitate customers to engage in both long-term and short-term borrowing in one physical place. This change has also made commercial banks the main mortgage lenders.

3.3.1 Constraints on Mortgage Market Growth

The key players in the mortgage market, in the main, are of the opinion that several factors are currently constraining the mortgage market's growth, particularly the following:

- *Affordability:* Due to the severe increase in housing prices, with wages that did not follow, households' purchasing power has eroded. Therefore, new properties in the market were directed to upper-middle and high-income households, that is, to those who can afford them. In addition, the affordability problem can also be seen in public sector housing. The subsidized price of one of the more inexpensive properties ranges from TT \$500,000 to TT \$600,000, and this is beyond the reach of many consumers.
- *Limited flexibility in market products:* While there have been some attempts at modernizing the mortgage market to suit prevailing conditions (for example TTMF has been providing financing for investment properties geared towards rental and the government has introduced a 2 percent loan for households who earn TT \$8,000 or less), the mortgage market in T&T remains largely underdeveloped. There has been no innovation or attempt at creating products suited to the market. One key player remarked that contracts with variable interest rates discouraged households from taking loans.
- *Lack of information:* The market has been constrained (and to a certain extent made to operate inefficiently) by the information gap that exists in the market. In many instances there exist buyers and potential buyers who do not comprehend the process by which lenders price or re-price mortgage rates on new and existing mortgages. Furthermore, there are buyers who lack knowledge about prices and relative prices. This is a problem that can be solved if consumers are permitted to consult with appraisers before signing purchase agreements. Such a consultation would prevent the buyer from signing an agreement without knowing the true value of a property. In other countries (such as England), properties going up for sale are inspected and a certificate issued to the vendor. This is a certificate that the vendor must have

before he sells his property. The buyer in this case has all the necessary information and knowledge of the “true” value of the property.

- *Scarcity of land:* The scarcity of land additionally constrains the mortgage market. Private sector developers are continuing to construct homes in urban and suburban areas where land is scarce and where the price of land is high due to scarcity, thus driving up the price of housing even further.
- *Low incomes:* It is the prevailing opinion that public sector housing must be made accessible to lower-income households who work in the informal sector and who would be unable to secure a loan from any of the financial institutions. Banks have traditionally been cautious about providing mortgages to persons not on fixed income and without collateral, and even more so in the prevailing economic conditions. The size of the loan is also a factor in that low-income households cannot access loans that would allow them to purchase houses from either the public or the private sector.

3.3.2 Areas for Improvement in the Mortgage Market

It is the opinion of the key players in the housing finance market that there is much room for improvement in the mortgage market. Such improvement should start with the laws and regulation that promote greater transparency and market discipline. For example, the United States implemented the Truth in Lending Act of 1968, which attempts to ensure that commercial banks provide the necessary disclosure to customers regarding real estate mortgages. While T&T’s existing legislation may be adequate, regulatory enforcement is lacking and there is inadequate information available in the public domain; if the population is educated and understands the need for the law then they are more likely to obey the law. It should also be noted that Trinidad and Tobago has an extensive zoning strategy, with specific areas designated for housing, commercial buildings, industrial parks and agricultural land.

In regards to public sector housing finance, there is a need for transparency in the processes that involve acquisition, town and country approvals, materials procurement, and hiring of administrative and management personnel as well as other types of labor. To ensure and encourage transparency at every level, feasibility reports should be mandated, along with cost-

benefit analyses. Without them the government will, at every turn, be expected to provide a safety net in the event of any difficulties.

3.4. *How Binding is Affordability?*

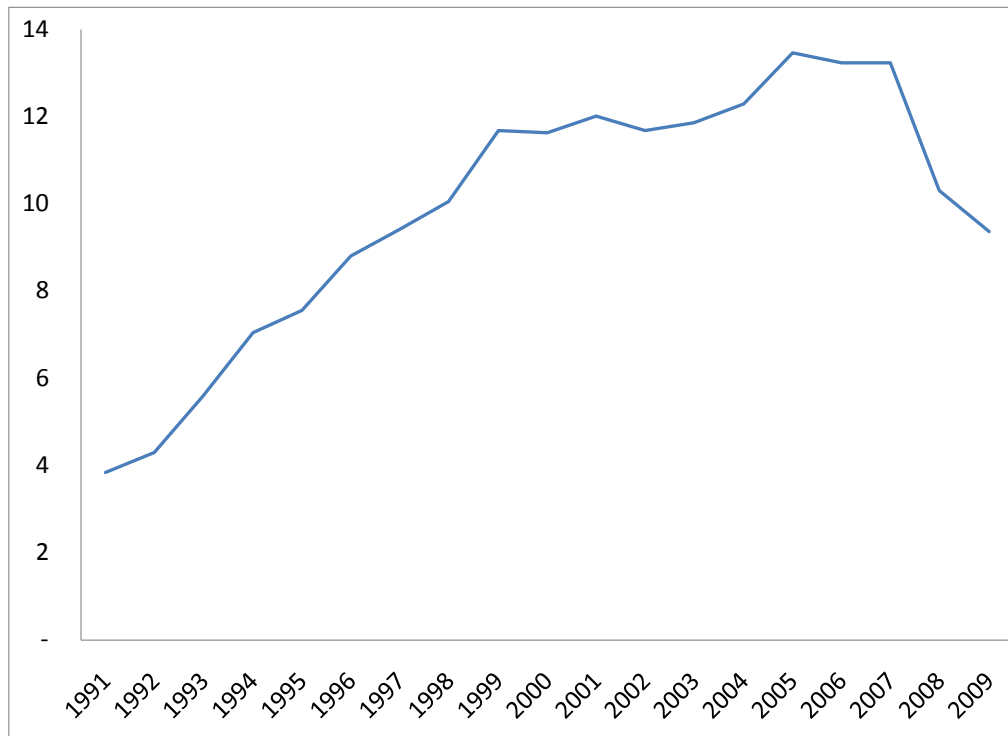
Standard measures of affordability such as the ratio of house price to GDP per capita (or GNI per capita) are inappropriate in an energy-dependent economy such as T&T, since GDP does not necessarily reflect the evolution of household income, and it did not reflect that evolution in the period analyzed.

