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BLACKROCK MUNIVEST FUND INC
Form N-Q
July 28, 2008

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

FORM N-Q

QUARTERLY SCHEDULE OF PORTFOLIO HOLDINGS OF REGISTERED
MANAGEMENT INVESTMENT COMPANY

Investment Company Act file number 811-05611

Name of Fund: BlackRock MuniVest Fund, Inc. (MVF)

Fund Address: 100 Bellevue Parkway, Wilmington, DE 19809

Name and address of agent for service: Donald C. Burke, Chief Executive
Officer, BlackRock MuniVest Fund, Inc., 800 Scudders Mill Road,
Plainsboro, NJ 08536. Mailing address: P.O. Box 9011, Princeton, NJ
08543-9011

Registrant's telephone number, including area code: (800) 882-0052, Option 4

Date of fiscal year end: 08/31/2008

Date of reporting period: 03/01/2008 - 05/31/2008

Item 1 - Schedule of Investments

BlackRock MuniVest Fund, Inc.
Schedule of Investments May 31, 2008 (Unaudited)
(Percentages shown are based on Net Assets)

State Municipal Bonds

Alabama - 2.9%

Camden, Alabama, IDB, Exempt Facilities Revenue Bonds
(Weyerhaeuser Company), Series A, 6.125%, 12/01/24
Huntsville, Alabama, Health Care Authority Revenue Bonds,
Series A, 5.75%, 6/01/11 (a)
Prattville, Alabama, IDB, Environmental Improvement Revenue
Bonds (International Paper Company Projects), AMT, Series A,
4.75%, 12/01/30
Selma, Alabama, IDB, Environmental Improvement Revenue
Refunding Bonds (International Paper Company Project), Series B, 5.50%, 5

Arizona - 1.8%

Maricopa County, Arizona, IDA, Education Revenue Bonds
(Arizona Charter Schools Project 1), Series A, 6.75%, 7/01/29
Pima County, Arizona, IDA, Education Revenue Bonds
(Arizona Charter Schools Project), Series E, 7.25%, 7/01/31
Pima County, Arizona, IDA, Education Revenue Bonds
(Arizona Charter Schools Project), Series I, 6.10%, 7/01/24

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Pima County, Arizona, IDA, Education Revenue Bonds
 (Arizona Charter Schools Project), Series I, 6.30%, 7/01/31
 Pima County, Arizona, IDA, Education Revenue Refunding Bonds
 (Arizona Charter Schools Project), Series O, 5%, 7/01/26
 Pima County, Arizona, IDA, Education Revenue Refunding Bonds
 (Arizona Charter Schools Project II), Series A, 6.75%, 7/01/11 (a)
 Pima County, Arizona, IDA, Education Revenue Refunding Bonds
 (Arizona Charter Schools Project II), Series A, 6.75%, 7/01/21

 California - 12.5% California State, GO, 5.50%, 4/01/14 (a)
 California State, GO, 5.50%, 4/01/30
 California State Public Works Board, Lease Revenue Bonds
 (Department of Corrections), Series C, 5.50%, 6/01/22
 California State Public Works Board, Lease Revenue Bonds
 (Department of Corrections), Series C, 5.50%, 6/01/23
 California State Public Works Board, Lease Revenue Bonds
 (Department of Mental Health - Coalinga State Hospital),
 Series A, 5.125%, 6/01/29

Portfolio Abbreviations

To simplify the listings of BlackRock MuniVest Fund, Inc.'s portfolio holdings in the Schedule of Investments, we have abbreviated the names of many of the securities according to the list below:

AMT	Alternative Minimum Tax (subject to)
ARS	Auction Rate Securities
DRIVERS	Derivative Inverse Tax-Exempt Receipts
EDA	Economic Development Authority
GO	General Obligation Bonds
HFA	Housing Finance Agency
IDA	Industrial Development Authority
IDB	Industrial Development Board
IDR	Industrial Development Revenue Bonds
PCR	Pollution Control Revenue Bonds
RIB	Residual Interest Bonds
S/F	Single-Family
VRDN	Variable Rate Demand Notes

