

HB

21

<TARGET><BILL>HB 21</BILL><SUBJECT>HB
21</SUBJECT><COMM>HFIN28</COMM></TARGET>

2014 HOUSE FINANCE COMMITTEE VOTE SHEET

DATE: 4/1/14

Report CS HB
 21 out of committee
 (FIN) Favor Oppose

MEMBER	(FIN) Favor	Oppose
REP. GUTTENBERG		✓
REP. HOLMES	✓	
REP. MUNOZ		✓
REP. NEUMAN	✓	
REP. THOMPSON	✓	
REP. WILSON	✓	
REP. COSTELLO	✓	
REP. EDGMON	✓	
REP. GARA		✓
REP. STOLTZE	✓	
REP. AUSTERMAN	✓	

YEA 8 NAY 3

HOUSE COMMITTEE REPORT

(11)

Date Referred to Committee: February 22, 2013

FURTHER REFERRALS:

Date of Committee Action: 4.1.14

The FINANCE Committee considered:

HB 21

HOUSE BILL NO. 21

"An Act relating to the length of a school week; and providing for an effective date."

HB 21-FOUR-DAY SCHOOL WEEK

Recommends it be replaced with HCS or CS for HB 21 (FIN)
 For Senate Bills with new title: Technical Title New Title: HCR _____ Same Title New Title

- attach amendments
- add new referral to _____ Committee
- Letter of Intent _____ Committee

List of Abbrev for Depts.:
 ADM
 CED
 COR
 CRT
 EED
 DEC
 DFG
 GOV
 DHS
 LWF
 LAW
 LEG
 MVA
 DNR
 DPS
 REV
 DOT
 UA

NEW FISCAL NOTES				
*FN# is assigned by Chief Clerk's Office				
*FN#	List by Dept(s):	Fiscal	Indet.	Zero
	ADM			✓
	EED			✓

PREVIOUS FISCAL NOTES				
FN#	List by Dept(s):	Fiscal	Indet.	Zero

Signing with recommendations	Printed Last Name	DP	DNP	NR	AM
	Holmes			X	
Jamie Wilson	T. Wilson	✓		X	
	Munoz			✓	
	Thompson			✓	
	Edgman			✓	
	Castella	✓			X
Chair:	Stotz			X	
Chair:	AUSTERMAN			X	

Fiscal Note

State of Alaska
2014 Legislative Session

Bill Version: HB 21
Fiscal Note Number: _____
() Publish Date: _____

Identifier: HB021CS(FIN)-DOA-DRB-04-01-14
Title: FOUR-DAY SCHOOL WEEK
Sponsor: ** P.WILSON, T.WILSON
Requester: House Finance Committee

Department: Department of Administration
Appropriation: Centralized Administrative Services
Allocation: Retirement and Benefits
OMB Component Number: 64

Expenditures/Revenues

Note: Amounts do not include inflation unless otherwise noted below. (Thousands of Dollars)

	FY2015	Included in	Out-Year Cost Estimates				
	Appropriation Requested	Governor's FY2015 Request	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
OPERATING EXPENDITURES	FY 2015	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
Personal Services							
Travel							
Services							
Commodities							
Capital Outlay							
Grants & Benefits							
Miscellaneous							
Total Operating	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Fund Source (Operating Only)

None							
Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Positions

Full-time							
Part-time							
Temporary							

Change in Revenues							
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Estimated SUPPLEMENTAL (FY2014) cost: 0.0 *(separate supplemental appropriation required)*
(discuss reasons and fund source(s) in analysis section)

Estimated CAPITAL (FY2015) cost: 0.0 *(separate capital appropriation required)*
(discuss reasons and fund source(s) in analysis section)

ASSOCIATED REGULATIONS

Does the bill direct, or will the bill result in, regulation changes adopted by your agency? No
If yes, by what date are the regulations to be adopted, amended or repealed?

Why this fiscal note differs from previous version:

The House Finance Committee zeroed out the fiscal note for the Department of Administration intending the department to absorb the costs.

Prepared By: Co-Chair Representative Austerman Phone: (907)465-6258
House Finance Committee
Co-Chair Representative Stoltze Date: 04/01/2014
House Finance Committee

FISCAL NOTE ANALYSIS

STATE OF ALASKA
2014 LEGISLATIVE SESSION

BILL NO. HB 21

Analysis

CSHB 21 reduces the number of days worked in a school year below the statutorily required 172 days for a teacher to earn a year of service.

A new service chart has been developed for use with school districts who have received approval from DEED to have an alternate school term that will allow teachers working for a district under an alternate school term to earn a year of service in the TRS by working at least 150 days. Days worked that are under 150 will be graded on a proportionate based per the schedule.

The most recent committee substitute for HB021 does not have an actuarial impact on teacher's retirement.

Fiscal Note

State of Alaska
2014 Legislative Session

Bill Version: HB 21
Fiscal Note Number: _____
() Publish Date: _____

Identifier: HB021CS(FIN)-EED-SSA-3-31-14
Title: FOUR-DAY SCHOOL WEEK
Sponsor: ** P.WILSON, T.WILSON
Requester: House Rules Committee

Department: Department of Education and Early Development
Appropriation: Teaching and Learning Support
Allocation: Student and School Achievement
OMB Component Number: 2796

Expenditures/Revenues

Note: Amounts do not include inflation unless otherwise noted below. (Thousands of Dollars)

	FY2015	Included in	Out-Year Cost Estimates				
	Appropriation Requested	Governor's FY2015 Request	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
OPERATING EXPENDITURES	FY 2015	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
Personal Services							
Travel							
Services							
Commodities							
Capital Outlay							
Grants & Benefits							
Miscellaneous							
Total Operating	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Fund Source (Operating Only)

None							
Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Positions

Full-time							
Part-time							
Temporary							

Change in Revenues							
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Estimated SUPPLEMENTAL (FY2014) cost: 0.0 *(separate supplemental appropriation required)*
(discuss reasons and fund source(s) in analysis section)

Estimated CAPITAL (FY2015) cost: 0.0 *(separate capital appropriation required)*
(discuss reasons and fund source(s) in analysis section)

ASSOCIATED REGULATIONS

Does the bill direct, or will the bill result in, regulation changes adopted by your agency? **No**
If yes, by what date are the regulations to be adopted, amended or repealed?

Why this fiscal note differs from previous version:

The CS provides a method for school districts to pursue an alternate school calendar.

Prepared By: <u>Les Morse, Deputy Commissioner</u>	Phone: <u>(907)465-2800</u>
Division: <u>Commissioner's Office</u>	Date: <u>03/31/2014 11:00 AM</u>
Approved By: <u>Mike Hanley</u>	Date: <u>03/31/14</u>
Agency: <u>Commissioner</u>	

FISCAL NOTE ANALYSIS

STATE OF ALASKA
2014 LEGISLATIVE SESSION

BILL NO. CS HB021 (FIN)

Analysis

There is no fiscal impact to the department. The current language provides a method for school districts to pursue an alternate school calendar without reducing the educational opportunities for students. This CS provides clarity for school districts which choose to utilize a non-traditional calendar that may fall below statutory requirements for days in school.

Section 1 allows for local school boards to pursue an alternative calendar that is less than 172 total days in session.

Section 2 adds language which provides the criteria for local school boards to demonstrate to the commissioner in an application for an alternative school calendar. Additionally, an alternate days-of-service chart in which teachers can receive credit toward their retirement and benefits when working on a shortened school calendar under the Department of Administration is included in this section.

The effective date of this act is July 1, 2014.

Fiscal Note

State of Alaska
2014 Legislative Session

Bill Version: HB 21
Fiscal Note Number: _____
() Publish Date: _____

Identifier: HB021CS(FIN)-DOA-DRB-03-31-14
Title: FOUR-DAY SCHOOL WEEK
Sponsor: ** P.WILSON, T.WILSON
Requester: House Rules

Department: Department of Administration
Appropriation: Centralized Administrative Services
Allocation: Retirement and Benefits
OMB Component Number: 64

Expenditures/Revenues

Note: Amounts do not include inflation unless otherwise noted below. (Thousands of Dollars)

	FY2015 Appropriation Requested	Included in Governor's FY2015 Request	Out-Year Cost Estimates				
			FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
OPERATING EXPENDITURES	FY 2015	FY 2015					
Personal Services							
Travel							
Services	103.1						
Commodities							
Capital Outlay							
Grants & Benefits							
Miscellaneous							
Total Operating	103.1	0.0	0.0	0.0	0.0	0.0	0.0

Fund Source (Operating Only)

Zero fn

1034 Teach Ret	103.1						
Total	103.1	0.0	0.0	0.0	0.0	0.0	0.0

Positions

Full-time							
Part-time							
Temporary							

Change in Revenues

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Estimated SUPPLEMENTAL (FY2014) cost: 0.0 (separate supplemental appropriation required)
(discuss reasons and fund source(s) in analysis section)

Estimated CAPITAL (FY2015) cost: 0.0 (separate capital appropriation required)
(discuss reasons and fund source(s) in analysis section)

ASSOCIATED REGULATIONS

Does the bill direct, or will the bill result in, regulation changes adopted by your agency? No
If yes, by what date are the regulations to be adopted, amended or repealed?

Why this fiscal note differs from previous version:

Updated to reflect most recent committee substitute.

Prepared By: Mike Barnhill, Deputy Commissioner
Division: Department of Administration
Approved By: Curtis Thayer
Agency: Department of Administration

Phone: (907)465-2200
Date: 03/28/2014 05:25 PM
Date: 03/31/14

FISCAL NOTE ANALYSIS

STATE OF ALASKA
2014 LEGISLATIVE SESSION

BILL NO. CSHB 21 (FIN)

Analysis

CSHB 21 reduces the number of days worked in a school year below the statutorily required 172 days for a teacher to earn a year of service.

A new service chart has been developed for use with school districts who have received approval from DEED to have an alternate school term that will allow teachers working for a district under an alternate school term to earn a year of service in the TRS by working at least 150 days. Days worked that are under 150 will be graded on a proportionate based per the schedule.

The most recent committee substitute for HB021 does not have an actuarial impact on teacher's retirement. However, the bill will require additional labor costs for reprogramming the software systems used to manage retirement benefits for teachers in Alaska. Additionally, the Division of Retirement and Benefits will have to notify teachers of changes. Programming costs and printing costs require the use of a contractor; any additional work and additional cost associated with this change will be absorbed by the Division by its current staff.

Here is a breakdown of the costs:

Component	Cost
Reporting Programming	\$ 24,000
CRS Programming	\$ 18,480
Calculation systems	\$ 24,000
Statements	\$ 36,000
Brochures	\$ 656
Total	\$ 103,136

CS FOR HOUSE BILL NO. 21(FIN)

IN THE LEGISLATURE OF THE STATE OF ALASKA

TWENTY-EIGHTH LEGISLATURE - SECOND SESSION

BY THE HOUSE FINANCE COMMITTEE

Offered:

Referred:

Sponsor(s): REPRESENTATIVES PEGGY WILSON, TAMMIE WILSON, AND KREISS-TOMKINS

A BILL

FOR AN ACT ENTITLED

1 **"An Act relating to school terms; relating to years of service for teachers' retirement;**
2 **and providing for an effective date."**

3 **BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:**

4 * **Section 1.** AS 14.03.030 is amended to read:

5 **Sec. 14.03.030. School term.** A school term begins and ends on the dates fixed
6 by the governing body of a school district. A school term shall include not less than
7 180 days in session unless, with the approval of the commissioner,

8 (1) a day used for in-service training of teachers is substituted for a day
9 in session, up to a maximum of 10 days;

10 (2) an "emergency closure day" is substituted for a day in session
11 because of conditions posing a threat to the health or safety of students; or

12 (3) the school board adopts **an alternate** [A DIFFERENT] school term
13 that includes at least 740 hours of instruction and study periods for pupils in
14 kindergarten, first grade, second grade, and third grade and at least 900 hours of

1 instruction and study periods for pupils in grades four through 12; if an alternate
 2 school term is less than 172 days in session, the school board shall follow the
 3 procedures in (b) of this section [IF THE COMMISSIONER FINDS THAT THE
 4 SCHOOL BOARD HAS SUBMITTED AN ACCEPTABLE PLAN UNDER WHICH
 5 STUDENTS WILL RECEIVE THE APPROXIMATE EDUCATIONAL
 6 EQUIVALENT OF A 180-DAY TERM].

7 * Sec. 2. AS 14.03.030 is amended by adding new subsections to read:

8 (b) Before a school board may adopt an alternate school term under (a)(3) of
 9 this section that is less than 172 days in session, the school board shall first
 10 demonstrate, to the satisfaction of the commissioner, that

11 (1) the students enrolled in the district will receive at least the
 12 minimum hours of instruction and study periods required under (a)(3) of this section;

13 (2) the school board has involved affected students, teachers, and the
 14 community in requesting an alternate school term that is less than 172 days in session;
 15 and

16 (3) public comment on the alternate school term demonstrates majority
 17 support for the alternate school term.