To obtain a better approximation of affordability we compare average worker compensation from household surveys with the median price of a house. The median house price series of a house is constructed by the Central Bank based on information collected from realtors for a three-bedroom unit. Critics have noted that such a house is representative of richer households rather than an average household, but this is the only source of information available. We are interested, however, in the overall evolution of housing prices. Moreover, SLC data show that the increase in the rental price of housing was similar for households of different income levels.

At the beginning of the 1990s, an average worker needed five years to acquire a home but since property prices climbed in 2001, it can take one and a half decades to buy a house. Recent recovery of wages together with a slight fall in property prices would allow households to afford a dwelling with less than 10 years of income.

Figure 13. Affordability: House Price to Income Ratio

Number of years needed to buy a median price house by the average salary worker



Source: Authors' compilation elaboration based on CSO, CSSP and CBTT information.

Next, using the 1992 and 2005 SLC micro data to simulate the potential size of the mortgage market, as in Auguste, Bebczuk and Moya (2010), we assume the following:

1. Home values differ by income strata but we only have one median price. We estimate house prices for other income deciles using both the 1992 and 2005 SLC, assuming the median price for a three bedroom unit is representative for the top income decile. Using the response to the questions: "How much do you pay in rent?" (renters only) and "How much would you pay for your house in case you rented it?" (owners only) we compute a rental price for all the households and we "scale down" house prices proportional to the rental price.

2. We define housing needs as those households who are not owners, or are owners in low quality housing (lowest 20 percent of the distribution of our quality index).
3. Households who qualify for a mortgage are those able to pay the installment to income ratio required by banking institutions. As a measure of income we use total expenditure.

Table 14 shows the results. There are large differences between the proportions of potential borrowers in 1992 and 2005. For example, with a fixed rate mortgage contract for 25 years at an annual 9 percent interest rate (or 10 percent financial cost, taking into account transaction costs), with an LTV of 75 percent and installment payments not higher than the 30 percent of total income, 60 percent of urban households would have been able to buy the house where they lived in 1992 using a mortgage, but only 2 percent would have been able to in 2005.

Table 14. Affordability: Potential Market for Mortgages in 1992 and 2005

Loan Term (years)	Nominal interest rate							
	1992				2005			
	3.0%	9.0%	16.0%	18.0%	3.0%	9.0%	16.0%	18.0%
Market size (% of total households)								
15	70.0%	40.0%	12.9%	8.9%	8.0%	1.0%	1.0%	0.0%
25	80.0%	59.9%	15.0%	11.9%	28.0%	2.0%	1.0%	0.0%
30	90.0%	59.9%	16.0%	11.9%	29.0%	2.0%	1.0%	0.0%
Non owners or owners in low quality units (% of total households)								
15	17.5%	7.9%	2.3%	1.6%	1.2%	0.1%	0.1%	0.0%
25	21.2%	13.8%	3.0%	2.1%	5.0%	0.4%	0.1%	0.1%
30	24.7%	13.8%	3.0%	2.2%	5.3%	0.4%	0.1%	0.1%
Households with housing problems who could afford a loan (%)								
15	58.9%	26.7%	7.9%	5.3%	5.3%	0.6%	0.6%	0.0%
25	71.5%	46.4%	10.0%	7.2%	21.7%	1.8%	0.6%	0.6%
30								
	83.3%	46.4%	10.0%	7.4%	22.9%	1.8%	0.6%	0.6%

Source: Author's estimates based on 1992 and 2005 SLC.

This simple example has some caveats. The 9 percent interest rate is consistent with the average interest rate for new mortgages for private banks in the period 2005-2009.¹³ In 1992 interest rates were significantly higher than in 2005 (16 percent on average), and an affordability exercise should take into account market conditions. Considering the market interest rate, the potential market was 16 percent of all households in 1992, seven times larger than in 2005.

Another caveat is that beneficiaries of public programs enjoy a much lower interest rate. For instance, at the same time private banks originated mortgage loans with an average interest rate of 9 percent, 84 percent of new mortgages originated at TTMF were in the interest range of 6 percent to 8 percent, with the other 16 percent having rates in the 2 percent to 5 percent range, and beneficiaries of the Housing Development program (aimed at people who earn less than TT \$8,000 a year, households in the two poorest deciles) obtained 2 percent interest rates. This means that the market interest rate depends on the income decile of income to be served. This heterogeneity presents some limitations for this affordability exercise, since low income households facing better credit conditions can afford more expensive houses than they could have done if loans were at market prices. This means the implicit rent for all homes would be higher too; since we use this variable to scale down the price of the typical house, the price we estimate already includes the effect of the subsidy.