BlackRock MuniVest Fund, Inc.
 Schedule of Investments May 31, 2008 (Unaudited)
 (Percentages shown are based on Net Assets)

State Municipal Bonds

 California State, Various Purpose, GO, 5.50%, 11/01/33
 California Statewide Communities Development Authority,
 Health Facility Revenue Bonds (Memorial Health Services),
 Series A, 6%, 10/01/23
 California Statewide Communities Development Authority Revenue Bonds (Sai
 Joseph Home Care), Series E, 5.25%, 7/01/47 (b)
 Chula Vista, California, IDR (San Diego Gas and Electric Company), AMT,
 Series B, 5%, 12/01/27

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Golden State Tobacco Securitization Corporation of California,
Tobacco Settlement Revenue Bonds, Series A-3, 7.875%, 6/01/13 (a)
Golden State Tobacco Securitization Corporation of California,
Tobacco Settlement Revenue Bonds, Series A-4, 7.80%, 6/01/13 (a)
Golden State Tobacco Securitization Corporation of California,
Tobacco Settlement Revenue Bonds, Series A-5, 7.875%, 6/01/13 (a)
Golden State Tobacco Securitization Corporation of California,
Tobacco Settlement Revenue Bonds, Series B, 5.375%, 6/01/10 (a)

Colorado - 0.6%

Colorado HFA, Revenue Refunding Bonds (S/F Program), AMT,
Senior Series A-2, 6.60%, 5/01/28
Colorado HFA, Revenue Refunding Bonds (S/F Program), AMT,
Senior Series A-2, 7.50%, 4/01/31
Colorado Health Facilities Authority Revenue Bonds
(Lutheran Medical Center), Series A, 5.25%, 6/01/34

Connecticut - 0.5%

Mohegan Tribe Indians Gaming Authority, Connecticut, Public Improvement R
Refunding Bonds (Priority Distribution),
6.25%, 1/01/31

Florida - 5.9%

Highlands County, Florida, Health Facilities Authority, Hospital Revenue
(Adventist Health System), Series C, 5.25%, 11/15/36
Hillsborough County, Florida, IDA, Hospital Revenue Bonds
(H. Lee Moffitt Cancer Center Project), Series A, 5.25%, 7/01/37
Orange County, Florida, Health Facilities Authority, Hospital
Revenue Bonds (Adventist Health System), 5.625%, 11/15/12 (a)

Georgia - 5.3%

Gainesville, Georgia, Redevelopment Authority, Educational
Facilities Revenue Refunding Bonds (Riverside Military Academy),
5.125%, 3/01/37
Georgia Municipal Electric Authority, Power Revenue Refunding Bonds, Seri
6.60%, 1/01/18
Georgia Municipal Electric Authority, Power Revenue Refunding Bonds, Seri
6.60%, 1/01/18 (f)
Georgia Municipal Electric Authority, Power Revenue Refunding Bonds, Seri
10%, 1/01/10 (f)
Houston County, Georgia, Hospital Authority Revenue Bonds
(Houston Heart Institute Project), 5.25%, 10/01/35

BlackRock MuniVest Fund, Inc.

Schedule of Investments May 31, 2008 (Unaudited)

(Percentages shown are based on Net Assets)

State

Municipal Bonds

Main Street Natural Gas, Inc., Georgia, Gas Project Revenue Bonds, Series
6.25%, 7/15/33
Main Street Natural Gas, Inc., Georgia, Gas Project Revenue Bonds, Series
6.375%, 7/15/38

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Milledgeville-Baldwin County, Georgia, Development Authority
Revenue Bonds (Georgia College and State University Foundation),
5.50%, 9/01/14 (a)
Milledgeville-Baldwin County, Georgia, Development Authority
Revenue Bonds (Georgia College and State University Foundation),
5.625%, 9/01/14 (a)
Monroe County, Georgia, Development Authority, PCR, Refunding (Oglethorpe
Corporation-Scherer), Series A, 6.80%, 1/01/11

