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PIONEER MUNICIPAL HIGH INCOME TRUST  
Form N-Q  
September 28, 2012

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UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
Washington, D.C. 20549

FORM N-Q

CERTIFIED SHAREHOLDER REPORT OF REGISTERED  
MANAGEMENT INVESTMENT COMPANIES

Investment Company Act file number 811-21321

Pioneer Municipal High Income Trust  
(Exact name of registrant as specified in charter)

60 State Street, Boston, MA 02109  
(Address of principal executive offices) (ZIP code)

Terrence J Cullen, Pioneer Investment Management, Inc.,  
60 State Street, Boston, MA 02109  
(Name and address of agent for service)

Registrant's telephone number, including area code: (617) 742-7825

Date of fiscal year end: April 30

Date of reporting period: July 31, 2012

Form N-Q is to be used by management investment companies, other than small business investment companies registered on Form N-5 (239.24 and 274.5 of this chapter), to file reports with the Commission, not later than 60 days after close of the first and third fiscal quarters, pursuant to Rule 30b1-5 under the Investment Company Act of 1940 (17 CFR 270.30b-5). The Commission may use the information provided on Form N-Q in its regulatory, disclosure review, inspection, and policymaking roles.

A registrant is required to disclose the information specified by Form N-Q, and the Commission will make this information public. A registrant is not required to respond to the collection of information contained in Form N-Q unless the Form displays a currently valid Office of Management and Budget ("OMB") control number. Please direct comments concerning the accuracy of the information collection burden estimate and any suggestions for reducing the burden to Secretary, Securities and Exchange Commission, 450 Fifth Street, NW, Washington, DC 20549-0609. The OMB has reviewed this collection of information under the clearance requirements of 44 U.S.C. ss. 3507.

<PAGE>

ITEM 1. Schedule of Investments.

Pioneer Municipal  
 High Income Trust  
 NQ| July 31, 2012

Ticker Symbols: MHI

Schedule of Investments | 7/31/2012 (unaudited)

Principal Amount USD (\$)	S&P/Moody's Rating	Value
	TAX EXEMPT OBLIGATIONS - 123.0% of Net Assets	
	Alabama - 2.4%	
2,500,000	B-/B2 Alabama Industrial Development Authority Solid Waste Disposal Revenue, 6.45%, 12/1/23	\$ 2,464,250
1,000,000	NR/NR Huntsville-Redstone Village Special Care Facilities Financing Authority, 5.5%, 1/1/28	1,011,260
4,500,000	NR/NR	4,486,590

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		Huntsville-Redstone Village Special Care Facilities Financing Authority, 5.5%, 1/1/43	\$ 7,962,100
984,000	NR/Baa3	Arizona - 0.7% Pima County Industrial Development Authority, 6.75%, 7/1/31	\$ 986,686
950,000	NR/Baa3	Pima County Industrial Development Authority, 7.25%, 7/1/31	954,399
500,000	NR/Baa2	Yavapai County Industrial Development Authority, 6.0%, 8/1/33	522,420
			\$ 2,463,505
3,000,000	NR/A1	California - 11.8% Abag Finance Authority for Nonprofit Corp. Revenue, 5.75%, 7/1/37	\$ 3,275,730
5,100,000	B-/NR	California County Tobacco Securitization Agency Revenue, 5.125%, 6/1/38	4,207,551
1,000,000	NR/NR	California Enterprise Development Authority Recovery Zone Facility Revenue, 8.5%, 4/1/31	1,157,380
3,000,000	BB/NR	California Statewide Communities Development Authority, 7.25%, 10/1/38 (144A)	3,189,000
568,006(a)	NR/NR	California Statewide Communities Development Authority Environmental Facilities Revenue, 9.0%, 12/1/38	5,305
5,150,000(b)	AA+/Aaa	Golden State Tobacco Securitization Corp., 7.8%, 6/1/42	5,473,832
7,000,000(b)	AA+/Aaa	Golden State Tobacco Securitization Corp., 7.875%, 6/1/42	7,444,290
7,885,000(c)	AA-/WR	Lehman Municipal Trust Receipts Revenue, RIB, 10.94%, 9/20/28 (144A)	9,925,559
2,000,000	B-/Caa1	Tobacco Securitization Authority of Northern California Revenue, 5.375%, 6/1/38	1,616,020
3,000,000	BB+/B3		2,398,920