18 (c) Notwithstanding AS 39.35.300, the definition of "school year" in
 19 AS 14.25.590, and the definitions of "year of service" in AS 14.25.220 and 14.25.590,
 20 a teacher or noncertificated employee of a school district for an alternate school term
 21 of less than 172 days under (b) of this section who has elected to have the employee's
 22 years of public employees' retirement system service determined using the table of
 23 service in AS 14.25.220 shall have the years of service for the alternate school term of
 24 less than 172 days determined as follows:

25 (1) less than 15 days, no credit;

26 (2) 15 days or more but less than 30 days, 0.1 years;

27 (3) 30 days or more but less than 45 days, 0.2 years;

28 (4) 45 days or more but less than 60 days, 0.3 years;

29 (5) 60 days or more but less than 75 days, 0.4 years;

30 (6) 75 days or more but less than 90 days, 0.5 years;

31 (7) 90 days or more but less than 105 days, 0.6 years;

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- (8) 105 days or more but less than 120 days, 0.7 years;
- (9) 120 days or more but less than 135 days, 0.8 years;
- (10) 135 days or more but less than 150 days, 0.9 years;
- (11) 150 days or more, 1.0 years.

(d) Part-time service of half time or more that is performed by an employee whose year of service is determined under (c) of this section shall be credited in proportion to the amount of credit that would have been received for service performed on a full-time basis.

* **Sec. 3.** This Act takes effect July 1, 2014.

Adopted 3/31/14

WORK DRAFT

WORK DRAFT

WORK DRAFT

28-LS0137AS
Mischel
3/30/14

CS FOR HOUSE BILL NO. 21(FIN)

IN THE LEGISLATURE OF THE STATE OF ALASKA

TWENTY-EIGHTH LEGISLATURE - SECOND SESSION

BY THE HOUSE FINANCE COMMITTEE

Offered:
Referred:

Sponsor(s): REPRESENTATIVES PEGGY WILSON, TAMMIE WILSON, AND KREISS-TOMKINS

A BILL

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1 "An Act relating to school terms; relating to years of service for teachers' retirement;
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3 **BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:**

4 * **Section 1.** AS 14.03.030 is amended to read:

5 **Sec. 14.03.030. School term.** A school term begins and ends on the dates fixed
6 by the governing body of a school district. A school term shall include not less than
7 180 days in session unless, with the approval of the commissioner,

8 (1) a day used for in-service training of teachers is substituted for a day
9 in session, up to a maximum of 10 days;

10 (2) an "emergency closure day" is substituted for a day in session
11 because of conditions posing a threat to the health or safety of students; or

12 (3) the school board adopts an alternate [A DIFFERENT] school term
13 that includes at least 740 hours of instruction and study periods for pupils in
14 kindergarten, first grade, second grade, and third grade and at least 900 hours of

1 instruction and study periods for pupils in grades four through 12; if an alternate
2 school term is less than 172 days in session, the school board shall follow the
3 procedures in (b) of this section [IF THE COMMISSIONER FINDS THAT THE
4 SCHOOL BOARD HAS SUBMITTED AN ACCEPTABLE PLAN UNDER WHICH
5 STUDENTS WILL RECEIVE THE APPROXIMATE EDUCATIONAL
6 EQUIVALENT OF A 180-DAY TERM].

7 * Sec. 2. AS 14.03.030 is amended by adding new subsections to read:

8 (b) Before a school board may adopt an alternate school term under (a)(3) of
9 this section that is less than 172 days in session, the school board shall first
10 demonstrate, to the satisfaction of the commissioner, that

11 (1) the students enrolled in the district will receive at least the
12 minimum hours of instruction and study periods required under (a)(3) of this section;

13 (2) the school board has involved affected students, teachers, and the
14 community in requesting an alternate school term that is less than 172 days in session;
15 and

16 (3) public comment on the alternate school term demonstrates majority
17 support for the alternate school term.

18 (c) Notwithstanding AS 39.35.300, the definition of "school year" in
19 AS 14.25.590, and the definitions of "year of service" in AS 14.25.220 and 14.25.590,
20 a teacher or noncertificated employee of a school district for an alternate school term
21 of less than 172 days under (b) of this section who has elected to have the employee's
22 years of public employees' retirement system service determined using the table of
23 service in AS 14.25.220 shall have the years of service for the alternate school term of
24 less than 172 days determined as follows:

25 (1) less than 15 days, no credit;

26 (2) 15 days or more but less than 30 days, 0.1 years;

27 (3) 30 days or more but less than 45 days, 0.2 years;

28 (4) 45 days or more but less than 60 days, 0.3 years;

29 (5) 60 days or more but less than 75 days, 0.4 years;

30 (6) 75 days or more but less than 90 days, 0.5 years;

31 (7) 90 days or more but less than 105 days, 0.6 years;

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- (8) 105 days or more but less than 120 days, 0.7 years;
- (9) 120 days or more but less than 135 days, 0.8 years;
- (10) 135 days or more but less than 150 days, 0.9 years;
- (11) 150 days or more, 1.0 years.

(d) Part-time service of half time or more that is performed by an employee whose year of service is determined under (c) of this section shall be credited in proportion to the amount of credit that would have been received for service performed on a full-time basis.

* **Sec. 3.** This Act takes effect July 1, 2014.

Fiscal Note

State of Alaska
2013 Legislative Session

Bill Version: HB 21
Fiscal Note Number: 2
(H) Publish Date: 2/22/13

Identifier: HB021-EED-TLS-2-7-13
Title: FOUR-DAY SCHOOL WEEK
Sponsor: ** P.WILSON, T.WILSON
Requester: House Education Committee

Department: Department of Education and Early Development
Appropriation: Teaching and Learning Support
Allocation: Student and School Achievement
OMB Component Number: 2796

Expenditures/Revenues

Note: Amounts do not include inflation unless otherwise noted below. (Thousands of Dollars)

	FY2014 Appropriation Requested	Included in Governor's FY2014 Request	Out-Year Cost Estimates					
			FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019
OPERATING EXPENDITURES								
Personal Services								
Travel								
Services								
Commodities								
Capital Outlay								
Grants & Benefits								
Miscellaneous								
Total Operating	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Fund Source (Operating Only)

None								
Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Positions

Full-time								
Part-time								
Temporary								

Change in Revenues								
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Estimated SUPPLEMENTAL (FY2013) cost: 0.0

Estimated CAPITAL (FY2014) cost: 0.0

ASSOCIATED REGULATIONS

Does the bill direct, or will the bill result in, regulation changes adopted by your agency? No
If yes, by what date are the regulations to be adopted, amended or repealed?

Why this fiscal note differs from previous version:

Initial version

Prepared By: Les Morse, Deputy Commissioner
Division: Commissioner's Office
Approved By: Mike Hanley
Commissioner

Phone: (907)465-8691
Date: 02/07/2013 02:30 PM
Date: 02/07/13

FISCAL NOTE ANALYSIS #2

STATE OF ALASKA
2013 LEGISLATIVE SESSION

BILL NO. HB 21

Analysis

No fiscal impact to the department.

Section 1

This legislation relates to allowing one school district in the state to pilot a four day school week for three years. The request would come from the governing body of the local school district within 30 days after the effective date, and notwithstanding the requirements of AS 14.03.030 and 14.03.040, which outline the requirements for the length of a school year and school day. The legislation requires the governing body of the district to provide evidence to the State Board that students will receive the equivalent of a five day school week that students, teacher and the community were involved in the decision to make the request, and that public comment supports the request. The district is required to submit quarterly reports to the department regarding the effects on teacher and student performance and file annual reports with the legislative committees whose primary responsibility is education.

The State Board of Education & Early Development may approve the four-day school week for not more than one school district.

Section 2

This legislation repeals the act on June 30, 2018.

Section 3

The effective date of this act is July 1, 2013.

ALASKA STATE LEGISLATURE

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Session:
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Juneau, AK 99801-1182
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REPRESENTATIVE PEGGY WILSON
HOUSE DISTRICT 33

SPONSOR STATEMENT HB 21

“An Act relating to the length of a school week; and providing for an effective date.”

HB21 would allow a pilot program for one rural school district to implement a 4 day school week.

There is continued concern of poor student performance in our schools. We should be actively seeking alternative solutions that may improve district results. There are over 22 states in the US that have implemented a 4 day week in rural districts.

For most schools this has been a positive achievement – increased morale for students and teachers, reduced absenteeism and allowing teachers and students to have more direct contact time which then leads to better understanding of educational materials.

Provisions in HB 21 require the district to show that the majority of the community, students and teachers support the implementation of this program. Additionally, the district will have to prove that the students are receiving the equivalent of a 5 day school week. They will also be required to file quarterly reports to the Department of Education on student and teacher performance and the effect of the program. Specifically an annual report will be required to be submitted to the legislative education committee on the progress and performance ratings from the school district. This report will be due no later than January 15th and must include a comparison of the performance ratings before and after implementation of the 4 day week.

This bill is specific for a 3 year pilot program; at the end of that time period, the State Board of Education will evaluate the program and determine if it is beneficial to the district.

Four-Day School Week
Report
in Montana Public Schools
October 2011



Denise Juneau
State Superintendent
Montana Office of Public Instruction
Helena, Montana 59620-2051

opi.mt.gov

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*This report was prepared by the Office of Public Instruction, Accreditation Division
Contact information can be obtained by calling the Accreditation Office, (406) 444-3114*

Introduction

The 2005 Montana Legislature passed a bill that changed the pupil instruction time during a school fiscal year from a required minimum of 180 school days to a required minimum number of aggregate hours.

SB170 was introduced by Sen. Jeff Mangan: AN ACT PROVIDING FLEXIBILITY TO SCHOOL DISTRICTS IN SETTING THEIR SCHOOL CALENDARS BY ELIMINATING THE REQUIREMENT THAT A SCHOOL DISTRICT CONDUCT AT LEAST 180 SCHOOL DAYS DURING EACH SCHOOL FISCAL YEAR; DEFINING "MINIMUM AGGREGATE HOURS"; REQUIRING A SCHOOL DISTRICT TO CONDUCT SCHOOL FOR A MINIMUM NUMBER OF AGGREGATE HOURS EACH SCHOOL YEAR; REQUIRING SCHOOL DISTRICT TRUSTEES TO SET THE LENGTH OF THE SCHOOL TERM, SCHOOL DAY, AND SCHOOL WEEK; MAKING THE REVISIONS NECESSARY TO REFLECT THE ELIMINATION OF THE REQUIREMENT FOR 180 SCHOOL DAYS;

Since the passage of this legislation, 31 public school districts and one nonpublic district (Two Eagle River) are operating a four-day school week. This report provides information, through surveys conducted during the springs of 2009 and 2011, of why districts changed to a four-day week, the benefits of the change, and the pitfalls they have encountered. The report also contains trends from states in our region concerning the four-day school week issue. It is the hope of the Office of Public Instruction staff that this report will give districts guidance to make an informed decision when considering changing to a four-day school week.

Montana Code Annotated

The following are the primary codes affected by SB170:

MCA 20-1-301. School fiscal year. (1) The school fiscal year begins on July 1 and ends on June 30. At least the minimum aggregate hours defined in subsection (2) must be conducted during each school fiscal year, except that 1,050 aggregate hours of pupil instruction for graduating seniors may be sufficient.

(2) The minimum aggregate hours required by grade are:

(a) 360 hours for a half-time kindergarten program or 720 hours for a full-time kindergarten program, as provided in 20-7-117;

(b) 720 hours for grades 1 through 3; and

(c) 1,080 hours for grades 4 through 12.

(3) For any elementary or high school district that fails to provide for at least the minimum aggregate hours, as listed in subsections (1) and (2), the superintendent of public instruction shall reduce the direct state aid for the district for that school year by two times an hourly rate, as calculated by the office of public instruction, for the aggregate hours missed.

MCA 20-1-302. School term, day, and week. (1) Subject to 20-1-301, 20-1-308, and any applicable collective bargaining agreement covering the employment of affected employees, the trustees of a school district shall set the number of days in a school term, the length of the school day, and the

number of school days in a school week and report them to the superintendent of public instruction.
(2) When proposing to adopt changes to a previously adopted school term, school week, or school day, the trustees shall:

(a) negotiate the changes with the recognized collective bargaining unit representing the employees affected by the changes;

(b) solicit input from the employees affected by the changes but not represented by a collective bargaining agreement; and

(c) solicit input from the people who live within the boundaries of the school district.

Districts Operating Four Days per Week

The following are the 31 public school districts and one nonpublic school (53 schools in all) that are currently operating on a four-day school week schedule:

Beaverhead County

Reichle Elementary

Blaine County

Bear Paw Elementary

Carter County

Alzada Elementary

Choteau County

Warrick Elementary

Custer County

Cottonwood Elementary

S.H. Elementary

S.Y. Elementary

Spring Creek Elementary

Flathead County

West Glacier Elementary

Garfield County

Sand Springs Elementary

Jefferson County

Jefferson High School

Lake County

Arlee K-12 Schools

Swan Lake-Salmon Elementary

Two Eagle River High School (Accredited Private School)

Lewis and Clark County

Lincoln K-12 Schools

Madison County

Alder Elementary
Sheridan Public Schools

Meagher County

Lenep Elementary

Mineral County

Alberton K-12 Schools

Missoula County

Sunset Elementary

Musselshell County

Melstone Public Schools

Phillips County

Saco Public Schools

Powder River County

South Stacey Elementary

Powell County

Gold Creek Elementary
Ovando Elementary

Ravalli County

Victor K-12 Schools

Rosebud County

Ashland Elementary
Birney Elementary

Sanders County

Hot Springs Public Schools
Noxon Public Schools

Sweet Grass County

Greycliff Elementary

Yellowstone County

Custer K-12 Schools

Survey

During the 2010-11 annual data collection cycle, 31 public school districts and one accredited nonpublic district (Two Eagle River) indicated operating on a four-day week. Since the publication of the *Four-Day School Week Report in Montana Schools: October 2009*, Lima K-12 Schools and Trail Creek Elementary returned to the five-day week, while 15 new districts joined the ranks of four-day schools, increasing the number of individual schools operating on four-day weeks from 29 to 53. Nineteen

districts are small rural schools administered by county superintendents. The smallest of these has 2 students. Districts over 100 students include Alberton, Arlee, Hot Springs, Jefferson High School, Lincoln, Sheridan, Two Eagle River, and Victor. Arlee is the largest with 402 students. Surveys were sent to all 32 districts and all responded, although 2 districts did not respond to every question.