In this sense, public programs might have mitigated the effect of the increase in the price of housing, which may explain why in the poorest quintile we observe between 1992 and 2005 an increase in ownership rate and a larger increase in housing quality. For households out of the target of public policies, conditions of affordability were much worse in 2005 than in 1992 in general.

3.4.1 Affordability and Life Cycle

Life-cycle studies on housing show that ownership rates and the quality of housing both tend to increase with the age of the head of household following the evolution of income along the life cycle. If there are problems of affordability, they should be more significant among younger households and first-time owners, as losses in purchasing power of wages (in terms of housing) are partially offset by wealth increases for owners (due to the revaluation of their homes).

¹³ At the end of 2009, 54 percent of new mortgage loans of commercial banks were in the 8 percent to 9 percent interest rate range, and the rest equally allocated between ranges of 7-8 percent and 9-10 percent.

In this section we explore the life cycle of housing in T&T and how this cycle changes between 1992 and 2005. We construct an index of quality using factor analysis based on common housing attributes available in both surveys.¹⁴ As Table 15 shows, quality has increased on average between 1992 and 2005, as well as in each of the index's nine components. For instance, the percentage of households living in a house with solid (concrete or brick) outer walls increased from 51 percent in 1992 to 83 percent in 2005.

Table 15. Quality of Housing

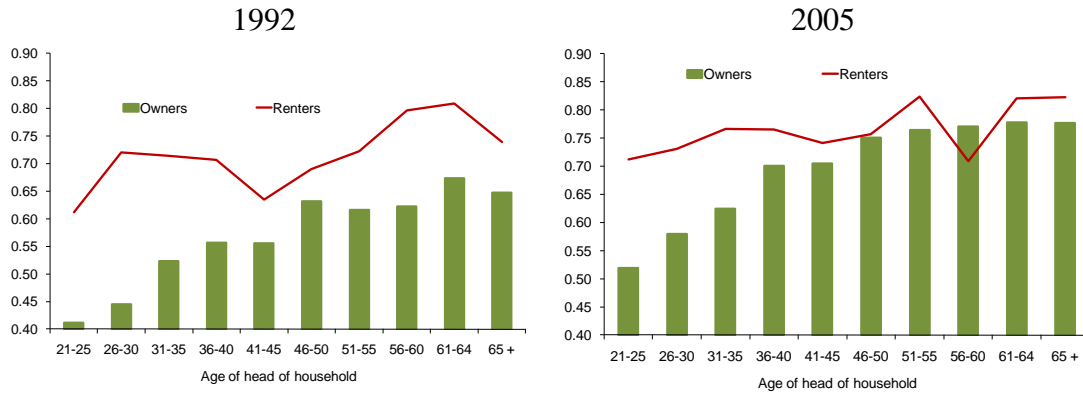
		1992	2005
Percentage of Households living in a house with:			
Components of the Quality Index	1.Overcrowding	10.0%	5.5%
	2.Pipeline water	62.1%	74.6%
	3.Continuous access to water	59.1%	57.7%
	4.WC linked to sewerage	15.5%	17.3%
	5.Solid outer walls	51.3%	82.6%
	6.Lightening by electricity	89.8%	94.5%
	7.Bathroom for private use	89.0%	89.9%
	8.Access to Telephone	39.6%	65.6%
<i>Quality Index (0 to 1)</i>		<i>0.611</i>	<i>0.737</i>

Source: Authors' compilation based on 1992 and 2005 SLC.

Figure 12 shows quality and age profile for owners and renters. For both years we find the typical life cycle profile, but the curve has become less steep in 2005. Quality has increased among owners and renters of all ages, but more notably for younger households. In addition, the gap between owners and renters has significantly decreased in 2005, particularly for older households.

¹⁴ Specifically, the variables used for the index were: access to water through a pipeline inside the house, water closet linked to sewer, outer walls of good material (wood, brick and/or concrete), lighting by electricity, bathroom for private use, access to telephone and bedrooms without overcrowding. Each variable takes the value (1) when the attribute is present and (0) otherwise. Variables were weighted using factor component analysis (as in Calderón and Servén, 2004, who constructed an index of quality for infrastructure). Three attributes—the existence of water pipeline inside the property, the lighting by electricity and outer walls of reasonable materials—the most important, representing 50 percent of the index.

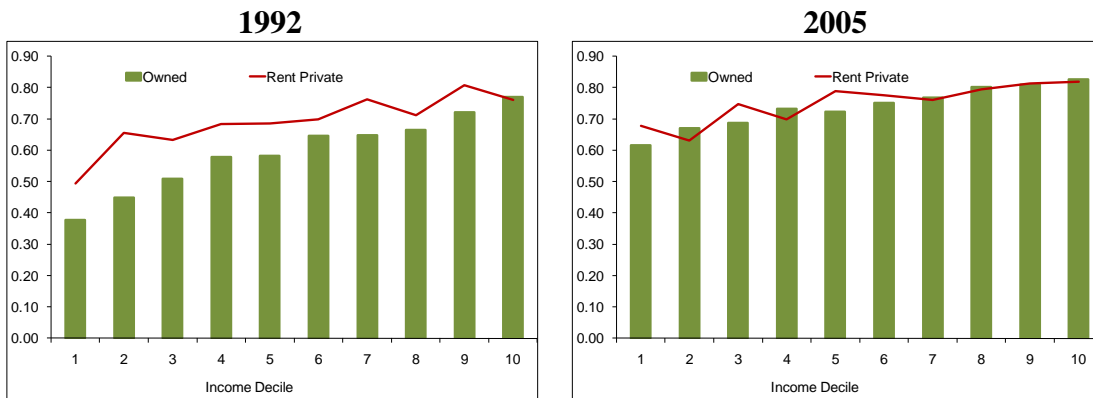
Figure 14. Quality Index by Tenure



Source: Authors' estimates based on 1992 and 2005 SLC.