Idaho - 0.5% Idaho Housing Agency, S/F Mortgage Revenue Refunding Bonds, AMT, Series
6.90%, 1/01/27
Idaho Housing and Financing Association, S/F Mortgage Revenue Bonds, AMT,
Series J-1, Class III, 5%, 1/01/28

Illinois - 9.0% Chicago, Illinois, O'Hare International Airport, General Airport
Revenue Refunding Bonds, Third Lien, AMT, Series A, 5.75%,
1/01/19 (g)
Chicago, Illinois, O'Hare International Airport Revenue Bonds,
Third Lien, AMT, Series B-2, 6%, 1/01/29 (e)
Chicago, Illinois, S/F Mortgage Revenue Bonds, AMT, Series C,
7%, 3/01/32 (h) (i)
Hodgkins, Illinois, Environmental Improvement Revenue Bonds
(Metro Biosolids Management LLC Project), AMT, 6%, 11/01/23
Illinois Development Finance Authority Revenue Bonds (Community Rehabilita
Providers Facilities), Series A, 6.50%, 7/01/22
Illinois Development Finance Authority, Revenue Refunding Bonds
(Community Rehabilitation Providers Facilities), Series A,
6%, 7/01/15
Illinois State Finance Authority, Revenue Bonds
(Community Rehabilitation Providers Facilities), 4.625%, 7/01/27
Illinois State Finance Authority, Revenue Refunding Bonds
(Central DuPage Health System), VRDN, Series B, 1.20%, 11/01/38 (c)
Kane and De Kalb Counties, Illinois, Community Unit School District Numbe
302, GO, DRIVERS, Series 283, 9.63%, 2/01/18 (c) (k)
McLean and Woodford Counties, Illinois, Community Unit School District Nu
005, GO, Refunding, 6.25%, 12/01/14 (b)
McLean and Woodford Counties, Illinois, Community Unit School District Nu
005, GO, Refunding, 6.375%, 12/01/16 (b)
Regional Transportation Authority, Illinois, Revenue Bonds, Series A,
7.20%, 11/01/20 (j)
Regional Transportation Authority, Illinois, Revenue Bonds, Series C,
7.75%, 6/01/20 (k)

BlackRock MuniVest Fund, Inc.
Schedule of Investments May 31, 2008 (Unaudited)
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State Municipal Bonds

Will County, Illinois, School District Number 122
(New Lenox Elementary), GO, Series A, 6.50%, 11/01/10 (a) (b)

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Will County, Illinois, School District Number 122
(New Lenox Elementary), GO, Series A, 6.50%, 11/01/13 (b)

Indiana - 6.3% Indiana Health and Educational Facilities Financing Authority, Hospital Revenue Bonds (Clarian Health Obligation), Series A, 5.25%, 2/15/40
Indiana Transportation Finance Authority, Highway Revenue Bonds, Series A, 6.80%, 12/01/16
Indianapolis, Indiana, Local Public Improvement Bond Bank, Revenue Refunding Bonds, Series D, 6.75%, 2/01/14

Iowa - 1.1% Iowa Financing Authority, S/F Mortgage Revenue Refunding Bonds, AMT, Series A, 5.15%, 7/01/32 (i)

Kansas - 0.7% Sedgwick and Shawnee Counties, Kansas, S/F Mortgage Revenue Bonds (Mortgage-Backed Securities Program), AMT, Series A-4, 5.95%, 12/01/33 (i)

Kentucky - 1.9% Louisville and Jefferson County, Kentucky, Metropolitan Government Health Revenue Refunding Bonds (Norton Healthcare, Inc.), 5.25%, 10/01/36 (l)

Louisiana - 4.6% Louisiana HFA, S/F Mortgage Revenue Bonds (Home Ownership Program), AMT, Series C-2, 5.20%, 6/01/39 (h) (i)
Louisiana Public Facilities Authority, Hospital Revenue Bonds (Franciscan Missionaries of Our Lady Health System, Inc.), Series A, 5%, 8/15/33
Louisiana Public Facilities Authority, Hospital Revenue Bonds (Franciscan Missionaries of Our Lady Health System, Inc.), Series A, 5.25%, 8/15/36