2011 Survey Results (a copy of the survey questions can be found in Appendix A)

1. How long has your school operated on a 4-day school week?
 - 4 districts completing 6 years
 - 6 districts completing 5 years
 - 2 districts completing 4 years
 - 5 districts completing 3 years
 - 10 districts completing 2 years
 - 4 districts completing 1 year

2. What were the reasons for the district to adopt a 4-day school week?
 - 19 districts wanted a decrease in absenteeism to maximize instruction effectiveness and improve test scores
 - 16 rural districts' families wanted to cut travel time and fuel costs due to long distances and bad roads
 - 9 districts desired cost savings
 - 10 rural districts' families desired a Friday "go-to-town day" for medical appointments and for ranch and farm-related business and competitions
 - 3 districts hoped to improve teacher applicant pools and curb decreasing student enrollment
 - 2 districts reported they needed more collaborative teacher time

3. Since the change to a 4-day school week what benefits has the district seen?
 - 20 districts noted dramatic improvement in attendance and discipline
 - 15 districts felt cost savings were worth mentioning in one or more of the following areas: transportation, utilities, substitute pay, lunch budgets
 - 10 districts reported that Fridays, besides providing a scheduling cushion for snow days and holidays, provide more productive time for curriculum work, collaboration, school visitations, PIR and in-service
 - 8 rural districts reported significant cost savings to families and staff for travel
 - 16 districts noted improved morale and that students and teachers are better rested and more enthusiastic
 - 4 districts said their teachers are better prepared
 - 8 districts reported teachers feel instructional time is more productive
 - 5 districts are experiencing improved grades and higher test scores
 - 2 districts have larger applicant pools, and 1 high school reported increased enrollment due to an influx of students needing Fridays for gainful employment

4. How has the extra day during the week been used?
 - 17 districts provide no instruction
 - 15 districts have a modified 4-day week for students, using some or all Fridays for field trips and other extra-curricular outings, P.E. ski days, rural education fairs, job-shadowing, guided help sessions, lab/library make-up, special projects, disciplinary days, and a regular school day due to a lost day for weather, etc.
 - 21 districts schedule a number of Friday staff days for term grade reporting, professional development, in-service and workshops, parent-teacher conferences

5. Before the change what concerns did the community have?
 - 10 districts felt school days would be too long for elementary students and too long with activities and increased homework for secondary students
 - 5 districts had worries about covering the curriculum requirements
 - 15 districts were concerned about academic performance and retention rates
 - 12 districts were worried about day care
 - 7 districts thought too much free time could result in youth delinquency
 - 2 districts worried about the loss of a day's lunch program each week
 - 9 districts reported parents and staff were on board from the start with no concerns

6. After the change did the concerns in item 5 come to be realized?
 - Every district responded "No" to this question with few caveats: one district said they are still having problems soliciting a good pool of teacher applicants; 3 districts said one or two parents are still struggling with child care issues; one district said some parents think teachers are lazy; and one district said some parents occasionally complain about too much homework

7. Does the district offer full-time kindergarten?
 - 28 districts offer full-time kindergarten. Of these, 4 said they ease their kindergartners into full time in increments; 1 district offers preschool two days a week.
 - 4 districts do not have full-time kindergarten, although 1 gives parents the option (one district is a high school)

8. Are the elementary and the secondary schools on basically the same beginning and ending daily schedule?
 - 13 districts responded "yes"
 - 18 districts responded "not applicable"
 - 1 district responded "no"

9. How was input solicited from the community?
 - 26 districts utilized school board/open forum public meetings
 - 5 districts used newsletters and newspaper announcements
 - 15 districts conducted surveys to one or more of their constituents
 - 3 districts utilized teacher-parent conferences
 - 1 district utilized TV and radio announcements
10. Were there any difficulties in meeting the 225 minutes requirement for a unit of credit for 7-12 grade students?
 - Of the 30 districts responding to this question, 28 said "no" due to lengthened day and longer class periods
 - 2 districts responded "not applicable"
11. How long did the decision making process take?
 - 21 districts required 1 to 6 months
 - 7 districts required nearly a year
 - 2 districts utilized more than 1 year
12. Do the following constituents like the change to a 4-day week?
 - All districts responded "yes"—a few districts said teachers and students liked the change once they adjusted to the longer days; 4 districts reported a small number of parents and students continue to oppose the plan for various reasons stated in survey question 5
13. Does the board of trustees plan to re-visit or re-consider the 4-day week in the near future?
 - 16 districts said "no" unless concerns should arise from the various constituents
 - 7 districts revisit it annually as a board agenda item
 - 3 districts periodically survey constituents to keep a pulse on its success
 - 4 districts reported they adopted the plan on a one, two, or three-year basis pending data collection and survey results
14. Please show any general comments that may help other school districts who are considering a change to a 4-day school week.
 - Advantageous to make on-site visits with constituent representatives and to invite guest speakers who can field questions from your constituents
 - Advantageous to begin with open-forum meetings soliciting and gathering input from all constituents, making the process as transparent as possible so that everyone gets on board
 - Requires substantial time to consider collective bargaining agreement and to negotiate with classified staff
 - Requires tailoring to meet your community and students' needs with lots of follow-up to measure the benefits and to keep it going in a positive direction
 - Requires patience during transition period while everyone adjusts to longer days
 - Allows uninterrupted and more productive instructional time with more flexibility for block scheduling
 - Offers flexibility to schedule make up days for bad weather and other lost days
 - Provides efficient and effective use of Fridays for in-service and professional development, collaboration, planning, and grading

- Allows for thorough cleaning and building maintenance during the school year
- Benefits other schools struggling to meet counseling/art/library accreditation standards by sharing FTE
- Suits today's needs of the farming and ranching communities extremely well
- Allows school and families to schedule virtually all extra-curricular activities on three-day weekends, which substantially improves morale and attendance in most schools
- Provides spectrum of savings in transportation, utilities, sub pay
- Increases teacher applicant pools in most districts
- Attracts students from five-day schools
- Creates long days for elementary students (advantageous to structure the more academically demanding subjects in the morning)
- May create additional day care issues
- Allows for addition of Friday programs such as private lessons, field trips, art and game days, and other experiences that students might not have had the opportunity to be part of in a five-day school week
- Creates environment for students and teachers to start and end the week more rested and energized
- Has improved test scores and GPAs in several districts

Survey Summary

Although schools changing to a four-day school week have experienced cost savings, they realize that student achievement and other benefits can outweigh the benefits of saving money. Schools have experienced a significant decline in absenteeism and disciplinary issues, an improvement in student and staff morale, and rising achievement scores. Almost every school feels the four-day school week fits its community like a glove and benefits everyone. Most would hate to return to the five-day week.

All the districts hold school Monday through Thursday. Schools that modify the four-day week use occasional Fridays for field trips and other activities that would otherwise interrupt the school week. A small number of schools are open on Fridays to supervise lab and library make up, project completion, and help sessions. Extra-curricular activities are scheduled on Fridays whenever possible. Most districts take advantage of Fridays for staff development and in-service programs. Some of the schools, particularly the very rural, do not schedule work activities for teachers on Friday. Most of the initial concerns from the community in regards to switching to the four-day plan relate to child care, lengthy days for early elementary children, teachers not being able to cover as much of the curriculum, academic performance and retention rates, and youth delinquency. After the change to the four-day plan, most of these concerns either don't coalesce or are outweighed by the benefits. No districts reported the curriculum not being covered; none of the districts had difficulties meeting standards and most exceed the 225-minute unit of credit requirement for grades 7-12.

All schools solicited feedback from constituents using a combination of board meetings, open forums, surveys, parent-teacher discussions, and newsletters; and most schools made the decision to make the change within a six-month time period. All districts keep an open-door policy regarding concerns or complaints and are prepared to re-visit or re-consider the four-day week. The survey

indicated that all schools and the vast majority of their constituents like the change to a four-day school week.

Information from States in the Region

Implementation of a four-day school began during the Great Depression, experienced a resurgence in the '70s, and gained further popularity in the new millennium, despite any solid studies to evidence that four-day schools impact learning. In the *ECS State Note: Four-Day School Week* (2009), Molly Ryan notes: "As school districts nationwide struggle with funding cuts, the four-day school week has gained momentum as one way to save money[.] ... While the positives and negatives of the four-day week have been widely debated, research on the impacts of the schedule is extremely limited. Moreover, there is a decided lack of evidence how the schedule impacts student achievement."

Nevertheless, to date 20 states have altered their state requirements to allow for four-day schools. Many schools, most of which are small and rural, continue to implement the four-day week, not because they save money, but because they have resolved some of the ubiquitous problems inherent in five-day school weeks and because they believe it's good for kids (NCSL. *Four-Day School Weeks* <www.ncsl.org>).

Among the states in and around our region, Colorado, Idaho, Nevada, Oregon, South Dakota, Utah, Washington, and Wyoming have passed laws allowing for four-day schools; all have implemented the program except Washington. Information from area state education departments seems to indicate the same results as the 32 Montana districts that responded to the four-day school week survey in 2011. Most districts reported some financial savings and have witnessed other important benefits to the changeover. There has been an improvement in the attendance rates of both students and teachers. Schools have seen a decrease in dropout rates and disciplinary referrals. There are fewer classroom interruptions, fewer distractions from extracurricular activities, and improved student and faculty morale. Student achievement shows no significant improvement or decline. Child care issues have not been a significant problem.

On-line Resources

The following on-line resources, although not exhaustive in their scope, may be helpful when considering moving toward a four-day week:

Beesley, A.D., and C. Anderson. The Four Day School Week: Information and Recommendations. *The Rural Educator*, 29(10), 48-55. Fall 2007. Web. March 2011
<http://findarticles.com/p/articles/mi_ga4126/is_200710/ai_n21137822/>

This overview discusses issues regarding the four-day school week, based on a limited number of studies and anecdotal reports from teachers and students. It provides a useful table of pros and cons and recommendations for districts who are considering implementing the four-day

school week. This Web page also provides links to other valuable articles discussing the four-day school week.

Chamberlin, Molly, and Jonathan Plucker. "The Four Day School Week." *Education Policy Briefs*. Indiana Education Policy Center. Winter 2003. Web. March 2011
<http://www.indiana.edu/~ceep/projects/PDF/PB_V1N2_Four_Day_School_Week.pdf>

This succinct pamphlet summarizes research on four-day school week in which anecdotal evidence suggests that small, rural districts may benefit from shortened school weeks, though the anticipated 20 percent may be larger than what may be actually realized. It includes some usable tables of advantages and disadvantages.

Dam, Ai. "The 4 Day School Week." Colorado Department of Education. July 2006. Web. March 2011
<<http://www.eric.ed.gov/PDFS/ED497760.pdf>>

Thirty-four percent of the 178 school districts in Colorado use the four-day school week. This 88-page ERIC document discusses the history of the four-day school week in Colorado. It also discusses the performance, financial, political, and day-care impact of the implementation.

Donis-Keller, Christine. "Research Brief: A Review of the Evidence on the Four-Day School Week." *University of Southern Maine*. Center for Education Policy and Applied Research, February 2009. Web. 20 March 2011 <<http://usm.maine.edu/cepare/pdf/CEPARE%20Brief%20on%20the%204-day%20school%20week%202.10.pdf>>

At present, the four-day school week is being used in more than 120 school districts across the country. Use of the four-day school week also extends beyond our borders to several provinces in Canada, France, and Britain. This research brief provides a history and presents a synthesis of the limited research base, focused on the implementation and impact of moving to a four-day school week schedule.

Idaho Department of Education. Current. Web. 20 March 2011
<<http://www.sde.idaho.gov/site/ruraleducation/>>

This Web page offers links to the current research and reports regarding the four day school week. A valuable go-to site for links to implementation ideas, schedule variables, financial implications, pros and cons, and more. It includes a list of Idaho schools using the schedule and data on average daily attendance and graduation rates.

McREL. "What High-quality Education Research Says about Four-day School Weeks." McREL Newsroom, *Education Hot Topics*. 2011. Web. March 2011
<<http://www.mcrel.org/Newsroom/hottopicFourDayWeek.asp>>

This article summarizes current research on potential benefits, drawbacks, financial savings and impact on student achievement related to implementation of a four-day school week.

National Council of State Legislatures. "Four-Day School Weeks." NCSL 2011. Web. March 2011
<<http://www.ncsl.org/issuesResearch/Education/SchoolCalendarExtendedDayYearFourDaySchool/tabid/12934/Default.aspx>>

This article from the National Council of State Legislatures provides a summary of the history, research, pending and enacted state legislation, and perceived pros and cons of a four-day school week. This site includes several additional links for those wishing to read further and an insightful podcast discussing the subject.