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		Tobacco Securitization Authority of Southern California, 5.0%, 6/1/37	\$ 38,693,587
2,000,000	BBB+/NR	Colorado - 1.0% Colorado Health Facilities Authority Revenue, 5.25%, 5/15/42	\$ 2,059,500
1,000,000	NR/NR	Kremmling Memorial Hospital District Certificate of Participation, 7.125%, 12/1/45	1,116,020 \$ 3,175,520
1,000,000	NR/NR	Connecticut - 6.2% Hamden Connecticut Facility Revenue, 7.75%, 1/1/43	\$ 1,099,690
10,335,000(d)	AAA/WR	Lehman Municipal Trust Receipts Revenue, 11.665%, 8/21/35	14,157,916
5,000,000	B/NR	Mohegan Tribe of Indians Gaming Authority, 6.25%, 1/1/31	5,002,500 \$ 20,260,106
5,000,000	BBB/Baa1	District of Columbia - 3.5% District of Columbia Tobacco Settlement Financing Corp., 6.5%, 5/15/33	\$ 5,456,050
Principal Amount USD (\$)	S&P/Moody's Rating		Value
6,000,000	BBB/Baa1	District of Columbia - (continued) District of Columbia Tobacco Settlement Financing Corp., 6.75%, 5/15/40	6,119,940 \$ 11,575,990
1,500,000	NR/NR	Florida - 7.4% Alachua County Health Facilities Authority Revenue, 8.125%, 11/15/41	\$ 1,731,210
1,500,000	NR/NR	Alachua County Health Facilities Authority Revenue, 8.125%, 11/15/46	1,725,420

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1,500,000	NR/NRBeacon Lakes Community Development District Special Assessment, 6.9%, 5/1/35	1,538,385
500,000	NR/Ba3Capital Trust Agency Revenue, 7.75%, 1/1/41	555,380
1,000,000	NR/NRFlorida Development Finance Corp., Educational Facilities Revenue, 6.0%, 9/15/40	1,055,770
2,000,000	NR/NRFlorida Development Finance Corp., Educational Facilities Revenue, 7.625%, 6/15/41	2,309,780
1,000,000	NR/NRFlorida Development Finance Corp., Educational Facilities Revenue, 7.75%, 6/15/42	1,127,020
1,000,000(b)	NR/WRHillsborough County Industrial Development Authority Revenue, 8.0%, 8/15/32	1,435,190
2,260,000	NR/NRLiberty County Subordinate Revenue, 8.25%, 7/1/28	2,290,691
2,500,000	A-/A2Miami-Dade County Florida Aviation Revenue, 5.5%, 10/1/41	2,850,075
1,000,000	NR/NRSt. Johns County Industrial Development Authority Revenue, 5.25%, 1/1/26	949,150
2,000,000	NR/NRSt. Johns County Industrial Development Authority Revenue, 5.375%, 1/1/40	1,776,940
5,000,000	NR/Baa1Tallahassee Health Facilities Revenue, 6.375%, 12/1/30	5,008,100
	Georgia - 2.7%	\$ 24,353,111
4,240,000(c)	AA-/WRAtlanta Georgia Water and Wastewater Revenue, RIB, 10.94%, 1/30/13 (144A)	\$ 4,761,520
500,000	CCC+/NRClayton County Development Authority Revenue, 9.0%, 6/1/35	550,090
2,400,000	NR/NRFulton County Residential Care Facilities Revenue, 5.0%, 7/1/27	2,365,176
1,100,000	NR/NRFulton County Residential Care Facilities Revenue,	1,039,434