Maine - 0.3% Portland, Maine, Housing Development Corporation, Senior Living Revenue Bonds (Avesta Housing Development Corporation Project), Series A, 5.70%, 8/01/2008
Portland, Maine, Housing Development Corporation, Senior Living Revenue Bonds (Avesta Housing Development Corporation Project), Series A, 6%, 2/01/34

Maryland - 0.5% Maryland State Community Development Administration, Department of Housing and Community Development, Residential Revenue Refunding Bonds, AMT, Series D, 4.90%, 9/01/42

Massachusetts - 12.5% Boston, Massachusetts, Water and Sewer Commission Revenue Bonds, 9.25%, 1/01/11 (f)
Massachusetts Bay Transportation Authority, Revenue Refunding Bonds (General Transportation System), Series A, 7%, 3/01/19

BlackRock MuniVest Fund, Inc.
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State Municipal Bonds

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Massachusetts State Development Finance Agency,
Revenue Refunding Bonds (Boston University Project),
VRDN, Series U-6A, 1.40%, 10/01/42 (c)
Massachusetts State, HFA, Housing Revenue Bonds, AMT, Series A, 5.20%, 12/01/40
Massachusetts State, HFA, Housing Revenue Refunding Bonds, AMT, Series D, 4.85%, 6/01/40
Massachusetts State, HFA, S/F Housing Revenue Bonds, AMT, Series 130, 5%, 12/01/32
Massachusetts State Water Resource Authority Revenue Bonds, Series A, 6.50%, 7/15/19 (f)
Massachusetts State Water Resource Authority, Revenue Refunding Bonds, Series A, 6%, 8/01/10 (a) (k)

Michigan - 4.5%
Delta County, Michigan, Economic Development Corporation, Environmental Improvement Revenue Refunding Bonds (Mead Westvaco-Escanaba), Series A, 6.25%, 4/15/12 (a)
Macomb County, Michigan, Hospital Finance Authority, Hospital Revenue Bonds (Mount Clemens General Hospital), Series B, 5.75%, 11/15/25
Macomb County, Michigan, Hospital Finance Authority, Hospital Revenue Bonds (Mount Clemens General Hospital), Series B, 5.875%, 11/15/34
Michigan State Hospital Finance Authority, Hospital Revenue Refunding Bonds (Crittenton Hospital), Series A, 5.625%, 3/01/27
Michigan State Hospital Finance Authority, Hospital Revenue Refunding Bonds (Oakwood Obligated Group), Series A, 5%, 7/15/25
Michigan State Hospital Finance Authority, Revenue Refunding Bonds (Henry Health System), Series A, 5.25%, 11/15/46
Michigan State Hospital Finance Authority, Revenue Refunding Bonds (Sinai Hospital), 6.70%, 1/01/26

Minnesota - 1.7%
Minneapolis, Minnesota, Health Care System Revenue Bonds (Allina Health System), Series A, 5.75%, 11/15/12 (a)
Saint Cloud, Minnesota, Health Care Revenue Refunding Bonds (Saint Cloud Hospital Obligation Group), Series A, 6.25%, 5/01/17 (b)

Mississippi - 6.6%
Lowndes County, Mississippi, Solid Waste Disposal and PCR, Refunding (Weyerhaeuser Company Project), Series A, 6.80%, 4/01/22
Lowndes County, Mississippi, Solid Waste Disposal and PCR, Refunding (Weyerhaeuser Company Project), Series B, 6.70%, 4/01/22
Mississippi Business Finance Corporation, Mississippi, PCR, Refunding (System Energy Resources Inc. Project), 5.875%, 4/01/22