University of Minnesota. "Does a Four-Day School Week Make Financial Sense for My District? One of a Series of Fact Sheets on Economic Issues for Communities." University of Minnesota/Extension. 2010. Web. March 2011
<http://www.apec.umn.edu/prod/groups/cfans/@pub/@cfans/@apec/documents/asset/cfans_asset_213433.pdf>

This is current research, (largely anecdotal) written from the perspective of stakeholders in Minnesota, but it does provide a thorough examination of all sides of the issue.

Accreditation Reminders

Due to reports that additional school districts were considering a change to a four-day school week for the 2009-10 school year, the Accreditation Division of the Office of Public Instruction sent an Official E-mail to all districts on March 17, 2009.

Districts considering a change to a four-day week will need to consider the following:

- For high schools and 7 – 8 programs that are funded at the high school rate, the equivalent of at least 225 minutes per week for one school year must be allocated for each unit (credit) of study.
- Districts should pay particular attention to the time allotted for the 4th, 5th, and 6th grades. These grades fall under the 1,080 hours requirement but because of later start times, morning and afternoon recesses, and longer lunch periods, these grades may not meet 1,080 hours.
- Lunchtime may not be counted toward meeting the standard school day nor minimum aggregate hours required.
- Unstructured recess periods may not be counted as part of the mandated hours of pupil instruction. However, recess periods, for which there has been an identifiable effort to provide guidance and structure, and which are directly or indirectly under supervision of the certified

teacher, may be counted as pupil instruction under MCA 20-1-101(11), 20-1-302 and ARM 10.15.101(41). The OPI defines structure as having daily planning for activities at recess and all students are expected to participate.

- Although passing time between classes may be counted toward meeting the standard school day and the minimum aggregate hours required, passing time may not be counted as instructional time needed to meet the requirements of a "unit" of time. (ARM 10.55.902, 904-906)
 - This information can be found in Appendix D-1 of the *Montana School Accreditation Standards and Procedures Manual*.

Initial Conclusions/Recommendations

Data does not confirm that the change to a four-day school week is best for all students. Almost all schools have reported an increase in attendance rates. Most schools have enforced fundamental rules to protect "instructional time" during the four days of school and hence have seen an overall increase in instructional time. Less instructional time is used for extracurricular activities as well. Morale has improved and discipline referrals have declined in the schools that have made the change to a four-day week. Academic achievement has remained about the same level for schools that have changed. The parents of the schools that have changed to a four-day school week overwhelmingly like the change because it allows more time with their children.

There appears to be concern for high-risk students, students with disabilities, and young students because the longer days may not be beneficial to them. The OPI must consider the "turnaround schools," schools that have been designated by ESEA/NCLB as in need of restructuring because of their continued failing status. Research shows that more instructional time is necessary, not less, for the at-risk student. If four-day schools become more predominant in the state, the Office of Public Instruction may consider "rules" for the "turnaround schools."

To date, most of the Montana districts that have changed to a four-day week have been the small, rural schools. The change appears to be beneficial to the rural schools due to the remote characteristics of these districts.

For districts considering a change to a four-day school week, the Office of Public Instruction recommends the following:

1. Take enough time to make an informed decision.
2. Research the issue thoroughly.
3. Make a point to visit and talk to districts that have made the change. Seek comments from a variety of people (students to community members).
4. Communicate, communicate, and communicate. Use various forms of communication to dialogue with all the different constituents in your community.

5. Make the process as transparent as possible. Do not surprise anyone.

For further information please contact the Accreditation Office, (406) 444-1852.

Appendix A
Four-Day School Week Survey

The 2011 Survey Questions are:

1. How long has your school operated on a four-day school week?
2. What were the reasons for the district to adopt a four-day school week?
3. Since the change to a four-day school week, what benefits has the district seen?
4. How has the extra day during the week been used?
5. Before the change, what concerns did the community have?
6. After the change, did the concerns in item 5 come to be realized?
7. Does the district offer full-time kindergarten?
8. Are the elementary and the secondary schools on basically the same beginning and ending daily schedule?
9. How was input solicited from the community?
10. Were there any difficulties in meeting the 225 minutes requirement for a unit of credit for 7-12 grade students?
11. How long did the decision making process take?
12. Do the following constituents like the change to a four-day week?
13. Does the board of trustees plan to re-visit or reconsider the four-day week in the near future?
14. Please show any general comments that may help other school districts who are considering a change to a four-day week.

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Does Shortening the School Week Impact Student Performance? Evidence from the Four-Day School Week

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February 2012

Abstract

Public schools face difficult decisions on how to pare budgets. In the current financial environment, school districts employ a variety of policies to close budget gaps and stave off teacher layoffs and furloughs. An increasing number of schools are implementing four-day school weeks hoping to reduce overhead and transportation costs. The four-day-week policy requires substantial schedule changes as schools must increase the length of their school day to meet state-mandated minimum instructional hour requirements. Although some schools have indicated that this policy eases financial pressures, it is unknown whether the restructured schedule has an impact on student outcomes. In this study, we use school-level longitudinal data from the state of Colorado to investigate the relationship between the four-day school week and academic performance among elementary school students. We exploit the temporal and spatial variation in the four-day school week using a difference-in-differences empirical strategy. Our results suggest that student academic achievement has not been hurt by the change in schedule. Instead, the evidence indicates that the adoption a four-day school week shares a positive and often statistically significant relationship with performance in both reading and mathematics; the math results in particular are generally robust to a range of specification checks. These findings have policy relevance to the current U.S. education system, where many school districts must cut costs. The four-day school week is a strategy currently under debate.

“There’s no way a switch like that wouldn’t negatively affect teaching and learning.”
-Tim Callahan, spokesman for the Professional
Association of Georgia Educators (*Wall Street Journal*)

“We took our budget savings and plowed it right back into instructional content.”
-Riley Ramsey, Webster County, Kentucky school district
director of personnel and technology (*TIME Magazine*)

1. Introduction

A surprising number of schools have changed from the traditional Monday through Friday school week to a four-day-week schedule. This policy has been in place for many years in rural school districts in western states such as Colorado and Wyoming and it appears to be spreading, with school districts from Oregon to Missouri to Florida currently considering it.¹ Although there are alternative ways to implement the policy, typically the four school days are lengthened in order to meet state-mandated minimum instructional hour requirements.²

The motivation for the schedule change is most often stated as financial, with savings related to transportation and overhead costs. For example, Kentucky’s Webster County school district reported substantial savings on transportation, utility, and insurance costs after adopting a Tuesday through Friday schedule (Kingsbury 2008). The shortened week has helped the Peach County, Georgia school district decrease spending on custodial and cafeteria workers in addition to transportation expenditures and utilities (Herring 2010).³

This policy change yields a number of implications that should be evaluated to understand the cost/benefit impact of the four-day week. For example, how much does a four-

¹ Newspaper articles from the Tampa Bay Times (December 18, 2011), the NewsPress NOW in St. Joseph, Missouri (December 25, 2011), and the Seattle Times (December 27, 2011) describe the current public discussion of a proposed schedule change.

² Generally, no classes are held on Friday; however, a small minority of schools operating on the four-day week take Monday as their day off.

³ For additional evidence on financial savings, see Blankenship (1984) and Grau and Shaghnessy (1987).

day week actually affect school expenditures? If school buildings and gymnasiums are opened on Fridays to accommodate extra activities (e.g. athletic events), cost savings could be modest.⁴ How do teachers react to a four-day schedule, is there less turnover, increased teacher satisfaction? Spillover effects on communities could also be present; teens out of school on Friday might engage more in crime or other risky behaviors.

Finally, and perhaps more critical than the aforementioned issues is the question of the effect on student achievement. How do students fare under the altered schedule? Anecdotally, results and opinions are mixed. Some educators and parent groups complain the shorter week harms students academically (Herring 2010), while others have reported higher grade-point averages and test scores after switching to the shortened week (Toppo 2002; Turner 2010). Some accounts indicate that savings on transportation and utilities costs have been redirected to instructional uses (Kingsbury 2008). Interestingly, the empirical research on the four-day week generally supports the notion that student achievement is not adversely affected by the alternative schedule.⁵ This research is entirely descriptive in nature, however, and often consists of case studies focusing on only one or a few school districts. There has been no research on the relationship between the four-day school week and academic performance that incorporates more rigorous controls for potentially confounding factors.

This study estimates the impact of the four-day school week on student achievement using 4th grade reading and 5th grade mathematics test scores from the Colorado Student Assessment Program (CSAP). Over a third of school districts in Colorado have adopted the

⁴ If buildings are closed and placed on a weekend cycle, then savings equivalent to a three-day weekend are possible. However, it is often the case that buildings are kept open for extra activities and for staff use (Dam 2006).

⁵ Daly and Richburg (1984), Sagness and Salzman (1993), Feaster (2002), Lefly and Penn (2009), and Hewitt and Deny (2011) found little evidence that the four-day week had an impact on test performance. On the other hand, McCoy (1983), Grau and Shaughnessy (1987), and Yarborough and Gilman (2006) found some evidence of higher test scores.

four-day schedule. Our primary empirical strategy is a difference-in-differences estimation that exploits the temporal and spatial variation in the adoption of four-day-week schedules. Our results suggest that student academic achievement has not been compromised by the change in schedule. Instead, the evidence indicates that the adoption of a four-day school week shares a positive and often statistically significant relationship with performance in both reading and mathematics; the math results in particular are generally robust to a range of specification checks.

These findings have clear policy relevance to the current situation in the U.S. education system, where many school districts must find ways to cut costs but, of course, do not want to hamper student achievement. An important caveat is that our results speak only to impacts for smaller and more rural districts; a wider adoption of the policy across more densely populated areas would be required to allow a broader understanding of the effects.

The remainder of this paper is organized as follows: Section 2 provides background information, including a description of the adoption of the four-day week in Colorado, a review of the relevant academic literature, and a brief discussion on the possible advantages and disadvantages of the policy; Section 3 describes the data; Section 4 lays out the empirical strategy; Section 5 discusses the results; Section 6 concludes.

2. Background

2.1 Background of the Four-Day Week

It is reported that school districts in South Dakota in the 1930s were the first to use a four-day-week schedule (Donis-Keller and Silvernail 2009). It was not until the energy crisis of the early 1970s, however, that the shortened school week gained popularity (Ryan 2009). As

transportation and utilities costs dramatically increased, schools in Maine, Massachusetts, New Jersey, New Mexico and Washington experimented with the four-day week (Gaines 2008; Donis-Keller and Silvermail 2009).⁶ Schools in Colorado began adopting four-day weeks following the legislature's decision in 1985 to alter the minimum school year requirement from 180 days to 1080 hours for secondary schools and 990 hours for elementary schools (Dam 2006).⁷ This change allowed schools to meet the minimum instructional hour requirements by increasing the length of their school day and shortening their days per week.

As of 2008, as many as 17 states have school districts operating on a four-day-week schedule (Gaines 2008).⁸ The four-day week is currently most prevalent in Colorado, New Mexico, and Wyoming (Dam 2006; Darden 2008). In Colorado, over 60 of the 178 school districts utilize a four-day week.⁹ This constitutes over 30% of the school districts in Colorado but only about 3% of the state's student population is covered by the alternative schedule, reflecting the fact that most four-day-week schools are in rural and sparsely populated districts (Lefly and Penn 2009).

A 2010 survey conducted in Colorado by the Department of Education solicited information from school administrators who had applied to either switch their school's schedule to a four-day week or to renew their current four-day-week status. The results are tabulated in

⁶ Cimarron School District in New Mexico has the longest history of the four-day-week schedule; they switched to the shortened week in 1973-1974 and have used it consistently since (Feaster 2002).

⁷ Although most of the schedule changes occurred after this amendment, some schools were allowed to pilot the four-day week prior to 1985 (Dam 2006).

⁸ See Gaines (2008) for a list of these states. In addition, Hawaii recently implemented 17 mandatory "Furlough Fridays" for state public schools and the Peach County district in 2010 was the first in the state of Georgia to switch to the four-day week (Herring 2010).

⁹ All four-day schools in Colorado regularly hold school on Tuesday, Wednesday, and Thursday. The majority of these schools conduct no class on Friday, but some choose Monday as their day off (Dam 2006). The change to a four-day week usually occurs at the district level; however, there are a few Colorado districts that have individual schools, but not the entire district, on the shortened week (Lefly and Penn 2009).

Table A1; more than two thirds of the respondents stated that financial savings were a motivation for the altered schedule, with another third citing community support.