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		5.125%, 7/1/42	
			\$ 8,716,220
		Idaho - 1.5%	
5,000,000	BBB+/Baa1	Power County Industrial Development Corp., 6.45%, 8/1/32	\$ 5,008,300
		Illinois - 14.1%	
1,000,000(a)	NR/NR	Illinois Finance Authority Revenue, 6.0%, 11/15/27	\$ 240,050
3,865,000	BBB+/NR	Illinois Finance Authority Revenue, 6.0%, 8/15/38	4,374,484
2,000,000	AA+/Aa2	Illinois Finance Authority Revenue, 6.0%, 8/15/39	2,351,780
4,000,000(a)	NR/NR	Illinois Finance Authority Revenue, 6.0%, 11/15/39	960,200
2,450,000	NR/NR	Illinois Finance Authority Revenue, 6.375%, 5/15/17	2,452,548
Principal Amount USD (\$)	S&P/Moody's Rating		Value
		Illinois - (continued)	
2,500,000	NR/Baa2	Illinois Finance Authority Revenue, 6.5%, 4/1/39	2,817,550
500,000	NR/NR	Illinois Finance Authority Revenue, 7.0%, 5/15/18	502,585
1,700,000	NR/NR	Illinois Finance Authority Revenue, 7.625%, 5/15/25	2,003,773
600,000	NR/NR	Illinois Finance Authority Revenue, 7.75%, 5/15/30	702,558
2,000,000	NR/NR	Illinois Finance Authority Revenue, 8.0%, 5/15/40	2,347,680
3,200,000	NR/NR	Illinois Finance Authority Revenue, 8.0%, 5/15/46	3,756,288
4,000,000	NR/NR	Illinois Finance Authority Revenue, 8.25%, 5/15/45	4,363,280
2,500,000	NR/NR	Illinois Finance Authority Revenue, 8.25%, 2/15/46	2,710,950
16,880,000	AAA/A3	Metropolitan Pier & Exposition Authority Dedicated State Tax Revenue, 0.0%, 6/15/22	15,527,237
1,515,000	NR/NR	Southwestern Illinois Development Authority Revenue, 5.625%, 11/1/26	1,294,719
			\$ 46,405,682

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		Indiana - 1.1%	
3,570,000	NR/NR	Vigo County Hospital Authority Revenue, 5.8%, 9/1/47 (144A)	\$ 3,680,813
		Louisiana - 2.1%	
1,500,000	BBB-/Baa3	Louisiana Local Government Environmental Facilities & Community Development Authority Revenue, 6.75%, 11/1/32	\$ 1,685,925
5,000,000	NR/Baa1	Louisiana Public Facilities Authority Revenue, 5.5%, 5/15/47	5,210,050 \$ 6,895,975
		Maine - 0.6%	
1,500,000	NR/Baa3	Maine Health & Higher Educational Facilities Authority Revenue, 7.5%, 7/1/32	\$ 1,864,920
		Massachusetts - 6.4%	
7,100,000	A/WR	Massachusetts Development Finance Agency Revenue, 5.75%, 1/1/42	\$ 9,266,707
2,250,000	NR/NR	Massachusetts Development Finance Agency Revenue, 7.1%, 7/1/32	2,115,562
825,000	AA/NR	Massachusetts Educational Financing Authority Revenue, 6.0%, 1/1/28	959,261
1,860,000	AAA/Aaa	Massachusetts Health & Educational Facilities Authority Revenue, 5.5%, 7/1/32	2,668,970
1,000,000	NR/Caa1	Massachusetts Health & Educational Facilities Authority Revenue, 6.0%, 10/1/23	1,000,960
4,500,000(a)	NR/NR	Massachusetts Health & Educational Facilities Authority Revenue, 6.5%, 1/15/38	22,590
5,000,000	BB-/NR	Massachusetts Health & Educational Facilities Authority Revenue, 6.75%, 10/1/33	5,100,350 \$ 21,134,400