Analyzing by income decile (see Figure 13), we observe that much of the quality upgrading has been among the poorest households, both renters and owners. This is an important result, because between the two periods the government invested significantly in upgrading low-income housing, regularizing squatters, and improving the quality of public rental housing. From this point of view, policies seem to have been effective.

Figure 15. Quality Index by Tenure and Income Deciles



Source: Authors' estimates based on 1992 and 2005 SLC.

The question is whether investing in low-income families crowds out higher income family access to housing, particularly in a country where land is very scarce. To explore this hypothesis we analyze econometrically the factors explaining the probability of being owner and the factors behind the quality of the housing.

3.4.2 Ownership and Quality

Following Chiuri and Jappelli (2003) we estimate a Probit model for ownership. The regressors are demographic variables (such as age, age squared, age cubed, family size), wealth/income proxy variables (level of education and income decile) and a set of dummies to control for county variability. We pool together the 1992 and 2005 SLC and include a time dummy (taking 1 for 2005). We interact the time dummy with the age profile variable to test for changes.

Since housing finance conditions likely affect not only ownership but also quality, we also regress our index of quality on the same explanatory variables.

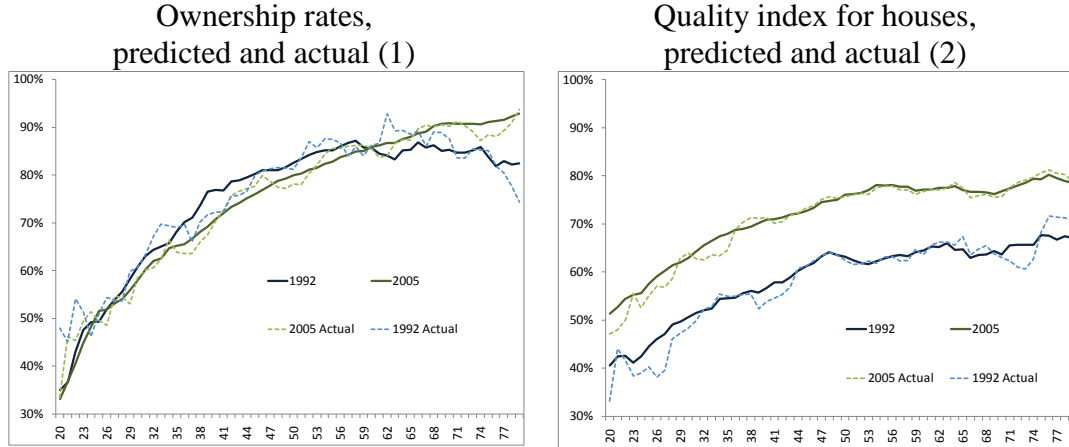
Table 14 shows the main results of our econometric exercise. Columns (1) and (2) display the probability of being an owner as explained by the above mentioned factors. The second column adds the quality index as a regressor (measured by our index), which is potentially endogenous. Columns (3) and (4) show the results for our OLS estimation for the quality index on household's characteristics, the fourth column includes a dummy indicating whether the household is or is not a homeowner (which again is potentially endogenous).

The results show the chances of being an owner (holding the quality index constant) increase with the age of the heads (age) but at a decreasing rate as expected. The age dependence does not change in regression (1) between 1992 and 2005, but when controlled by quality (column 2) the dependence is lower in 2005 since the marginal probability is smaller and less decreasing. This effect is better captured in Figure 14. Regarding quality, we find a tradeoff: the better the quality of the house the less likely the household is an owner. This effect is significantly attenuated in 2005, when a substantial improvement in housing quality was observed. The rest of the variables have the expected sign (more educated and higher-income families are more likely owners).

Table 16. Regression Output: Ownership Rate and Quality Index.