2.2 Advantages and Disadvantages of the Four-Day Week

There are a host of possibilities that could allow for a changed weekly schedule to affect student achievement. First, consider how teachers might respond to the changed schedule. It has been conjectured that longer class periods give teachers flexibility to organize particular lessons more effectively and incorporate more varied teaching methodologies (Rice et al. 2002). Yarbrough and Gilman (2006) reported that teachers claimed the four-day week cut out wasted time and forced them to focus their instruction more successfully. Durr (2003) found that teachers actually reported covering more content under the shortened school week. In some districts, the day off is devoted to teacher planning and enhances faculty collaboration (Yarbrough and Gilman 2006). An additional teacher effect could be reduced turnover and absenteeism; teacher turnover has been shown to have an impact on student achievement gains (Ronfeldt et al. 2011). While it is unclear whether the four-day week has reduced turnover, many school districts have reported fewer teacher absences after switching to the alternative schedule (Chamberlain and Plucker 2003). Lastly, a different effect could be that teachers are happy with the four-day weeks, and this leads to higher productivity while on the job. This would be in accordance with the literature from psychology on the relationship between the four-day workweek and employee satisfaction (Baltes et al. 1999).¹⁰

Although the four-day school week might lead to teacher effects that improve student achievement, potential drawbacks exist. Critics note that teachers could initially face difficulties

¹⁰ It has also been shown that the compressed workweek can lead to decreased employee absenteeism (Pierce et al. 1989).

adapting their lesson plans to the change of schedule (Chamberlain and Plucker 2003). A survey from an Idaho school district indicated that 24% of teachers reported greater stress and fatigue due to the longer school days under the shortened week (Sagness and Salzman 1993).

From the standpoint of the students, a four-day week might lead to better attendance and anecdotal evidence suggests this is the case (Toppo 2002; Kingsbury 2008; Turner 2010). Not surprisingly, higher student attendance has been associated with better performance on standardized tests (Ehrenberg et al. 1991). It has also been reported that students are less distracted, exhibit improved morale, and behave better on the shortened weekly schedule (Koki 1992; Shoemaker 2002; Dam 2006; Donis-Keller and Silvernail 2009). All of these factors have the potential to improve academic performance.¹¹ In addition, students with long commutes might fare better on a schedule with fewer trips (Ryan 2009).

On the other hand, the four-day school week has potential disadvantages from a student perspective. For example, some worry that it is more difficult for students to retain subject matter when given an extra day off (Gaines 2008). Perhaps the biggest concern is that the longer school day requires extended focus and attention, and this could be especially relevant for younger students (Dam 2006; Gaines 2008; Ryan 2009).¹²

Aside from the possible advantages and disadvantages listed above, there are several reasons why the alternative schedule might actually increase the total amount of instructional time students receive. First, the shortened school week gives parents the opportunity to schedule medical and other necessary appointments on their school's day off instead of on a regular

¹¹ Sixty-three percent of 4th through 7th graders from the Shelley School District in Idaho reported that they felt they "learned more in school" after their district switched to the four-day school week (Sagness and Salzman 1993).

¹² Some schools have helped elementary students adjust to the longer school days by providing breakfast and serving lunch later in the day (Hazard 1986).

school day (Grau and Shaughnessy 1987). This has the potential to reduce student absenteeism and is particularly important for those who live in rural communities where long travel distances for appointments are common (Richberg and Sjogren 1983; Dam 2006).¹³ Second, travel for sporting events results in missed school time for student athletes. The four-day school week alleviates absenteeism in this regard as many schools schedule athletics and other extra-curricular activities on their day off (Dam 2006).¹⁴ This is less relevant for our study, however, because we focus on the academic performance of elementary school students. Lastly, the four-day schedule permits flexibility in the event of weather-related school cancellations; schools can reschedule missed days without increasing the length of the school year (Donis-Keller and Silvernail 2009). This is important for our research because the CSAP tests are administered during the spring. As a result, if school is cancelled due to winter weather, then students will generally make up lost time before taking the standardized tests rather than after.¹⁵

Although the data used in this study do not allow us to identify the mechanisms through which the changed schedule may affect academic performance, it is useful to delineate the possibilities in the hopes that future research can confirm or reject these hypotheses.

2.3 Relevant Literature on School Schedule Changes

While none of the schedule changes that have been rigorously empirically scrutinized match precisely with the schedule change created by the four-day school week, there are at least three relevant areas of inquiry. First, some research deals with block-scheduling, the reallocation

¹³ The same argument applies to teacher absenteeism. Decreases in teacher absenteeism have been reported as a source of financial savings in terms of substitute teacher costs (Grau and Shaughnessy 1987).

¹⁴ This is especially relevant for rural areas because students at these schools are more likely to participate in school-sponsored sports activities than students who attend urban schools (Lippman et al. 1996).

¹⁵ One school district estimated that students were in school approximately one week more per year after switching to the four-day school week (Richburg and Sjogren 1983).

of fixed amounts of classroom time into longer blocks for some subjects. Implemented at the high school level, the block schedule is designed to allow for more variety in instructional formats, encourage more active teaching strategies, decrease disruptions during the school day, and ultimately better prepare students for college work (Rice et al. 2002; Hughes Jr. 2004). This educational policy change is appealing because overall class hours are not increased, so that no new resources are required. However, the evidence is mixed regarding the ability of block scheduling to enhance student performance (Rice et al. 2002; Hughes Jr. 2004).

Second, other research has examined the impacts of year-round schooling.¹⁶ Similar to students on the four-day school week, students at year-round schools are typically expected to receive the same amount of instructional time as students on traditional schedules. This alternative school calendar simply consists of a set number of instructional hours spread over the entire year. While past reviews of the research on year-round schooling are inconclusive (Merino 1983; Cooper et al. 2003), recent work by Graves (2010, 2011) indicates the year-round calendar may have detrimental effects on academic performance.¹⁷

Lastly, a number of studies have investigated the effects of an overall increase in instructional time (see, e.g., Brown and Saks 1986, 1987; Link and Mulligan 1986; Coates 2003; Marcotte 2007; Marcotte and Hemelt 2008; Bellei 2009).¹⁸ Generally, this research suggests that

¹⁶ Related to research on year-round schooling, others have examined the effects of mandatory summer schooling on subsequent achievement. For example, Matsudaira (2008) uses a regression discontinuity design based on cutoff scores on year-end exams to show small improvements in academic performance for those attending summer classes.

¹⁷ Graves (2010, 2011) specifically focuses on multi-track year-round school calendars. These calendars have the potential to mitigate school overcrowding by serving more students within the same facility than is possible under traditional or single-track year-round calendars.

¹⁸ Along these lines, research has also considered the effects of full-day as opposed to half-day kindergarten (DeCicca 2007; Cannon et al. 2011).

a positive relationship exists between instructional time and academic achievement, and that instructional time is subject to diminishing returns.

3. Data

3.1 Data on Test Scores

We use test score data from the Colorado Student Assessment Program (CSAP) to measure student performance.¹⁹ The CSAP tests are administered each spring and every public school student within specified grades is required to take the exams.²⁰ The tests are graded based on one of four possible achievement levels: unsatisfactory, partially proficient, proficient, and advanced. Our measures of interest are the percentage of students scoring proficient or advanced in reading and the percentage of students scoring proficient or advanced in mathematics.²¹ These measures represent some of the achievement benchmarks used to evaluate school performance under No Child Left Behind (NCLB).

In particular, we focus on 4th grade reading and 5th grade mathematics scores. These data are reported consistently over time and represent the longest time-series of available test scores for Colorado public schools. Currently, students in grades 3 through 10 are required to complete the reading and math assessments; but this was not always the case. In 1997, the reading exam was only taken by students in the 4th grade. For math, the exams were first administered in elementary schools in 2001 to 5th grade students. In addition, because there are many more

¹⁹ These data are publicly available from the Colorado Department of Education.

²⁰ Schools are required to administer the tests during the period beginning on the second Monday in March and ending on the third Monday in April. Additional details on the test schedules are available at http://www.cde.state.co.us/cdeassess/co_law.html#Bullet3.

²¹ Although not our primary focus, we also consider results for all four possible test outcomes (see Table 6).

elementary schools than middle or high schools, these data are perhaps the most appropriate for examining the causal effects of the four-day week on student achievement. Our final data set consists of a school-level panel for the periods 2000-2010 and 2001-2010 for reading and mathematics, respectively.²²

Table 1 provides descriptive statistics for the test scores. A comparison of sample averages for schools on four-day-week schedules to those for schools on traditional schedules indicates that schools on the four-day week have lower percentages of 5th graders scoring proficient or advanced in mathematics. The mean percentage of 4th graders scoring proficient or advanced in reading is also slightly lower for schools on the four-day schedule, but this difference is not statistically significant.

Table 2 illustrates test score results for the schools that changed their schedules to the four-day week during our sample period. For the 5th grade math and 4th grade reading samples we observe 14 and 17 schedule changers, respectively. We report means for the percentage of students scoring proficient or advanced for the two years prior to the schedule change, the year in which the schedule change took place, and the two years after the schedule change. Figures 1 and 2 plot the means from Table 2. In addition, these figures also plot means for the schools in our control group (i.e. schools on traditional schedules). We randomly assigned a year of a schedule change to these schools.²³ For both math and reading, test scores appear stable for the control group for the pre- and post-schedule change periods. However, for schools that switched to a four-day week, there is a discrete increase in the percentage of students scoring proficient or

²² We do not present reading results for the period 1997-2010 because some of the covariates were not available for the late 1990s. However, it should be noted that results from models with school and year fixed effects for the period 1997-2010 are similar to those presented below.

²³ In each figure, a vertical line distinguishes the years before the schedule change from the year of the schedule change and the years after the schedule change.

advanced in math during the year in which the schedule change took place. For reading scores, there also appears to be a discontinuous increase in performance for the four-day-week schools, but this occurs one year after switching schedules.

3.2 Covariates

Table 1 also shows descriptive statistics for the remaining variables used in this paper. The independent variable of interest is the *Four-Day Week* indicator. The Colorado Department of Education provided the majority of information on school schedules and the timing of schedule changes. For the few cases where schedule information was incomplete, we contacted school districts individually to fill in the missing data.

At the county level, we control for the percent living in poverty and population density.²⁴ Given that four-day-week schedules are implemented primarily for financial reasons in rural areas, these variables are of particular importance.

We also control for several variables measured at the school district level. Instructional expenditures per student are included as a standard input to the education production function.²⁵ Other district-level controls include the percentage of teachers who are male, the percentage who are white, and the percentage who are Hispanic.²⁶ These demographic characteristics vary across districts and are likely to be correlated with unobservables that influence academic outcomes.²⁷

²⁴ More specifically, the poverty measure represents the percentage of people aged 0 to 17 in families living in poverty. This variable was imputed for 2010. The poverty and population density data are from the U.S. Census Bureau.

²⁵ The literature on the relationship between expenditures and student performance is extensive. For examples, see Hanushek (1986), Dolan and Schmidt (1987), Lopus (1990), and Papke (2005).

²⁶ All district-level data are from the Colorado Department of Education.

²⁷ Some research suggests that teacher demographic characteristics such as gender and race directly influence student achievement (Dee 2005; Hoffman and Oreopolous 2009).

Lastly, we control for the following school-level variables: total enrollment, pupil-to-teacher ratio, percentage of students who receive free lunch, percentage of students who are white, and percentage of students who are Hispanic.²⁸ While the county- and district-level variables control for important time-varying characteristics, the school-level variables perhaps better capture environmental factors that impact test scores and are associated with four-day-week status.

Because the four-day-week schedule is implemented in rural areas and sparsely populated school districts, we base our estimation sample on restrictions to the *Population density* and *Total students* variables. Our control group includes only schools with *Population density* and *Total students* values that are less than the maximum values for these variables for the four-day-week schools. Specifically, we restrict our focus to schools with enrollments not exceeding 1,100 students and that are in counties with less than 300 persons per square mile.²⁹ We evaluate the sensitivity of our results to alternative sample selection criteria in the robustness checks below.

Table 1 indicates that, despite the sample selection criterion, differences across schools persist. For example, schools on the four-day-week schedule are generally smaller and in poorer areas. The four-day-week schools also have slightly lower student-teacher ratios and somewhat lower percentages of Hispanic students than the traditional schedule schools. Again, because of these differences, we examine the robustness of our results to alternative control group specifications.

²⁸ The school-level data are from the National Center for Education Statistics' *Common Core of Data*.

²⁹ Frontier Academy is the largest four-day-week school with 1,108 students in 2010. Ellicott Elementary is the four-day-week school in the most densely populated county with over 290 persons per square mile in 2010. We also drop observations from schools that have fewer than 5 years of available test score data.

4. Empirical Strategy

A standard difference-in-differences (DD) approach is used to estimate the effect of the four-day school week on student performance. This method allows us to exploit the panel nature of our data by estimating a model that includes school fixed effects and year effects. The baseline estimating equation is:

$$(1) \quad \% \textit{Proficient/Advanced}_{st} = \beta_0 + \beta_1 \textit{Four-Day Week}_{st} + \mathbf{X}_{sdct} \boldsymbol{\beta}_2 + \nu_s + \omega_t + \varepsilon_{st}$$

where *% Proficient/Advanced* is the percentage of students in a specific grade at school *s* and year *t* who score proficient or advanced in a particular test subject (math or reading).³⁰ The variable *Four-Day Week* indicates whether a four-day-week schedule was in place in school *s* and year *t*. The coefficient of interest, β_1 , represents the marginal effect of switching to a four-day week. Standard errors are adjusted for correlation at the district level (Bertrand et al. 2004).³¹

The vector *X* is comprised of the time-varying school (*s*), district (*d*), and county (*c*) characteristics described above. The school fixed effects and year effects are represented by ν_s and ω_t , respectively. The school fixed effects control for differences across schools that are time-invariant, while the year effects control for differences across time that are common to all schools.

³⁰ Marcotte (2007), Marcotte and Hemelt (2008), and Papke (2005) use a similar dependent variable to evaluate student performance at the school level.