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Principal Amount USD (\$)	S&P/Moody's Rating		Value
		Michigan - 3.2%	
935,000	NR/NR	Doctor Charles Drew Academy Certificate of Participation, 5.7%, 11/1/36	\$ 680,456
1,500,000	BB-/NR	John Tolfree Health System Corp. Revenue, 6.0%, 9/15/23	1,470,135
2,000,000	BB+/NR	Kent Hospital Finance Authority Revenue, 6.25%, 7/1/40	2,088,460
5,830,000	B-/NR	Michigan Tobacco Settlement Finance Authority, 6.0%, 6/1/48	4,770,980
		Michigan - (continued)	
1,410,000	BBB/NR	Star International Academy Certificates of Participation, 6.125%, 3/1/37	1,424,128
			\$ 10,434,159
		Minnesota - 0.9%	
1,000,000	NR/NR	Bloomington Port Authority, 9.0%, 12/1/35	\$ 1,189,280
1,675,000	BB-/NR	Duluth Economic Development Authority Health Care Facilities Revenue, 7.25%, 6/15/32	1,693,810
			\$ 2,883,090
		Montana - 0.1%	
1,600,000 (a)(e)	NR/NR	Two Rivers Authority Revenue, 7.375%, 11/1/27	\$ 237,696
		Nevada - 0.0%	
2,000,000 (a)(e)	NR/NR	Director of the State of Nevada Department of Business & Industry Revenue, 7.25%, 1/1/23	\$ 20
		New Jersey - 8.8%	
1,500,000	NR/NR	New Jersey Economic Development Authority Revenue, 10.5%, 6/1/32 (144A)	\$ 1,657,635
10,000,000	B/B3	New Jersey Economic Development Authority Revenue, 6.25%, 9/15/29	10,039,900
6,150,000 (d)	B/B3	New Jersey Economic Development Authority Revenue, 7.0%, 11/15/30	6,173,308
3,000,000	B-/B1	Tobacco Settlement Financing Corp., 4.625%, 6/1/26	2,720,760
8,000,000 (b)	AA+/Aaa	Tobacco Settlement Financing Corp., 6.75%, 6/1/39	8,435,360
			\$ 29,026,963
		New Mexico - 1.2%	
1,500,000	NR/NR	Otero County New Mexico Project Revenue, 6.0%, 4/1/23	\$ 1,363,230
2,960,000	NR/NR	Otero County New Mexico Project Revenue, 6.0%, 4/1/28	2,556,878
			\$ 3,920,108
		New York - 8.6%	
2,000,000	NR/NR		\$ 2,187,680



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		Chautauqua County Capital Resource Corp. Revenue, 8.0%, 11/15/30	
		Dutchess County Industrial Development Agency Revenue, 7.5%,	
3,000,000	NR/NR	3/1/29	3,090,450
2,000,000	BBB+/NR	Hempstead Local Development Corp. Revenue, 5.75%, 7/1/39	2,222,340
		New York City Industrial Development Agency Revenue, 5.25%,	
2,000,000	BB/B2	12/1/32	1,955,860
		New York City Industrial Development Agency Revenue, 7.625%,	
2,000,000	BB/B2	12/1/32	2,055,580
		New York City Industrial Development Agency Revenue, 8.0%,	
2,000,000	NR/C	8/1/12	2,019,980
		New York State Dormitory Authority Revenue, 13.219%, 5/29/14	
7,040,000 (d)	AAA/WR	(144A)	10,583,091
1,000,000	NR/Baa1	New York State Dormitory Authority Revenue, 6.125%, 12/1/29	1,110,120
		Suffolk County Industrial Development Agency Revenue, 7.25%,	
3,000,000	NR/NR	1/1/30	3,002,430
			\$28,227,531
		North Carolina - 2.8%	
4,785,000	NR/NR	Charlotte Special Facilities Revenue, 5.6%, 7/1/27	\$4,356,073
4,795,000	NR/NR	Charlotte Special Facilities Revenue, 7.75%, 2/1/28	4,802,576
			\$9,158,649
		Oklahoma - 0.4%	
1,225,000 (a)	NR/WR	Tulsa Airport Improvement Trust Revenue, 6.25%, 6/1/20	\$1,249,500