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State	Municipal Bonds
	Mississippi Business Finance Corporation, Mississippi, PCR, Refunding (System Energy Resources Inc. Project), 5.90%, 5/01/22
Missouri - 2.7%	Missouri State Development Finance Board, Infrastructure Facilities Revenue Refunding Bonds (Branson), Series A, 5.50%, 12/01/32 Missouri State Health and Educational Facilities Authority, Health Facilities Revenue Refunding Bonds (SSM Health Care Corporation), ARS, VRDN, Series A, 1.75%, 6/01/33 (b) (c) Missouri State Housing Development Commission, S/F Mortgage Revenue Bonds (Homeowner Loan), AMT, Series A, 7.50%, 3/01/31 (i)
Montana - 1.1%	Forsyth, Montana, PCR, Refunding (Portland General Electric Company), Series A, 5.20%, 5/01/33
Nebraska - 0.0%	Nebraska Investment Finance Authority, S/F Housing Revenue Bonds, AMT, Series A, 6.30%, 9/01/28 (h) (i)
New Hampshire - 0.5%	New Hampshire Health and Education Facilities Authority, Revenue Refunding Bonds (Elliot Hospital), Series B, 5.60%, 10/01/22
New Jersey - 4.8%	New Jersey EDA, Cigarette Tax Revenue Bonds, 5.50%, 6/15/24 New Jersey EDA, Cigarette Tax Revenue Bonds, 5.75%, 6/15/29 New Jersey EDA, Cigarette Tax Revenue Bonds, 5.75%, 6/15/34 Tobacco Settlement Financing Corporation of New Jersey, Asset-Backed Revenue Bonds, 7%, 6/01/13 (a)
New York - 0.5%	New York City, New York, City Transitional Finance Authority Revenue Bonds Series 283, 10.62%, 11/15/15 (c) New York City, New York, GO, Refunding, Series A, 6.375%, 5/15/14 (k) New York State Local Government Assistance Corporation, Revenue Refunding Bonds Sub-Lien, VRDN, Series 4V, 1.50%, 4/01/22 (b) (c)
North Carolina - 0.6%	Gaston County, North Carolina, Industrial Facilities and Pollution Control Financing Authority, Revenue Bonds (National Gypsum Company Project), AMT, 5.75%, 8/01/35
Ohio - 4.5%	Buckeye Tobacco Settlement Financing Authority, Ohio, Tobacco Settlement Asset-Backed Bonds, Series A-2, 6.50%, 6/01/47
Pennsylvania - 4.4%	Pennsylvania State Higher Education Assistance Agency Revenue Bonds, Capital Acquisition, 6.125%, 12/15/10 (a) (g) Pennsylvania State Higher Educational Facilities Authority Revenue Bonds (University of Pennsylvania Medical Center Health System), Series A, 6%, 1/15/31 Philadelphia, Pennsylvania, Authority for Industrial Development, Senior Living Revenue Bonds (Arbor House Inc. Project), Series E, 6.10%, 7/01/33 Philadelphia, Pennsylvania, Authority for Industrial Development, Senior Living Revenue Bonds (Rieder House Project), Series A,

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6.10%, 7/01/33

BlackRock MuniVest Fund, Inc.

Schedule of Investments May 31, 2008 (Unaudited)