³¹ Inference is similar when standard errors are adjusted for correlation at the school level.

A potential source of selection bias comes from the possibility that certain types of parents might opt to enroll their child in a four-day-week school. For example, a shortened school week could increase the expense of childcare arrangements, so that this schedule could appeal more to parents who are relatively less burdened by childcare costs.³² If children from these families perform systematically better (or worse) in school than others, then estimates of the effect of the four-day week on test scores will be biased. The chances of parents moving their children to schools on the four-day week, however, are limited due to the rural location of most four-day-week schools.³³ School selection is also limited by restrictions on within-district transfers. School fixed effects would account for this type of bias for schools that used the four-day-week schedule throughout the sample period.

A second selection bias could result from the fact that school districts choose their schedule. If only schools with financial issues change to a four-day-week schedule, then an observed relationship between the four-day week and test scores might simply reflect the financial situation of the school. School fixed effects would purge our estimates of this type of bias.

School fixed effects cannot account for unobserved time-varying factors that simultaneously influence student performance and the school's choice of schedule. In addition, it is possible a school could switch to a four-day week in response to a downward trend in test scores. To address these issues, we include district-specific time trends in a sensitivity analysis below.

³² Higher income households, families with a stay-at-home parent, or farm and ranch households may find the four-day-week schedule appealing.

³³ Within our data, we found little evidence that student enrollments increased after schools switched schedules.

5. Results

5.1 Primary Results

Table 3 presents our baseline OLS estimates of the relationship between the four-day school week and the percentage of students scoring proficient or advanced on 5th grade math tests. Each column illustrates results from a separate regression and all models include school-level fixed effects.

These results are striking; even when controlling for county-, district- and school-level differences in socio-economic characteristics, the four-day school week is associated with an increase of over 7 percentage points in the percentage of students scoring proficient or advanced on the math achievement tests, and this result is estimated with precision. This represents roughly a 12 percent increase from the mean test scores for schools on traditional schedules ($7.43/63.2 = 0.12$).

Table 4 contains the results of similar models estimated using the percentage of students scoring proficient or advanced on 4th grade reading tests. The estimated impact of the four-day week is generally smaller and less precisely estimated, but even when all covariates are included, we still find a positive point estimate of over three percentage points.³⁴

In Table 5, we present regression results designed to provide some insight into the dynamic pattern of test scores prior to and following the change to a four-day school week. Specifically, we replace the *Four-Day Week* variable with two lead indicators, an indicator for the year of the schedule change, and three lag indicators. The omitted category is 3+ years before a schedule change occurred. Column (1) shows results for the math scores. The estimated coefficients prior to the policy change are positive, though not statistically significant,

³⁴ It is fairly common to find stronger effects on math scores than on reading scores; see, for example, Dee and Jacob (2011).

whereas the point estimates post-change are much larger and estimated with precision. These results, to an extent, quell concerns that academic adjustments were made in anticipation of schedule changes. Further analysis of the sensitivity of our baseline results to pre-existing trends is included in the robustness checks below. The results in column (2) provide some evidence that performance in reading goes up after schools switch to a four-day week; although, only the estimates for the final two lags are individually statistically significant at conventional levels. The indicator for the year of the schedule change and the three lag indicators are weakly jointly significant.

Because our results indicate that the percentage of students achieving proficient or advanced scores increases when schedules are changed, it is interesting to consider which group of students accounts for the improvement. As mentioned above, the Colorado Department of Education tabulates student scores according to four possible achievement levels: unsatisfactory, partially proficient, proficient, and advanced. Table 6 shows results of regressions where each achievement level is considered as a separate outcome and is regressed against the policy indicator and the full set of covariates. These results tell an interesting story. For math, we find that the biggest share of the improvement comes from the students formerly classified as partially proficient, this group falls by an estimated 4.6 percentage points following the schedule change. As a result, we see a large and statistically significant increase in the percentage of students scoring at the proficient level. For reading, the only statistically significant results occur in the lowest and the highest categories. The results show that the percentage of students rated unsatisfactory fell by nearly 2.5 percentage points after the schedule change whereas the percentage of students in the advanced category rose by over two percentage points. Of course, this does not necessarily imply that formerly unsatisfactory students are now scoring at the

advanced level. It may simply be that the four-day week resulted in a relatively uniform shift upward in test scores across all achievement levels.

5.2 Robustness Checks

We first perform a robustness check based on Luallen (2006). Specifically, we create a placebo *Four-Day Week* indicator using a random number generator based on the uniform distribution. Because 14 schools switched to a four-day week during our sample period for math scores, we assign 14 placebo policies for each trial run. For the reading sample, we assign 17 placebo policies.³⁵ We run 25 trials for each test score outcome.

Table 7 illustrates the average coefficient estimates for the placebo *Four-Day Week* on the percentage of 5th graders scoring proficient or advanced in mathematics and the percentage of 4th graders scoring proficient or advanced in reading. In both regressions, the average estimate is very small in magnitude. Furthermore, in 25 trials, only one estimate was positive and statistically significant at the 5 percent level for math performance and only two estimates were positive and statistically significant at the 5 percent level for reading performance.³⁶ These results provide evidence that random assignment of the four-day-week schedule cannot generate our results.

As discussed above, the schools on the four-day-week schedule are different than schools on traditional schedules along several margins. In reality, the four-day week is not a randomly assigned policy. While the inclusion of school fixed effects controls for time-invariant

³⁵ A year for a schedule change was randomly selected between 2000 and 2010 for the reading test regressions and 2001 and 2010 for the math test regressions.

³⁶ For math performance, one estimate was negative and statistically significant at the 5 percent level. For reading performance, two estimates were negative and statistically significant at the 5 percent level.

heterogeneity across schools, it is useful to consider a propensity score matching technique used in conjunction with our difference-in-differences estimator.³⁷ This method essentially amounts to re-estimating equation (1) on a matched sample, a subset of the original sample.³⁸

The goal for matching is to find a group among the comparison population (i.e. the schools that remained on the traditional schedule) that looks as similar as possible to the schools that changed schedules.³⁹ Thus, we predict whether a school switches to a four-day week during our sample period based on observable characteristics from 2001. Table A3 presents the probit results. Consistent with anecdotal evidence, schools with higher transportation expenditures are more likely to switch to a four-day week.

Table 8 illustrates results from the estimation of equation (1) on propensity score matched samples.⁴⁰ For math, the estimates are smaller than those shown in Table 3; however, they are still relatively large in magnitude and two of the three estimates are statistically significant at the 5 percent level even though the sample has shrunk by a factor of four. While the estimate for the case where $k = 5$ is positive and substantial in size, it is not statistically significant at conventional levels (p-value = 0.101). For reading, the magnitudes of the estimates are on par with those from Table 4 and two of the three estimates are weakly statistically significant.

³⁷ For a practical discussion on propensity score matching, see Becker and Ichino (2002).

³⁸ For research employing similar methods, see Heckman et al. (1997), Sabia (2006), Gilligan and Hoddinott (2007), and Debaere et al. (2010).

³⁹ Table A2 presents descriptive statistics for the propensity score matching analysis.

⁴⁰ Specifically, we use the k -nearest neighbor matching algorithm, an approach where each four-day-week school is matched to multiple schools from the comparison group.⁴⁰ We consider values of $k = 25$, $k = 10$, and $k = 5$; the choice of k involves a trade-off between reduced variance and increased bias. That is, variance is reduced when a higher value of k is chosen because more information is used to construct the counterfactual for each treated unit; but, increased bias results from poorer matches on average (Caliendo and Kopeinig 2005).

For completeness, we perform the following additional robustness checks. The sensitivity analyses for the math results are reported in Table 9. In column (1), the baseline estimate of the fully specified model (see column (5) of Table 3) is reported for comparison. Column (2) of Table 9 reports results from a model where the school fixed effects are replaced with district fixed effects. Not surprisingly, the coefficient estimate on the *Four-Day Week* indicator is larger in magnitude and highly statistically significant.⁴¹

Column (3) illustrates results where school district-specific linear time trends are added to the right-hand-side of equation (1). The district-specific trends are intended to control for the influence of difficult-to-measure factors at the district level that evolve smoothly over time. Although the coefficient size remains relatively large, it is measured with less precision and is no longer statistically significant at conventional levels.⁴² Of course, because this model uses up degrees of freedom, less precision is to be expected.

The results in column (4) come from a regression weighted by the school-level student population.⁴³ Here, the coefficient estimate remains relatively large in magnitude and is statistically significant at the 5 percent level.

For the results in column (5), we restrict the sample to only schools that were on traditional schedules at the beginning of our sample period. Identification in our difference-in-differences framework comes from the schools that we observe switching schedules.

⁴¹ As expected, the model with district fixed effects explains less variation in the percentage of students scoring proficient or advanced. This implies that school-level time-invariant unobserved characteristics explain much of the variation in test scores across schools.

⁴² Results based on district-specific trends are presented as opposed to results based on school-specific trends because the policy change almost always occurs at the district level. As a result, it is conceivable that unobserved time-varying characteristics that drive the decision to switch to the four-day week are more likely to be district-level factors. However, it is important to note that results are similar when controlling for school-specific linear time trends (coefficient estimate on *Four-Day Week* = 5.95; standard error = 4.33).

⁴³ Weighted least squares helps to deal with heteroskedasticity that may arise because smaller schools are more likely to see greater swings in their percentage of students scoring proficient or advanced.

Consequently, our results should change little from baseline when excluding schools that enter our sample already on the four-day week. The estimate in column (5) confirms that this is the case.

Finally, we restrict our sample based on the U.S. Census's definition of "rural." While this selection criterion increases our sample size by over 80 percent, the results change little from baseline.⁴⁴

The results from the sensitivity analyses for the reading scores are provided in Table 10. While the reading results are more sensitive than the math results to model specification and sample selection, all coefficient estimates remain positive in sign. With the exception of the column (3) result, the magnitudes of the coefficient estimates remain large. When district-specific trends are added, the estimate becomes much smaller and is not measured precisely.

6. Conclusion

In a time of tough budget situations for most public school systems, a variety of cost-saving measures have been adopted. To relieve financial pressures, a growing number of smaller and more rural school districts are switching from the traditional Monday through Friday school week to a four-day-week schedule. One concern, however, is that student academic performance may be compromised by such a switch. The results presented in this paper illustrate that academic outcomes are not sacrificed under the four-day week; in fact, we provide some evidence that math and reading achievement scores in elementary schools actually improve following the schedule change. The math results in particular are robust to a number of alternative specifications and checks.

⁴⁴ According to the Census, a "rural" county has a population density of less than 1,000 persons per square mile (Ricketts et al. 1998). Though not reported for the sake of brevity, it is important to note that results based on specifications with no sample restrictions are similar to the baseline estimates.

Specifically, using data from the Colorado Department of Education, we find that scores on math achievement tests increase by roughly 12 percent after the switch to a four-day-week schedule. The estimated impact of the four-day week on reading achievement is always positive in sign but is generally smaller in magnitude and estimated with less precision. Policy-makers and school administrators will want to take these potential gains in academic performance into consideration when weighing the costs and benefits associated with the four-day school week.

Although we discussed a variety of channels through which the four-day week may impact student performance, our school-level data leaves us silent as to which mechanisms are most important. It will be valuable for future work to determine whether factors such as teaching methods, teacher satisfaction, or student attendance account for improving student achievement.

There are a number of other possible implications of this schedule change that merit examination. In particular, this study looked only at 4th and 5th grade math and reading scores. One might conjecture that this policy change could have an even greater influence on older students. For high school students, four-day school weeks may make it easier to handle part-time jobs. An interesting line of inquiry would be the impact of this alternative schedule on drop-out rates.

Lastly, a key issue for consideration is whether our results generalize to larger and less rural districts. There has been some discussion that the four-day school week would not work as well in more urban areas due to issues concerning the increased demand for child care, special needs students, and delinquency (Fager 1997).