Principal Amount USD (\$)	S&P/Moody's Rating	Value
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		Pennsylvania - 2.5%	
1,550,000	NR/Baa2	Allegheny County Hospital Development Authority Revenue, 5.125%, 5/1/25	\$ 1,550,372
1,000,000	CCC/NR	Columbia County Hospital Authority Health Care Revenue, 5.9%, 6/1/29	1,000,430
1,280,000(a)	NR/WR	Langhorne Manor Borough Higher Education Authority Revenue, 7.35%, 7/1/22	371,046
5,000,000	B-/Caa2	Pennsylvania Economic Development Financing Authority Solid Waste Disposal Revenue, 6.0%, 6/1/31	4,830,100
500,000	BBB+/NR	Pennsylvania Higher Educational Facilities Authority Revenue, 5.4%, 7/15/36	516,795
			\$ 8,268,743

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		Rhode Island - 2.1%	
6,000,000(e)	NR/NR	Central Falls Detention Facility Corp. Revenue, 7.25%, 7/15/35	\$ 5,162,280
1,500,000	NR/NR	Rhode Island Health & Educational Building Corp Revenue, 8.375%, 1/1/46	1,757,520
			\$ 6,919,800
		South Carolina - 1.2%	
–	3,850,000(b)	BBB+/Baa1 South Carolina Jobs Economic Development Authority Revenue, 6.375%, 8/1/34	\$ 4,085,389
		Tennessee - 1.5%	
4,600,000	BBB+/NR	Sullivan County Health, Educational & Housing Facilities Board Revenue, 5.25%, 9/1/36	\$ 4,800,376
		Texas - 15.3%	
1,345,000	NR/Caa2	Bexar County Housing Finance Corp., 8.0%, 12/1/36	\$ 928,776
2,500,000	BB+/Ba1	Central Texas Regional Mobility Authority Revenue, 6.75%, 1/1/41	2,862,100
4,000,000	NR/NR	Decatur Hospital Authority Revenue, 7.0%, 9/1/25	4,288,760
725,078(a)(e)	NR/NR	Gulf Coast Industrial Development Authority, 7.0%, 12/1/36	6,896
3,750,000	B-/B3	Houston Airport System Special Facilities Revenue, 5.7%, 7/15/29	3,714,525
5,340,000	NR/NR	Lubbock Health Facilities Development Corp. Revenue, 6.625%, 7/1/36	5,578,538
10,000,000	BBB+/A3	North Texas Tollway Authority Revenue, 5.75%, 1/1/33	11,054,400
2,810,000(d)	AAA/Aaa	Northside Independent School District G.O., 11.52%, 9/29/12 (144A)	3,395,660
1,500,000	NR/NR	Red River Health Facilities Development Corp. Revenue, 8.0%, 11/15/41	1,705,335
7,040,000(d)	AA+/Aaa	State of Texas G.O., 12.464%, 4/1/13	9,210,995
2,000,000	NR/NR		2,256,580

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		Tarrant County Cultural Education Facilities Finance Corp. Revenue, 8.0%, 11/15/34	
1,000,000	NR/NR	Tarrant County Cultural Education Facilities Finance Corp. Revenue, 8.125%, 11/15/39	1,112,620
1,500,000	NR/NR	Tarrant County Cultural Education Facilities Finance Corp. Revenue, 8.25%, 11/15/44	1,675,125
2,500,000	NR/NR	Travis County Health Facilities Development Corp. Revenue, 7.125%, 1/1/46	2,615,200
			\$ 50,405,510
		Vermont - 0.5%	
1,500,000(b)	A-/Baa1	Vermont Educational & Health Buildings Financing Agency Revenue, 6.0%, 10/1/28	\$ 1,599,135
Principal Amount USD (\$)	S&P/Moody's Rating		Value
		Virginia - 0.3%	
1,000,000	BBB/Baa1	Peninsula Ports Authority Revenue, 6.0%, 4/1/33	\$ 1,021,970
		Washington - 10.0%	
4,710,000	A+/A2	Spokane Public Facilities District Hotel/Motel Tax & Sales Revenue, 5.75%, 12/1/27	\$ 4,978,140
14,315,000(f)	AA+/Aa1	State of Washington G.O., 0.0%, 6/1/22	11,259,034
7,025,000	BBB/Baa1	Tobacco Settlement Authority Revenue, 6.625%, 6/1/32	7,292,723
3,795,000	A/A2	Washington State Health Care Facilities Authority Revenue, 6.0%, 1/1/33	4,276,358
5,000,000	NR/NR	Washington State Housing Finance Committee Nonprofit Revenue, 5.625%, 1/1/27	5,041,500
			\$ 32,847,755
		West Virginia - 0.3%	