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State

Municipal Bonds

	<p>Sayre, Pennsylvania, Health Care Facilities Authority, Revenue Bonds (Guthrie Healthcare System), Series B, 7.125%, 12/01/11 (a)</p> <p>Sayre, Pennsylvania, Health Care Facilities Authority, Revenue Refunding (Guthrie Healthcare System), Series A, 6.25%, 12/01/11 (a)</p> <p>Sayre, Pennsylvania, Health Care Facilities Authority, Revenue Refunding (Guthrie Healthcare System), Series A, 6.25%, 12/01/18</p>
South Carolina - 1.0%	<p>Georgetown County, South Carolina, Environmental Improvement Revenue Refunding Bonds (International Paper Company Project), AMT, Series A, 5.55%, 12/01/29</p> <p>Richland County, South Carolina, Environmental Improvement Revenue Refunding Bonds (International Paper), AMT, 6.10%, 4/01/23</p>
South Dakota - 0.4%	<p>South Dakota State Health and Educational Facilities Authority Revenue Bonds (Sanford Health), 5%, 11/01/40</p>
Tennessee - 0.8%	<p>Shelby County, Tennessee, Health, Educational and Housing Facility Board, Hospital Revenue Refunding Bonds (Methodist Healthcare), 6.50%, 9/01/12 (a)</p>
Texas - 15.8%	<p>Austin, Texas, Convention Center Revenue Bonds (Convention Enterprises Inc First Tier, Series A, 6.70%, 1/01/11 (a)</p> <p>Brazos River Authority, Texas, PCR, Refunding (TXU Energy Company LLC Project), AMT, Series A, 7.70%, 4/01/33</p> <p>Brazos River, Texas, Harbor Navigation District, Brazoria County Environmental Revenue Refunding Bonds (Dow Chemical Company Project), AMT, Series A-7, 6.625%, 5/15/33</p> <p>Dallas-Fort Worth, Texas, International Airport, Joint Revenue Bonds, AMT Series B, 6.25%, 11/01/28 (g)</p> <p>Dallas-Fort Worth, Texas, International Airport, Joint Revenue Bonds, AMT Series C, 6.25%, 11/01/28 (g)</p> <p>Dallas-Fort Worth, Texas, International Airport, Joint Revenue Refunding Bonds, AMT, Sub-Series A-2, 6.10%, 11/01/24 (g)</p> <p>Gregg County, Texas, Health Facilities Development Corporation, Hospital Revenue Bonds (Good Shepherd Medical Center Project), 6.875%, 10/01/10 (a) (m)</p> <p>Guadalupe-Blanco River Authority, Texas, Sewage and Solid Waste Disposal Revenue Bonds (E. I. du Pont de Nemours and Company Project), AMT, 6.40%, 11/01/24 (g)</p> <p>Gulf Coast Waste Disposal Authority, Texas, Revenue Refunding Bonds (International Paper Company), AMT, Series A, 6.10%, 8/01/24 (a)</p> <p>Harris County-Houston Sports Authority, Texas, Revenue Refunding Bonds, AMT Series G, 5.75%, 11/15/20 (g)</p> <p>Houston, Texas, Industrial Development Corporation Revenue Bonds (Air Carriers), AMT, 6.375%, 1/01/23</p>

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Mansfield, Texas, Independent School District, GO, Refunding,
6.625%, 2/15/15

BlackRock MuniVest Fund, Inc.

Schedule of Investments May 31, 2008 (Unaudited)

(Percentages shown are based on Net Assets)

State

Municipal Bonds

Matagorda County, Texas, Navigation District Number 1, Revenue Refunding
(Centerpoint Energy Project), 5.60%, 3/01/27
Midway, Texas, Independent School District, GO, Refunding,
6.125%, 8/15/14
Port Corpus Christi, Texas, Revenue Refunding Bonds
(Celanese Project), Series A, 6.45%, 11/01/30
Red River Authority, Texas, PCR, Refunding (Celanese Project),
AMT, Series B, 6.70%, 11/01/30
San Antonio, Texas, Electric and Gas Revenue Bonds, Series A,
5.75%, 2/01/10 (a)

Vermont - 0.2% Vermont Educational and Health Buildings Financing Agency, Developmental
Mental Health Revenue Bonds (Howard Center for Human Services),
Series A, 6.375%, 6/15/22

Virginia - 1.1% Chesterfield County, Virginia, IDA, PCR (Virginia Electric and Power Comp
Series A, 5.875%, 6/01/17
Fairfax County, Virginia, EDA, Residential Care Facilities, Mortgage Reve
Refunding Bonds (Goodwin House, Inc.), 5.125%, 10/01/37
Fairfax County, Virginia, EDA, Residential Care Facilities, Mortgage Reve
Refunding Bonds (Goodwin House, Inc.), 5.125%, 10/01/42

Washington - 5.9% Energy Northwest, Washington, Electric Revenue Refunding Bonds
(Columbia Generating), Series B, 6%, 7/01/18 (j)
Seattle, Washington, Housing Authority Revenue Bonds
(Replacement Housing Project), 6.125%, 12/01/32
Washington State, GO, Series B, 6%, 1/01/10 (a)(b)
Washington State Public Power Supply System, Revenue Refunding Bonds (Nuc
Project Number 1), Series B, 7.125%, 7/01/16