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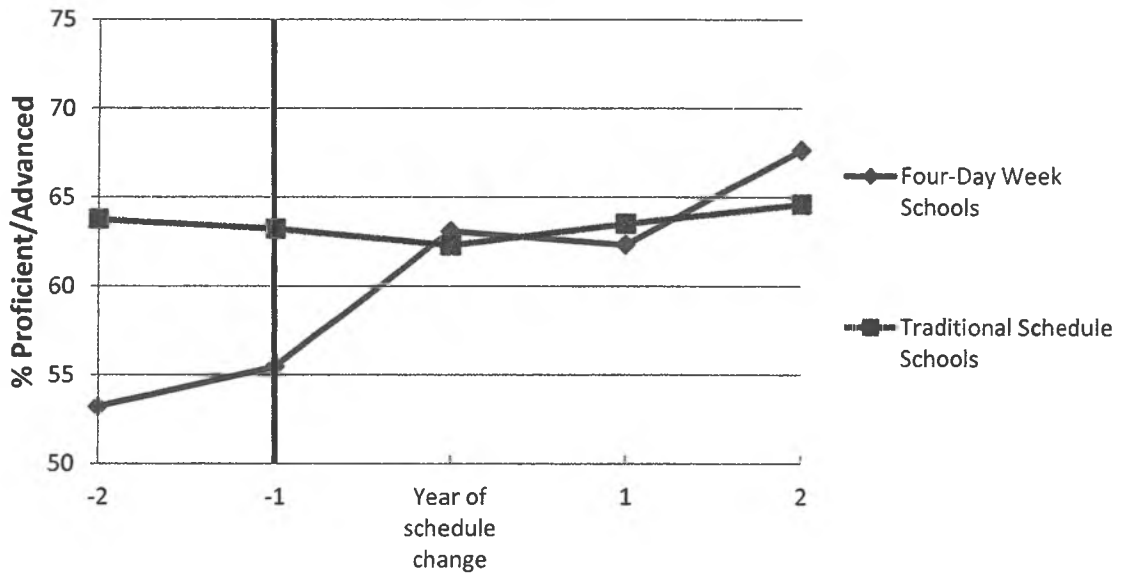
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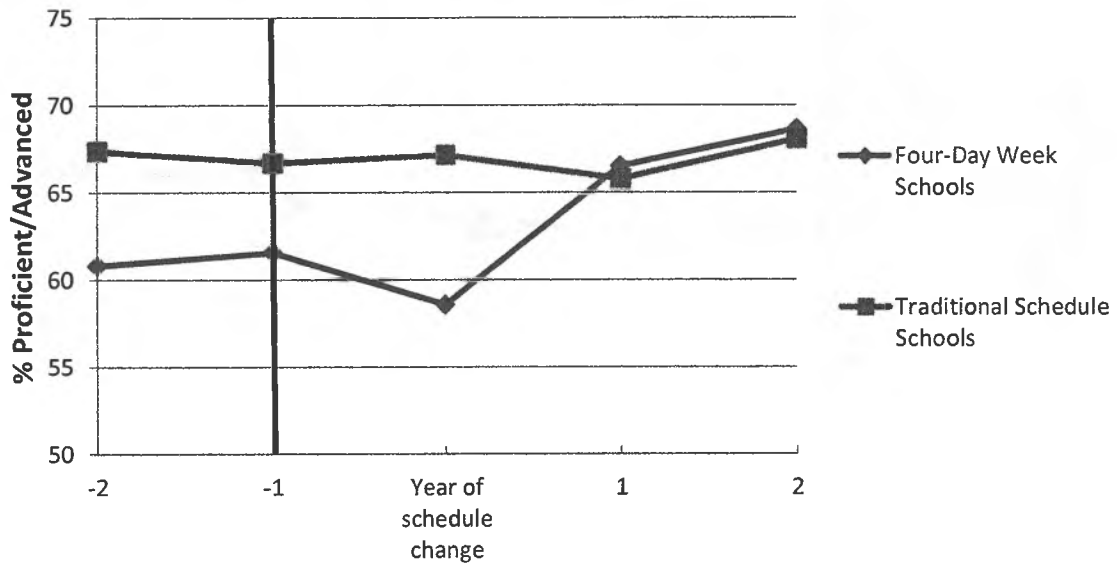
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Figure 1. Percent Scoring Proficient or Advanced in Math



On the horizontal axis, "year of schedule change" represents the year in which schools changed to a four-day week. It was randomly assigned to schools that remained on traditional schedules during the period under study.

Figure 2. Percent Scoring Proficient or Advanced in Reading



On the horizontal axis, "year of schedule change" represents the year in which schools changed to a four-day week. It was randomly assigned to schools that remained on traditional schedules during the period under study.

Table 1: Descriptive Statistics

	(1) Four-day week: 5 th grade math sample		(2) Traditional schedule: 5 th grade math sample		(3) Four-day week: 4 th grade reading sample		(4) Traditional schedule: 4 th grade reading sample	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Test scores								
<i>Percent scoring proficient or advanced^a</i>	60.3	16.8	63.2	17.0	66.1	15.6	66.9	15.5
County-level variables								
<i>Percent poverty^{a, b}</i>	18.7	9.81	14.4	6.17	18.5	9.71	14.4	6.11
<i>Population density (per sq. mile)^{a, b}</i>	51.2	92.1	122	108	50.1	91.6	120	108
School district-level variables								
<i>Instructional expenditures per student^{a, b}</i>	4566	630	4135	501	4575	661	4110	511
<i>Percent of male teachers^{a, b}</i>	29.7	9.95	26.4	5.20	29.2	9.21	26.4	5.10
<i>Percent of Hispanic teachers^a</i>	7.55	15.8	6.46	6.54	7.15	15.2	6.35	6.54
<i>Percent of white teachers^b</i>	91.4	16.1	90.3	10.7	91.9	15.5	90.5	10.7
School-level variables								
<i>Total students^{a, b}</i>	228	156	399	150	225	152	399	149
<i>Pupil-teacher ratio^{a, b}</i>	14.2	2.91	16.2	10.2	14.1	2.86	16.3	10.7
<i>Percent free lunch</i>	39.9	21.9	37.3	23.9	39.8	21.0	37.2	23.8
<i>Percent of Hispanic students^{a, b}</i>	21.2	22.3	24.8	21.1	20.3	21.3	24.8	21.2
<i>Percent of white students^{a, b}</i>	75.4	222	67.7	22.0	76.4	21.2	67.9	22.0
N	282		3759		326		4304	

Notes: ^a Means are statistically different at 5% level for 5th grade math sample. ^b Means are statistically different at 5% level for 4th grade reading sample. Unweighted means for the 5th grade math sample are based on data from 2001-2010. Unweighted means for the 4th grade reading sample are based on data from 2000-2010.

Table 2: Descriptive Statistics for Schedule Changers: Mean Percentages of Students Scoring Proficient or Advanced

	(1) 2 years before change to a four-day week		(2) 1 year before change to a four-day week		(3) Year of change to a four-day week		(4) 1 year after change to a four-day week		(5) 2 years after change to a four-day week	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
5 th grade math	53.2	17.4	55.5	19.2	63.1	16.2	62.3	16.8	67.6	14.2
4 th grade reading	60.8	15.7	61.5	14.5	58.9	17.4	66.5	16.3	68.6	15.0

Notes: Unweighted means for the 5th grade math sample are based on data from 2001-2010; fourteen schools changed their schedule to a four-day week during this period. Unweighted means for the 4th grade reading sample are based on data from 2000-2010; seventeen schools changed their schedule to a four-day week during this period.

Table 3: Four-Day School Week and Student Performance: Baseline 5th Grade Math Results

	(1)	(2)	(3)	(4)	(5)
	<i>% Proficient/ Advanced in Math</i>	<i>% Proficient/ Advanced in Math</i>	<i>% Proficient/ Advanced in Math</i>	<i>% Proficient/ Advanced in Math</i>	<i>% Proficient/ Advanced in Math</i>
<i>Four-Day Week</i>	13.15*** (1.48)	7.44*** (1.68)	7.43*** (1.77)	7.22*** (1.70)	7.43*** (1.72)
N	4041	4041	4041	4041	4041
R ²	0.659	0.707	0.707	0.708	0.711
School FE	Yes	Yes	Yes	Yes	Yes
Year FE	No	Yes	Yes	Yes	Yes
County variables	No	No	Yes	Yes	Yes
District variables	No	No	No	Yes	Yes
School variables	No	No	No	No	Yes

* Statistically significant at 10% level; ** at 5% level; *** at 1% level.

Notes: Each column represents the results from a separate OLS regression. The dependent variable is equal to the percentage of students within a school scoring proficient or advanced; the covariates are listed in Table 2. Standard errors, corrected for clustering at the school district level, are in parentheses.

Table 4: Four-Day School Week and Student Performance: Baseline 4th Grade Reading Results

	(1) % Proficient/ <i>Advanced in Reading</i>	(2) % Proficient/ <i>Advanced in Reading</i>	(3) % Proficient/ <i>Advanced in Reading</i>	(4) % Proficient/ <i>Advanced in Reading</i>	(5) % Proficient/ <i>Advanced in Reading</i>
<i>Four-Day Week</i>	5.96** (2.54)	3.32 (2.49)	3.64 (2.47)	3.68 (2.42)	3.76* (2.24)
N	4630	4630	4630	4630	4630
R ²	0.709	0.726	0.726	0.727	0.733
School FE	Yes	Yes	Yes	Yes	Yes
Year FE	No	Yes	Yes	Yes	Yes
County variables	No	No	Yes	Yes	Yes
District variables	No	No	No	Yes	Yes
School variables	No	No	No	No	Yes

* Statistically significant at 10% level; ** at 5% level; *** at 1% level.

Notes: Each column represents the results from a separate OLS regression. The dependent variable is equal to the percentage of students within a school scoring proficient or advanced; the covariates are listed in Table 2. Standard errors, corrected for clustering at the school district level, are in parentheses.

Table 5: Four-Day School Week and Student Performance: Policy Timing

	(1) <i>% Proficient/ Advanced in Math</i>	(2) <i>% Proficient/ Advanced in Reading</i>
2 years before four-day week	1.50 (2.50)	2.06 (5.54)
1 year before four-day week	4.67 (3.68)	2.58 (4.19)
Year of schedule change	10.37*** (2.52)	0.602 (3.26)
1 year after four-day week	7.99*** (2.54)	5.24 (3.62)
2 years after four-day week	11.62*** (3.87)	8.23** (4.16)
3+ years after four-day week	5.78* (2.94)	5.97* (3.22)
N	4041	4630
R ²	0.711	0.733
School FE	Yes	Yes
Year FE	Yes	Yes
County variables	Yes	Yes
District variables	Yes	Yes
School variables	Yes	Yes

*Statistically significant at 10% level; ** at 5% level; *** at 1% level.

Notes: Each column represents the results from a separate OLS regression. The dependent variable is equal to the percentage of students within a school scoring proficient or advanced; the covariates are listed in Table 2. The omitted category is "3+ years before four-day week." Standard errors, corrected for clustering at the school district level, are in parentheses.

Table 6: Four-Day School Week and Student Performance: All Test Score Categories

	(1) % <i>Unsatisfactory</i> <i>in Math</i>	(2) % <i>Partially Proficient</i> <i>in Math</i>	(3) % <i>Proficient</i> <i>in Math</i>	(4) % <i>Advanced</i> <i>in Math</i>
Math				
<i>Four-Day Week</i>	-2.48* (1.49)	-4.61*** (1.12)	3.80** (1.87)	3.63 (2.38)
N	4041	4041	4041	4041
R ²	0.593	0.549	0.332	0.693
	(1) % <i>Unsatisfactory</i> <i>In Reading</i>	(2) % <i>Partially Proficient</i> <i>in Reading</i>	(3) % <i>Proficient</i> <i>in Reading</i>	(4) % <i>Advanced</i> <i>in Reading</i>
Reading				
<i>Four-Day Week</i>	-2.43* (1.39)	-0.666 (1.69)	1.63 (1.99)	2.14*** (0.799)
N	4630	4630	4630	4630
R ²	0.638	0.580	0.651	0.554
School FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
County variables	Yes	Yes	Yes	Yes
District variables	Yes	Yes	Yes	Yes
School variables	Yes	Yes	Yes	Yes

* Statistically significant at 10% level; ** at 5% level; *** at 1% level.

Notes: Each cell represents the results from a separate OLS regression. The dependent variable is equal to the percentage of students within a school scoring in one of the following four indicated categories: unsatisfactory, partially proficient, proficient, advanced. The covariates are listed in Table 2. Standard errors, corrected for clustering at the school district level, are in parentheses.

Table 7: Random Four-Day Week Assignment

	(1) <i>% Proficient/ Advanced in Math</i>	(2) <i>% Proficient/ Advanced in Reading</i>
Average <i>Four-Day Week</i> coefficient estimate	-0.908	0.514
Number of trials	25	25
Number of <i>Four-Day Week</i> estimates that were positive and significant at 5% level	1	2
School FE	Yes	Yes
Year FE	Yes	Yes
County variables	Yes	Yes
District variables	Yes	Yes
<u>School variables</u>	Yes	Yes

*Statistically significant at 10% level; ** at 5% level; *** at 1% level.

Notes: Each column represents the results from a series of OLS regressions. The dependent variable is equal to the percentage of students within a school scoring proficient or advanced; the covariates are listed in Table 2.

Table 8: Four-Day School Week and Student Performance: Matched Samples

	(1)	(2)	(3)
	% Proficient/ <i>Advanced in Math</i>	% Proficient/ <i>Advanced in Math</i>	% Proficient/ <i>Advanced in Math</i>
Math			
<i>Four-Day Week</i>	5.32** (2.35)	5.44** (2.48)	4.32 (2.57)
<i>k</i> -nearest neighbors	<i>k</i> = 25	<i>k</i> = 10	<i>k</i> = 5
N	1042	822	569
R ²	0.711	0.713	0.687
<hr/>			
	(1)	(2)	(3)
	% Proficient/ <i>Advanced in Reading</i>	% Proficient/ <i>Advanced in Reading</i>	% Proficient/ <i>Advanced in Reading</i>
Reading			
<i>Four-Day Week</i>	4.02* (2.22)	3.60* (2.01)	2.75 (1.84)
<i>k</i> -nearest neighbors	<i>k</i> = 25	<i>k</i> = 10	<i>k</i> = 5
N	1129	777	607
R ²	0.704	0.720	0.731
<hr/>			
School FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
County variables	Yes	Yes	Yes
District variables	Yes	Yes	Yes
School variables	Yes	Yes	Yes

* Statistically significant at 10% level; ** at 5% level; *** at 1% level.