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745,000	NR/NRWest Virginia Hospital Finance Authority Hospital Revenue, 9.125%, 10/1/41	\$ 915,434
2,320,000(g)	Wisconsin - 1.8% NR/NRAztalan Township, 0.0%,	\$ -
2,500,000	NR/NRWisconsin Public Finance Authority Revenue, 8.25%, 6/1/46	2,962,000
1,500,000	NR/NRWisconsin Public Finance Authority Revenue, 8.375%, 6/1/20	1,518,000
1,500,000	NR/NRWisconsin Public Finance Authority Revenue, 8.625%, 6/1/47	1,573,125
		\$ 6,053,125
	TOTAL TAX EXEMPT OBLIGATIONS (Cost \$363,011,069)	\$ 404,245,182
	MUNICIPAL COLLATERALIZED DEBT OBLIGATION - 1.9% of Net Assets	
10,000,000(d)(e)	NR/NRNon-Profit Preferred Funding Trust I, 6.75%, 9/15/37 (144A)	\$ 6,329,000
	TOTAL MUNICIPAL COLLATERALIZED DEBT OBLIGATION (Cost \$10,000,000)	\$ 6,329,000
	TOTAL INVESTMENTS IN SECURITIES - 124.9% (Cost - \$373,011,069)	
	(h)(i)	\$ 410,574,182
	OTHER ASSETS AND LIABILITIES -5.8%	\$ 19,114,004
	PREFERRED SHARES AT REDEMPTION VALUE, INCLUDING DIVIDENDS PAYABLE - (30.7)%	\$ (100,999,612)
	NET ASSETS	\$ 328,688,574
	APPLICABLE TO COMMON SHAREHOLDERS	

-100.0%

NR	Security not rated by S&P or Moody's.
RIB	Residual Interest Bonds.
GO	General Obligation.
WR	Rating Withdrawn.
(144A)	Security is exempt from registration under Rule 144A of the Securities Act of 1933. Such securities may be resold normally to qualified institutional buyers in a transaction exempt from registration. At July 31, 2012, the value of these securities amounted to \$43,522,278, or 13.2% of total net assets applicable to common shareowners.

- (a) Security is in default and is non income producing.
- (b) Prerefunded bonds have been collateralized by U.S. Treasury or U.S. Government Agency securities which are held in escrow to pay interest and principal on the tax exempt issue and to retire the bonds in full at the earliest refunding date.
- (c) Residual Interest Bonds. The interest rate is subject to change periodically and inversely based upon prevailing market rates. The interest rate shown is the rate July 31, 2012.
- (d) The interest rate is subject to change periodically. The interest is shown is the rate at July 31, 2012.
- (e) Indicates a security that has been deemed as illiquid. The aggregate cost of illiquid securities is \$20,086,629. The aggregate fair value of \$11,735,892 represents 3.6% of total net assets applicable to common shareholders.
- (f) Security issued with a zero coupon. Income is recognized through accretion of discount.
- (g) Security is fair valued

(h) The concentration of investments by type of obligation/ market sector is as follows (unaudited):

Insured	
NATL-RE	5.0%
FSA	3.6
NATL-RE FGIC	2.7
AMBAC GO OF INSTN	2.3
PSF-GTD	0.8
GO OF INSTN	0.7
Revenue Bonds:	
Health Revenue	17.3
Other Revenue	15.5
Facilities Revenue	13.9