	Dependent Variable			
	P(owner=1)		Quality Index (min=0, max =1)	
	(1) dF/dx	(2) dF/dx	(3) Coef.	(4) Coef.
Age of HH	0.0214 ** <i>0.0046</i>	0.0239 ** <i>0.0042</i>	0.0321 ** <i>0.007</i>	0.0223 ** <i>0.0077</i>
Age of HH^2	-0.0001 ** <i>0.0001</i>	-0.0002 ** <i>0</i>	-0.0005 ** <i>0.0001</i>	-0.0003 * <i>0.0001</i>
Age of HH^3			2.60E-06 ** <i>9.40E-07</i>	2.00E-06 * <i>9.30E-07</i>
Age * Time Dummy	-0.0091 <i>0.0058</i>	-0.0113 * <i>0.0054</i>	-0.0085 <i>0.0113</i>	-0.0103 <i>0.0093</i>
Age^2 * Time Dummy	0.0001 <i>0.0001</i>	0.0001 * <i>0.0001</i>	0.0002 <i>0.0002</i>	0.0002 <i>0.0002</i>
Age^3 * Time Dummy			-1.40E-06 <i>1.20E-06</i>	-1.80E-06 <i>1.10E-06</i>
Education HH	-0.0052 <i>0.0045</i>	-0.001 <i>0.0049</i>	0.0348 ** <i>0.003</i>	0.0348 ** <i>0.0027</i>
Family Size	0.0261 ** <i>0.0035</i>	0.0267 ** <i>0.0037</i>	0.0098 ** <i>0.002</i>	0.0102 ** <i>0.002</i>
Income	0.0067 ** <i>0.0021</i>	0.0096 ** <i>0.0028</i>	0.0222 ** <i>0.0025</i>	0.0219 ** <i>0.0022</i>
Quality Index		-0.2712 ** <i>0.0645</i>		
Quality Index * Time Dummy		0.2409 ** <i>0.0688</i>		
Ownership				-0.0274 * <i>0.0119</i>
Constant			-0.273 **	0.1468
Obs	4943	4924	3818	4924
Pseudo R2/ R2	0.1354	0.1411	0.188	0.187
Control by County/year	Yes	Yes	Yes	Yes

Figure 16. Age Profile of Quality and Ownership



Notes: (1) Ownership rate predicted using a Probit Model, column 2 of Table 16. (2) Quality index by age of head of household (only owners) predicted using estimations of column 3 of Table 16. Actual pattern for both figures are computed as five years moving average.

Source: Author's estimates based on 1992 and 2005 SLC.

The results for the regression explaining house quality also show an age profile where younger live in worse quality housing. There is a clear improvement in the quality for all ages without significant changes in the age profile (slopes are similar). As expected education, family size and income level is positively related to the quality index. The inclusion of the ownership dummy shows the same tradeoff mentioned above: owners live in lower-quality houses. In addition, the pattern of quality along the life cycle is steeper for owners than for non-owners.

To sum up, marginal probabilities of ownership were smaller in 2005 compared to 1992, and the age profile changed, becoming less likely for young households to be an owner, results consistent with less affordable housing. On the other hand, we observe quality has significantly improved for all households across age profiles. In addition, the tradeoff between quality and ownership is lower in 2005 than in 1992 (i.e., households have to sacrifice less quality in order to own), which indicates a change in the relative price. This is consistent with a greater increase in the price of land compared to the price of construction materials.

4. Conclusions and Policy Recommendations

Developments in the real estate market are influenced by—and in turn can have a major impact on—the financial system and the macro-economy. This interrelationship is particularly important in Trinidad and Tobago, an energy-dependent economy. The price of housing is very highly correlated with the international price of oil. Increases in this price represent a wealth shock for the economy, but due to the size of the sector, it generates Dutch Disease problems that might be difficult to overcome. The more prudent macroeconomic management of the current boom compared to its predecessor has not proven sufficient to prevent real exchange rate appreciation and a sharp increase in the price of housing.

Because of the nature of the shock and the structure of the economy, the wealth shock does not easily spread across the population. This generates a dynamic to the new equilibrium where the price of housing (like any other asset) reacts faster than wages, generating affordability problems. This was particularly the case in the present shock, since the economy started to boom after 10 years of contraction. This shock, however, was met with a different policy response than that of the 1970s. In addition to behaving more prudently, the private sector is better regulated, and combined with better regulation, as bank supervisors now pay special attention to banks' management of risks associated with mortgage lending. This is reflected in the proportion of mortgage loans to total loans in private banks, which now stands at 15.5 percent compared with an average of around 40 percent in the period 1985 to 1988.

In addition to more prudent regulation, the government refrained from using abundant resources for massive public housing projects as it did in the 1970s. This time, policies targeting low-income families emphasized upgrading of existing housing. In addition, while in the 1970s policy implied expanding mortgage from public institutions (since public housing projects were only partially repaid by new owners), housing finance policy in the 1990s switched to subsidies. Microdata comparing 2005 with 1992 show that: i) family income did not increase much during the period, and affordability problems emerged, but as ownership rate was very high at the beginning (77 percent) there was a wealth effect on households; ii) the demand for mortgage loans was low, i.e., households did not increase leverage; and iii) in spite of a low wealth effect (compared to the GDP increase), the quality of housing increased significantly, particularly for low-income families. In this respect, public policy seems to have been beneficial in terms of

promoting upgrading without pushing prices up, as the relative price of housing to WTI price increased less than in the 1970s.

Since the middle of the 2000s, although housing finance policy seems to have changed by switching to more aggressive intervention in the mortgage market, the only secondary bank in the country is now also a direct mortgage lender that competes with the banks from which it has to buy mortgage loans. Mortgages originated in public programs or public banks have highly subsidized rates, and the public sector has expanded its activity in public housing construction. There has also been pressure on private banks to increase mortgage loans. These policies are supply side, consistent with a vision that the mortgage market has been supply constrained. This change was justified on the grounds that the private mortgage market was not growing fast enough. But, as this paper shows, demand has a role in the apparent low growth of mortgage loans. That growth may be an optimal demand driven response, as the economy adjusts to the new equilibrium. In fact, after the correction in the housing price of the last three years studied, the demand for residential mortgage loans has increased, showing that the policy has played a role. More pressure on the supply of mortgage in these circumstances might not be the appropriate policy, and it might increase systemic risk. The question is whether coming back to more direct intervention would not fuel house prices even more and cause further Dutch Disease problems. In this regard, housing policy has to be articulated while taking into account both macro stability and public pressure, and striking a difficult balance between them.