Wisconsin - 1.8% Milwaukee, Wisconsin, Revenue Bonds (Air Cargo), AMT,
6.50%, 1/01/25
Wisconsin State Health and Educational Facilities Authority, Mortgage Rev
Bonds (Hudson Memorial Hospital), 5.70%, 1/15/29 (n)
Wisconsin State Health and Educational Facilities Authority Revenue Bonds
(SynergyHealth Inc.), 6%, 11/15/32

U.S. Virgin Islands Government Refinery Facilities, Revenue Refunding Bonds (H

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Islands - 1.5%	Coker Project), AMT, 6.50%, 7/01/21
Total Municipal Bonds (Cost - \$698,124,722) - 127.3%	

Municipal Bonds Transferred to Tender Option Bond Trusts (o)

Connecticut - 2.2%	Connecticut State Health and Educational Facilities Authority Revenue Bonds (Yale University), Series Z-3, 5.05%, 7/01/42
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Florida - 1.6%	Miami-Dade County, Florida, Aviation Revenue Refunding Bonds (Miami International Airport), AMT, 5%, 10/01/40 (d) (e)
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BlackRock MuniVest Fund, Inc.
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State Municipal Bonds Transferred to Tender Option Bond Trusts

Illinois - 9.0%	Chicago, Illinois, O'Hare International Airport Revenue Bonds, Third Lien, AMT, Series B-2, 6%, 1/01/27 (g) Chicago, Illinois, Water Revenue Refunding Bonds, Second Lien, 5.25%, 11/01/33 (b) Kane and De Kalb Counties, Illinois, Community Unit School District Number 302, GO, 5.75%, 2/01/18 (k) Kane and De Kalb Counties, Illinois, Community Unit School District Number 302, GO, 5.75%, 2/01/19 (k) Kane and De Kalb Counties, Illinois, Community Unit School District Number 302, GO, 5.75%, 2/01/21 (k) Metropolitan Pier and Exposition Authority, Illinois, Dedicated State Tax Revenue Refunding Bonds (McCormick Place Expansion Project), Series B, 5.75%, 6/15/23 (g)
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Maryland - 0.9%	Maryland State Transportation Authority, Transportation Facilities Projects Revenue Bonds, 5%, 7/01/41 (b)
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Massachusetts - 3.6%	Massachusetts State School Building Authority, Dedicated Sales Tax Revenue Bonds, Series A, 5%, 8/15/30 (b)
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New York - 7.7%	New York City, New York, City Transitional Finance Authority Revenue Bonds, Future Tax Secured, Series B, 6.25%, 11/15/18 New York State Dormitory Authority, State University Educational Facilities, Revenue Refunding Bonds, Series 1989, 6%, 5/15/10 (a) (g)
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North Carolina - 2.3%	North Carolina Capital Facilities Finance Agency, Revenue Refunding Bonds (Duke University Project), Series A, 5%, 10/01/14
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Oregon - 1.3%	Portland, Oregon, Sewer System Revenue Bonds, Series A,
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5.75%, 8/01/10 (a) (k)

Texas - 7.9%

Harris County, Texas, Health Facilities Development Corporation,
Revenue Refunding Bonds (School Health Care System), Series B,
5.75%, 7/01/27 (f)
Judson, Texas, Independent School District, School Building, GO,
5%, 2/01/37 (d)
Texas State Department of Housing and Community Affairs,
S/F Mortgage Revenue Bonds, AMT, Series B, 5.25%, 9/01/32 (h) (i)
Texas State University, System Financing Revenue Refunding Bonds,
5%, 3/15/30 (b)

Washington - 9.6%

Central Puget Sound Regional Transportation Authority, Washington,
Sales and Use Tax Revenue Bonds, Series A, 5%, 11/01/32 (b)
Central Puget Sound Regional Transportation Authority, Washington,
Sales and Use Tax Revenue Bonds, Series A, 5%, 11/01/34
Central Puget Sound Regional Transportation Authority, Washington,
Sales and Use Tax Revenue Bonds, Series A, 5%, 11/01/36
Energy Northwest, Washington, Electric Revenue Refunding Bonds
(Columbia Generating Station), Series A, 5.75%, 7/01/18 (g)

BlackRock MuniVest Fund, Inc.