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Tobacco Revenue	13.6
Development Revenue	8.1
Education Revenue	6.1
Airport Revenue	5.9
Transportation Revenue	2.7
Pollution Control Revenue	1.8
Utilities Revenue*	0.0
	100.0%

\* Amount rounds to less than 01.1%

At July 31, 2012, the net unrealized gain on investments based on cost for federal tax purposes of \$373,011,069 was as follows:

(i)	Aggregate gross unrealized gain for all investments in which there is an excess of value over tax cost	\$ 53,079,947
	Aggregate gross unrealized loss for all investments in which there is an excess of tax cost over value	(15,516,826)
	Net unrealized gain	\$ 37,563,121

For financial reporting purposes net unrealized gain on investments was \$ 37,563,121 and cost of investments aggregated \$373,011,069.

Principal amounts are denominated in U.S. dollars unless otherwise noted.

Various inputs are used in determining the value of the Trust's investments. These inputs are summarized in the three broad levels below.

Level 1 - quoted prices in active markets for identical securities

Level 2 - other significant observable inputs (including quoted prices for similar securities, interest rates, prepayment speeds credit risks, etc.)

Level 3 - significant unobservable inputs (including the Trust's own assumptions in determining fair value of investments)

Generally, equity securities are categorized as Level 1, fixed income securities and senior loans are categorized as Level 2, and securities valued using fair value methods (other than prices supplied by independent pricing services) as level 3.

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	Level 1	Level 2	Level 3	Total
Investments in Securities - Assets				
TAX EXEMPT OBLIGATIONS:	\$-	\$397,638,711	\$-	\$404,245,182
MUNICIPAL COLLATERALIZED DEBT OBLIGATION:	-	6,329,000	-	6,329,000
Total Investments in Securities - Assets	\$-	\$403,967,711	\$-	\$410,574,182

ITEM 2. CONTROLS AND PROCEDURES.

(a) Disclose the conclusions of the registrant's principal executive officer or officers and principal financial officer or officers, or persons performing similar functions, about the effectiveness of the registrant's disclosure controls and procedures (as defined in Rule 30a-3(c) under the Act (17 CFR 270.30a-3(c))) as of a date within 90 days of the filing date of the report that includes the disclosure required by this paragraph, based on their evaluation of these controls and procedures required by Rule 30a-3(b) under the Act (17 CFR 270.30a-3(b)) and Rule 13a-15(b) or 15d-15(b) under the Exchange Act (17 CFR 240.13a-15(b) or 240.15d-15(b)).

The registrant's principal executive officer and principal financial officer have concluded that the registrant's disclosure controls and procedures are effective based on their evaluation of these controls and procedures as of a date within 90 days of the filing date of this report.

(b) Disclose any change in the registrant's internal controls over financial reporting (as defined in Rule 30a-3(d) under the Act (17 CFR 270.30a-3(d))) that occurred during the registrant's last fiscal quarter that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting.

There were no significant changes in the registrant's internal control over financial reporting that occurred during the second fiscal quarter of the period covered by this report that have materially affected, or are reasonably likely to materially affect, the registrant's internal control over financial reporting.

ITEM 3. EXHIBITS.

(a) A separate certification for each principal executive officer and principal financial officer of the registrant as required by Rule 30a-2 under the Act (17 CFR 270.30a-2).

Filed herewith.

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## SIGNATURES

[See General Instruction F]

Pursuant to the requirements of the Securities Exchange Act of 1934 and the Investment Company Act of 1940, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

(Registrant) Pioneer Municipal High Income Trust

By (Signature and Title)\* /s/ John F. Cogan, Jr.  
John F. Cogan, Jr, President

Date September 28, 2012

Pursuant to the requirements of the Securities Exchange Act of 1934 and the Investment Company Act of 1940, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

By (Signature and Title)\* /s/ John F. Cogan, Jr.  
John F. Cogan, Jr., President

Date September 28, 2012

By (Signature and Title)\* /s/ Mark Bradley  
Mark Bradley, Treasurer

Date September 28, 2012

\* Print the name and title of each signing officer under his or her signature.