References

- Artana A., S. Auguste, R. Moya, S. Sookram, and P. Watson. 2009. "Competitiveness and Growth in Trinidad and Tobago." In: M.R. Agosin, E. Fernández-Arias and F. Jaramillo, editors. *Growing Pains: Binding Constraints to Productive Investments in Latin America*. Washington DC, United States: Inter-American Development Bank.
- Belsky E., J. Goodman and R. Drew. 2005. "Measuring the Nation's Rental Housing Affordability Problems." Report RD05-1. Cambridge, United States: Joint Center for Housing Studies.
- Calderón, C., and L. Servén 2004. "The Effects of Infrastructure Development on Growth and Income." Policy Research Working Paper 3400. Washington, DC, United States: World Bank.
- Chiuri, M.C. and T. Jappelli. 2003. "Financial Market Imperfections and Home Ownership: A Comparative Study." *European Economic Review* 47(5): 857-875.
- Central Bank of Trinidad and Tobago (CBTT). 2007. *The Residential Mortgage Market in Trinidad and Tobago*. Port of Spain, Trinidad and Tobago: CBTT.
- . 2009. *The Government Securities Market in Trinidad and Tobago*. Port of Spain, Trinidad and Tobago: CBTT.
- Haurin, D., P. Hendershott and D. Kim. 1993. "The Impact of Real Rents and Wages on Household Formation." *Review of Economics and Statistics* 75(2): 284-93,
- Housing Finance International (HFI). 1993. "Secondary Market Mortgage in Trinidad and Tobago – The Home Mortgage Bank." *Housing Finance International* (June): 24-28.
- Gan, Q., and R. Hill. 2009. "Measuring Housing Affordability: Looking Beyond the Median." *Journal of Housing Economics* 18(2): 115-125.
- Glaeser, E., and J. Gyourko. 2008. *Rethinking Federal Housing Policy: How to Make Housing Plentiful and Affordable*. Washington DC, United States: AEI Press.
- Ministry of Housing and Settlements. 2001. "Housing Finance Mechanisms for Lower Income Households." Port of Spain, Trinidad and Tobago: Ministry of Housing and Settlements. Mimeographed document.
- Ministry of Housing. 2000. "Policies, Programmes and Strategies." Ministry of Housing, Trinidad and Tobago.

Planning and Development Collaborative International (PADCO). 1994. "Housing Finance Report." PADCO and Loughlin and Associates Limited.

----. 1994a. "Restructuring the Trinidad and Tobago Mortgage Finance Company Limited." PADCO and Loughlin and Associates Limited.

----. 1994b. "Strategic implementation. Framework Programme for Land, Settlement and Shelter Development 1995 – 2005." PADCO and Loughlin and Associates Limited.

Annex 1: Data from the Private Financial Sector

Commercial Banks

	Now (12/2009):	Ten years ago
# Outstanding bank loans (Number)	549,590	501,707
# Outstanding bank's mortgage loans (Number)	18,986	9,125
Outstanding bank's loans in TT\$ (thousands)	45,237,473	11,959,987
Outstanding bank's mortgage loans in TT\$ (thousands)	9,842,040	816,343
Outstanding bank's housing mortgage loans in TT\$ (thousands)	6,608,500	720,170
Average interest rate charged to mortgage loans (in annual %) – prime rate	9.90	17.50

Source: CBTT.

Trust and Mortgage Finance Companies

	Now (12/2009):	Ten years ago
# Outstanding bank loans (Number)	2,262	10,029
# Outstanding bank's mortgage loans (Number)	1,342	8,744
Outstanding bank's loans in TT\$ (thousands)	2,734,961	2,920,456
Outstanding bank's mortgage loans in TT\$ (thousands)	272,897	2,170,130
Outstanding bank's housing mortgage loans in TT\$ (thousands)	201,384	1,375,283
Average interest rate charged to mortgage loans (in annual %)– prime rate	9.88	10.75

Source: CBTT.

Finance Companies & Merchant Banks

	Now (12/2009):	Ten years ago (12/1999):
# Outstanding bank loans (Number)	40,893	18,032
# Outstanding bank's mortgage loans (Number)	43	189
Outstanding bank's loans in TT\$ (thousands)	2,088,001	1,249,724
Outstanding bank's mortgage loans in TT\$ (thousands)	15,467	63,217
Outstanding bank's housing mortgage loans in TT\$ (thousands)	5,184	24,594
Average interest rate charged to mortgage loans (in annual %)– prime rate	7.25	11.75

Source: CBTT.