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State

Municipal Bonds Transferred to Tender Option Bond Trusts (o)

Energy Northwest, Washington, Electric Revenue Refunding Bonds
(Project Number 1), Series B, 6%, 7/01/17 (g)

Total Municipal Bonds Transferred to Tender Option Bond Trusts
(Cost - \$256,207,058) - 46.1%

Short-Term Securities

Merrill Lynch Institutional Tax-Exempt Fund, 1.71% (p) (q)

Total Short-Term Securities (Cost - \$42,900,000) - 7.6%

Total Investments (Cost - \$997,231,780*) - 181.0%

Other Assets Less Liabilities - 3.5%

Liability for Trust Certificates, Including Interest Expense Payable - (2)

Preferred Stock, at Redemption Value - (59.2%)

Net Assets Applicable to Common Stock - 100.0%

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* The cost and unrealized appreciation (depreciation) of investments as of May 31, 2008, as computed for federal income tax purposes, were as follows:

Aggregate cost	\$ 858,615,037
	=====
Gross unrealized appreciation	\$ 36,121,624
Gross unrealized depreciation	(15,333,345)

Net unrealized appreciation	\$ 20,788,279
	=====

- (a) U.S. government securities, held in escrow, are used to pay interest on this security as well as to retire the bond in full at the date indicated, typically at a premium to par.
- (b) FSA Insured.
- (c) Variable rate security. Rate shown is as of report date. Maturity shown is the final maturity date.
- (d) Assured Guaranty Insured.
- (e) XL Capital Insured.
- (f) Security is collateralized by Municipal or U.S. Treasury Obligations.
- (g) MBIA Insured.
- (h) FHLMC Collateralized.
- (i) FNMA/GNMA Collateralized.
- (j) AMBAC Insured.
- (k) FGIC Insured.
- (l) Represents a pay-in-kind security that may pay interest/dividends in additional face/shares.
- (m) Radian Insured.
- (n) FHA Insured.
- (o) Securities represents underlying bonds transferred to a separate securitization trust established in a tender option bond transaction in which the Fund may have acquired the residual interest certificates. These securities serve as collateral in a financing transaction.
- (p) Investments in companies considered to be an affiliate of the Fund, for purposes of Section 2(a)(3) of the Investment Company Act of 1940, were as follows:

Affiliate	Net Activity	Dividend Income

Merrill Lynch Institutional Tax-Exempt Fund	34,976,994	\$ 310,466

- (q) Represents the current yield as of report date.

Item 2 - Controls and Procedures

- 2(a) - The registrant's principal executive and principal financial officers or persons performing similar functions have concluded that the registrant's disclosure controls and procedures (as defined in Rule 30a-3(c) under the Investment Company Act of 1940, as amended (the "1940 Act")) are effective as of a date within 90 days of the filing of this report based on the evaluation of these controls and procedures required by Rule 30a-3(b) under the 1940 Act and Rule 13a-15(b) under the Securities Exchange Act of 1934, as amended.
- 2(b) - There were no changes in the registrant's internal control over

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financial reporting (as defined in Rule 30a-3(d) under the 1940 Act) that occurred during the registrant's last fiscal quarter that have materially affected, or are reasonably likely to materially affect, the registrant's internal control over financial reporting.

Item 3 - Exhibits

Certifications - Attached hereto

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.

BlackRock MuniVest Fund, Inc.

By: /s/ Donald C. Burke

Donald C. Burke
Chief Executive Officer of
BlackRock MuniVest Fund, Inc.

Date: July 18, 2008

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: /s/ Donald C. Burke

Donald C. Burke
Chief Executive Officer (principal executive officer) of
BlackRock MuniVest Fund, Inc.

Date: July 18, 2008

By: /s/ Neal J. Andrews

Neal J. Andrews
Chief Financial Officer (principal financial officer) of
BlackRock MuniVest Fund, Inc.

Date: July 18, 2008