Commercial Banks Distribution of Real Estate Mortgage Loans Outstanding by Interest Rate Bands

Rate Bands	Total	Residential (TTS'000s)	Commercial (TTS'000s)	Per cent Distribution		
				Total	Residential	Commercial
Quarter Ending Mar-09				Quarter Ending Mar-09		
Under 5%	270,154.0	266,410.0	3,744.0	3.4	5.8	0.1
5.1%-6%	6,790.0	6,556.0	234.0	0.1	0.1	0.0
6.1%-7%	31,376.0	11,052.0	20,324.0	0.4	0.2	0.5
7.1%-8%	249,052.0	205,807.0	43,245.0	3.1	4.5	1.1
8.1%-9%	2,414,381.0	2,185,302.0	229,079.0	30.0	47.7	5.6
9.1%-10%	2,921,730.0	1,647,517.0	1,274,213.0	36.3	35.9	31.4
10.1%-11%	1,415,647.0	164,642.0	1,251,005.0	17.6	3.6	30.8
11.1%-12%	438,880.0	32,643.0	835,939.0	5.5	0.7	20.6
Over 12.1%	290,043.0	66,152.0	399,403.0	3.6	1.4	9.8
Quarter Ending Jun-09				Quarter Ending Jun-09		
Under 5%	278,581.0	273,085.0	5,496.0	3.4	5.9	0.1
5.1%-6%	26,597.0	3,831.0	20,699.0	0.3	0.1	0.5
6.1%-7%	10,800.0	10,772.0	28.0	0.1	0.2	0.0
7.1%-8%	252,654.0	210,942.0	41,712.0	3.1	4.5	1.0
8.1%-9%	2,311,610.0	2,111,696.0	199,914.0	28.1	45.4	4.6
9.1%-10%	2,878,562.0	1,773,126.0	1,105,436.0	35.0	38.1	25.4
10.1%-11%	1,659,030.0	176,016.0	1,483,014.0	20.2	3.8	34.1
11.1%-12%	550,754.0	29,847.0	1,025,323.0	6.7	0.6	23.6
Over 12.1%	248,952.0	64,642.0	471,301.0	3.0	1.4	10.8
Quarter Ending Sep-09				Quarter Ending Sep-09		
Under 5%	158,159.0	269,019.0	1,100.0	1.9	5.7	0.0
5.1%-6%	28,717.0	10,004.0	18,713.0	0.3	0.2	0.4
6.1%-7%	8,945.0	8,945.0	0.0	0.1	0.2	0.0
7.1%-8%	262,616.0	219,926.0	42,691.0	3.2	4.6	0.9
8.1%-9%	2,343,265.0	2,147,622.0	195,643.0	28.3	45.2	4.1
9.1%-10%	2,931,104.0	1,838,027.0	1,093,077.0	35.4	38.7	23.1
10.1%-11%	1,851,066.0	177,427.0	1,673,639.0	22.4	3.7	35.4
11.1%-12%	546,719.0	29,295.0	1,226,497.0	6.6	0.6	25.9
Over 12.1%	150,164.0	53,868.0	476,431.0	1.8	1.1	10.1
Quarter Ending Dec-09				Quarter Ending Dec-09		

Source: CBTT.

**Commercial Banks Distribution of Real Estate Mortgage Loans Outstanding
by Interest Rate Bands (Percentage)**

	Mar-08			Mar-09		
	Total	Residential	Commercial	Total	Residential	Commercial
Under 5%	3.6	5.7	0.3	3.4	5.8	0.1
5.1%-6%	0.1	0.2	0.0	0.1	0.1	0.0
6.1%-7%	0.7	0.5	1.1	0.4	0.2	0.6
7.1%-8%	13.8	15.6	8.1	3.1	4.5	1.3
8.1%-9%	52.6	60.9	39.4	30.0	47.7	6.6
9.1%-10%	18.9	11.0	32.6	36.3	35.9	36.9
10.1%-11%	2.8	1.0	6.3	17.6	3.6	36.2
11.1%-12%	3.5	2.2	6.1	5.5	0.7	11.8
Over 12.1%	3.9	2.9	6.2	3.6	1.4	6.5
		Jun-08			Jun-09	
Under 5%	3.5	6.1	0.1	3.4	5.9	0.2
5.1%-6%	0.3	0.5	0.0	0.3	0.1	0.6
6.1%-7%	0.4	0.8	0.0	0.1	0.2	0.0
7.1%-8%	11.0	16.3	5.3	3.1	4.5	1.2
8.1%-9%	49.5	63.2	41.3	28.1	45.4	5.6
9.1%-10%	23.6	10.0	29.8	35.0	38.1	31.0
10.1%-11%	5.0	0.6	11.1	20.2	3.8	41.6
11.1%-12%	1.8	0.6	3.6	6.7	0.6	14.6
Over 12.1%	4.8	2.0	8.7	3.0	1.4	5.2
		Sep-08			Sep-09	
Under 5%	3.5	6.1	0.0	3.2	5.7	0.0
5.1%-6%	0.1	0.2	0.0	0.3	0.2	0.5
6.1%-7%	2.6	3.9	0.8	0.1	0.2	0.0
7.1%-8%	10.8	16.0	3.8	3.1	4.6	1.2
8.1%-9%	36.6	47.4	22.0	27.9	45.2	5.4
9.1%-10%	28.4	20.0	39.9	34.9	38.7	30.0
10.1%-11%	10.2	1.1	22.5	22.1	3.7	46.0
11.1%-12%	1.7	0.8	2.9	6.5	0.6	14.2
Over 12.1%	6.2	4.7	8.2	1.8	1.1	2.6
		Dec-08			Dec-09	
Under 5%	3.4	5.8	0.1	2.8	4.3	0.4
5.1%-6%	0.1	0.1	0.0	0.1	0.2	0.1
6.1%-7%	0.5	0.3	0.8	0.1	0.2	0.0
7.1%-8%	3.8	4.4	2.9	3.7	5.4	1.1
8.1%-9%	32.0	48.1	10.1	36.9	56.5	5.6
9.1%-10%	38.0	33.0	45.0	34.1	28.3	43.2
10.1%-11%	13.7	2.6	28.8	17.8	3.5	40.5
11.1%-12%	2.7	0.9	5.2	3.4	0.5	7.9
Over 12.1%	5.8	4.7	7.2	1.1	1.0	1.2

Source: CBTT.

**Commercial Banks Distribution of New Real Estate Mortgage Loans
by Interest Rate Bands (Percentage)**

	Jan - Mar-08			Jan - Mar-09		
	Total	Residential	Commercial	Total	Residential	Commercial
Under 5%	1.0	0.8	1.6	1.3	2.1	0.0
5.1%-6%	0.0	0.0	0.0	0.0	0.0	0.0
6.1%-7%	0.1	0.1	0.0	0.2	0.3	0.0
7.1%-8%	3.2	4.3	0.0	0.1	0.2	0.0
8.1%-9%	60.0	69.8	30.9	5.1	7.1	1.9
9.1%-10%	34.0	23.5	65.6	36.9	57.5	2.5
10.1%-11%	0.5	0.4	0.8	37.0	21.2	63.5
11.1%-12%	0.2	0.2	0.0	10.9	1.4	26.9
Over 12.1%	1.0	0.9	1.1	8.4	10.4	5.1
	Apr - Jun-08			Apr - Jun-09		
Under 5%	1.3	1.6	0.4	2.0	2.5	1.0
5.1%-6%	0.0	0.0	0.0	0.0	0.1	0.0
6.1%-7%	0.6	0.1	1.9	0.2	0.0	0.6
7.1%-8%	0.3	0.4	0.0	0.0	0.0	0.0
8.1%-9%	33.8	42.4	13.1	3.1	4.8	0.2
9.1%-10%	50.7	52.7	45.6	45.7	67.7	7.3
10.1%-11%	9.5	1.7	28.3	37.0	22.2	63.0
11.1%-12%	1.1	0.0	3.8	10.2	2.0	24.6
Over 12.1%	2.8	1.1	6.9	1.6	0.6	3.4
	July - Sep-08			July - Sep-09		
Under 5%	0.9	1.4	0.0	0.8	1.1	0.0
5.1%-6%	0.0	0.0	0.0	0.0	0.0	0.0
6.1%-7%	0.0	0.0	0.0	0.0	0.0	0.0
7.1%-8%	0.2	0.2	0.1	0.3	0.4	0.0
8.1%-9%	31.5	47.5	5.3	19.3	26.4	0.0
9.1%-10%	39.8	42.8	34.9	51.6	64.0	18.2
10.1%-11%	21.3	5.2	47.8	22.4	7.1	63.4
11.1%-12%	3.0	0.0	7.9	4.8	0.3	16.7
Over 12.1%	3.3	2.8	4.1	0.9	0.7	1.7
	Oct - Dec-08			Oct - Dec-09		
Under 5%	1.4	1.7	1.0	0.3	0.5	0.0
5.1%-6%	0.0	0.0	0.0	0.0	0.0	0.0
6.1%-7%	0.2	0.0	0.4	0.2	0.3	0.0
7.1%-8%	0.0	0.1	0.0	12.2	20.2	0.0
8.1%-9%	16.0	21.2	7.8	33.0	53.6	1.4
9.1%-10%	33.8	50.7	7.0	42.7	23.9	73.2
10.1%-11%	28.0	16.2	46.7	8.9	0.3	19.8
11.1%-12%	15.6	2.2	36.7	2.6	1.1	5.5
Over 12.1%	5.0	8.0	0.4	0.0	0.1	0.0

Source: CBTT.

Annex 2: SLC Sample Statistics

	1992		All the sample 2005		Total	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
Oa	0.6109	0.2372	0.7372	0.2153	0.7008	0.2290
Age	48.7	15.1	52.7	15.5	51.6	15.5
Agesq	2601	1571	3021	1730	2900	1696
agedcub	150111	132857	185673	158528	175473	152449
Aged	0.0	0.0	52.7	15.5	37.6	27.2
agedsq	0	0	3021	1730	2154	2000
agedcub	0	0	185673	158528	132420	158035
Educ	2.7	1.3	3.0	1.4	2.9	1.3
Size	4.3	2.4	3.6	2.0	3.8	2.2
Decils	5.5	2.9	5.5	2.9	5.5	2.9
Ownershi	0.760	0.427	0.779	0.415	0.774	0.419

	1992		Owners 2005		Total	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
aa	0.5922	0.2401	0.7388	0.2175	0.6972	0.2336
age	50.6	14.7	54.9	15.2	53.7	15.2
agesq	2773	1555	3247	1752	3111	1711
agedcub	162789	133036	204574	164084	192629	156964
aged	0.0	0.0	54.9	15.2	39.2	27.9
agedsq	0	0	3247	1752	2319	2084
agedcub	0	0	204574	164084	146094	166646
Educ	2.6	1.2	3.0	1.4	2.9	1.3
Size	4.5	2.5	3.5	1.9	3.8	2.1
Decils	5.4	2.8	5.5	2.9	5.5	2.8
Ownershi	1.000	0	1.000	0	1.000	0

Source: Based on 1992 and 2005 SLC.