Notes: Each cell represents the results from a separate OLS regression. The dependent variable is equal to the percentage of students within a school scoring proficient or advanced; the covariates are listed in Table 2. Standard errors, corrected for clustering at the school district level, are in parentheses.

Table 9: Four-Day School Week and Student Performance: Sensitivity of Math Results

	(1)	(2)	(3)	(4)	(5)	(6)
	Baseline results for comparison	Replace school fixed effects with district fixed effects	Add district trends	Weight regression by school size	Restrict sample to schools on traditional schedule at baseline (2001)	Restrict sample based on the Census definition of "rural"
<i>Four-Day Week</i>	7.43*** (1.72)	8.19*** (1.38)	5.10 (3.77)	5.58** (2.27)	7.33*** (1.79)	7.91*** (1.78)
N	4041	4041	4041	4041	3807	7335
R ²	0.711	0.586	0.742	0.746	0.720	0.787
School FE	Yes	No	Yes	Yes	Yes	Yes
District FE	No	Yes	No	No	No	No
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
County variables	Yes	Yes	Yes	Yes	Yes	Yes
District variables	Yes	Yes	Yes	Yes	Yes	Yes
School variables	Yes	Yes	Yes	Yes	Yes	Yes

* Statistically significant at 10% level; ** at 5% level; *** at 1% level.

Notes: Each column represents the results from a separate OLS regression. The dependent variable is equal to the percentage of students within a school scoring proficient or advanced; the covariates are listed in Table 2. Standard errors, corrected for clustering at the school district level, are in parentheses.

Table 10: Four-Day School Week and Student Performance: Sensitivity of Reading Results

	(1)	(2)	(3)	(4)	(5)	(6)
	Baseline results for comparison	Replace school fixed effects with district fixed effects	Add district trends	Weight regression by school size	Restrict sample to schools on traditional schedule at baseline (2000)	Restrict sample based on the Census definition of "rural"
<i>Four-Day Week</i>	3.76* (2.24)	6.18** (2.74)	1.45 (2.90)	5.84*** (2.14)	3.85* (2.22)	3.72 (2.27)
N	4630	4630	4630	4630	4377	8169
R ²	0.733	0.640	0.759	0.773	0.746	0.807
School FE	Yes	No	Yes	Yes	Yes	Yes
District FE	No	Yes	No	No	No	No
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
County variables	Yes	Yes	Yes	Yes	Yes	Yes
District variables	Yes	Yes	Yes	Yes	Yes	Yes
School variables	Yes	Yes	Yes	Yes	Yes	Yes

* Statistically significant at 10% level; ** at 5% level; *** at 1% level.

Notes: Each column represents the results from a separate OLS regression. The dependent variable is equal to the percentage of students within a school scoring proficient or advanced; the covariates are listed in Table 2. Standard errors, corrected for clustering at the school district level, are in parentheses.

Table A1: Reasons for Four-Day School Week Application/Renewal in Colorado

	(1)	(2)	(3)	(4)
	Financial savings of some form	Community support, parent support, or tradition	Improved attendance	Increased academic performance
Number of school administrator reports	51	26	17	6

Notes: These data are based on 76 school administrator responses from a Colorado Department of Education survey that was conducted in 2010. Of the responses, 10 districts were applying to switch their schedule to a four-day school week and 66 districts were applying to renew their current four-day-week status. The total number of responses sum to greater than 76 because respondents were allowed to list multiple reasons. These data were supplied through correspondence with the Colorado Department of Education.

Table A2: Descriptive Statistics for Propensity Score Analysis

	(1) 5 th Grade		(2) 4 th Grade	
	Math Sample Mean	Std. Dev.	Reading Sample Mean	Std. Dev.
Dependent variable				
<i>Eventual Four-Day Week</i>	0.050	0.217	0.050	0.217
Independent variables				
<i>Percent poverty (County-level)</i>	13.1	5.39	13.1	5.43
<i>Instructional expenditures per student (District-level)</i>	3911	522	3898	481
<i>Transportation expenditures per student (District-level)</i>	190	86.8	191	97.7
<i>Operational expenditures per student (District-level)</i>	616	142	613	128
<i>Total students (School-level)</i>	337	112	339	109
<i>Pupil-teacher ratio (School-level)</i>	16.1	2.79	16.0	2.61
<i>Percent free lunch (School-level)</i>	36.5	22.2	36.9	22.3
N	303		303	

Notes: Means of the independent variables are based on data from 2001.

Table A3: Probit Models for Propensity Score Analysis

	(1) <i>Eventual Four-Day Week (Math Sample)</i>	(2) <i>Eventual Four-Day Week (Reading Sample)</i>
<i>Total students (100s)</i>	0.179 (0.177)	0.123 (0.172)
<i>Pupil-teacher ratio</i>	0.033 (0.068)	0.057 (0.076)
<i>Percent free lunch</i>	0.003 (0.010)	0.007 (0.010)
<i>Instructional expenditures per student (100s)</i>	0.054* (0.029)	0.064** (0.029)
<i>Transportation expenditures per student (100s)</i>	0.400** (0.202)	0.343** (0.183)
<i>Operational expenditures per student (100s)</i>	0.000 (0.099)	0.040 (0.102)
<i>Percent poverty</i>	0.100*** (0.036)	0.085** (0.034)
N	303	303

* Statistically significant at 10% level; ** at 5% level; *** at 1% level.

Notes: Each column represents the results from a separate probit regression. The variables are listed in Table A1. Standard errors are in parentheses.

FOCUS *on the School Calendar:*

The Four-Day School Week

SREB

Gale F. Gaines

When the economy weakens, heightened consideration is given to ways in which schools and districts can more efficiently use financial resources or make up for lost funding. Discussions about implementing four-day school weeks — with students attending school more hours each day — are surfacing again because of general economic pressures in the states and the increased cost of diesel fuel for school buses. While the need to balance the budget is real — and many districts across the region are facing static or even reduced funding in the coming year — the current focus on improving student achievement should continue to be central to state-level decisions impacting schools.

SREB's *Challenge to Lead* Goals for Education call for the achievement of all groups of students to exceed national averages and for performance gaps to close. The federal *No Child Left Behind Act* also requires improvements in student performance. SREB states have made tremendous progress in many areas in recent years; despite the softening of the economy, policy-makers should be vigilant so that educational progress does not stagnate.



The four-day school week is not a new issue. However, the vast majority of the nation's schools and districts remain on the traditional school calendar. The first schools to implement a four-day week were in New Mexico in the early 1970s, primarily as a response to an energy crisis that sharply increased the cost of transportation and utilities. A 2003 survey by the National School Boards Association (NSBA) indicated that districts in nine states (Arizona, Colorado, Kansas, Michigan, New Mexico, Oregon, South Dakota, Wisconsin and Wyoming) were using a four-day per week schedule. It also showed that in Louisiana, some schools within one district used the alternative schedule, but not the entire district. Arkansas, too, had at least one small district using a four-day schedule for a few years.

NSBA currently estimates that about 100 districts in as many as 17 states — those mentioned above, plus California, Kentucky, Idaho, Minnesota, Nebraska and Utah — may be using the alternative schedule. Colorado's 67 districts and New Mexico's 17 account for most of the districts using a four-day week. Most participating districts are small and rural. Because these districts tend to be sparsely populated, students face long commutes to and from school.

The decision to implement a four-day school week has been based primarily on efforts to save or more efficiently use available funds. Presumably, if a school were to operate for four days each week and close on the fifth (shutting down utilities as though for a holiday weekend), reductions

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of up to 20 percent would be gained in some non-fixed expenditures such as motor fuel, cafeteria food, utilities and, perhaps, hourly workers. In reality, however, many schools reportedly don't close on the fifth day; they use that day instead for extracurricular activities, tutoring, special programs and professional development, resulting in reduced savings. In addition, these non-fixed expenditures are only a small part of overall budgets. The salaries and benefits of teachers, school leaders and administrators make up the largest part of school operating funds.

The actual magnitude of the potential savings of the four-day week is unclear. However, data in the 2007 *Digest of Education Statistics* suggest that student transportation — which includes more than just fuel costs — and food service each accounted for about 4 percent of operating expenditures nationally for elementary and secondary schools in 2004-2005. (Utilities are more difficult to estimate because they are combined with other operations and maintenance items.) A full 20 percent reduction in transportation and food service spending, which is not possible due to bus maintenance and other fixed costs within those expenditures, would result in savings of roughly 2 percent of the overall budget, based on national spending patterns. Diesel fuel prices, however, have nearly doubled since January 2006. Even with this rise in costs, the proportion of the budget affected by a four-day week would remain small. The savings would vary by district. Webster County School District in Kentucky estimated its savings in the first year of using a four-day week (2003-2004) to be about 3 percent of its operating budget.



State laws and the school calendar

Generally, laws in most SREB states prohibit schools or districts from implementing a four-day school week because of language that requires a minimum number of instructional days per year — most commonly, 180 days. Variations do exist, as states may permit districts to petition for exceptions such as a national or civic disaster, severe weather or contagious disease outbreaks that prevent them from following the law.

Statutes in five SREB states (Arkansas, Delaware, Kentucky, Louisiana and Virginia) permit schools or districts to implement a four-day school week. Currently, however, only Kentucky and Louisiana have some children attending school on this type of alternative schedule.

Delaware requires districts to provide most students with 1,060 hours of instruction during the school year instead of specifying a certain number of instructional days. In addition, districts must provide kindergartners with at least 440 hours and high school seniors with at least 1,032 hours.

Kentucky also specifies the minimum instructional time required, but in a slightly different way. The statute requires “no less than the equivalent of 175 six-hour days.” Teacher contracts, however, are specified in days per year (185). In addition, the Legislature has funded two additional days of instruction in the budget without changing the statute, so that districts have had to add two days (not the equivalent number of hours) to whatever type of calendar they were following. In the past, only two or three districts had implemented four-day per week calendars. Currently, two of the state's 174 districts are using the alter-

native calendar. Nine schools (0.5 percent of the state's 1,900 public schools), serving about 2,700 students (0.4 percent of Kentucky students), participate.

Statutes in Arkansas, Louisiana and Virginia specifically permit districts to use a calendar with a reduced number of days each week. In Arkansas, legislation passed in 1997 that authorizes districts to "initiate and maintain public school educational programs on a four-day school week basis, so long as planned instructional time is in accord with requirements established by the State Board of Education." At least one small district did implement the adjusted calendar following authorization. This district later merged with another district after 2003 legislation passed that required the consolidation of districts with fewer than 350 students. As of the 2007-2008 school year, no districts were using the alternative calendar, but currently several are discussing the possibility for the future.

Louisiana passed legislation in 1982 that allows local school boards to implement the four-day schedule with approval of the state Board of Elementary and Secondary Education, as long as the required yearly instructional hours are not reduced (equal to 177 days of 360 minutes of instruction). The law requires guidelines set by the state Department of Education to ensure that local boards consider the health, safety and attention span of the schoolchildren; provide for the maximum use of time for academic work; minimize disruptions of the educational process; and monitor the progress of children. The law also prohibits a reduction in the salary or benefits for any school employee. During the 2007-2008 school year, almost 13,600 students (2 percent of public school students) in 43 schools (3 percent of the schools statewide) in seven districts (10 percent of the state's districts) attended school four days per week.



Virginia's general statute requires at least 180 teaching days or 990 hours in the school year. Legislation passed in 2003 allows individual schools to petition the local school board to approve a four-day weekly calendar, pursuant to state Board of Education guidelines, as long as the minimum required instructional time is provided (the 990 hours, or 540 hours for kindergarten).

Potential benefits and disadvantages for schools and students

There have been a number of articles published about the pros and cons of the four-day school week, but there is little research available on the practice. Much of the information available is based on surveys of stakeholders, such as teachers, students and parents, or on newspaper interviews with district superintendents. There is a decided lack of evidence that the four-day week helps or hurts student achievement — anecdotal information seems to point merely to a "lack of harm" where student achievement is concerned.

The list of pros and cons is long. The most common benefit listed is financial savings, although the reductions vary depending upon how the unscheduled day is used. Some districts reportedly found that as savings were realized, they were able to redirect the money to support efforts such as tutoring, reading programs, preschool programs, and summer programs for students needing additional help. Other common benefits include increases in the attendance rates of students and teachers, which in turn, reduce the need

for substitute teachers; declines in discipline problems; fewer hours per week spent commuting; and longer blocks of instructional time to complete lessons such as science labs.

Though surveys seem to indicate that schools and families participating in a four-day week have overcome the commonly expressed challenges, they do remain a consideration when schools adopt the alternative schedule. Common challenges include the length of the day for young students, particularly when long commutes are involved; maintaining the focus of students during the extended day; the impact on extracurricular activities; and the perception of “giving a day off” (even though instructional time is the same or greater) when national and state goals call for raising student achievement.

Colorado’s experience

In Colorado, districts were authorized to pilot alternative calendars in 1980. In 1985, the Legislature amended statutes to require 1,080 hours of instruction per year. (Previously, it was 180 days.) In 2007-2008, 34 percent of school districts, serving less than 3 percent of the state’s students, used the four-day school week. The largest district using the schedule had 1,265 students; the smallest had eight students.

According to a 2006 state Department of Education report, characteristics of the schedules varied. For example, some schools scheduled 7.5-hour days for 144 days per year, compared with the regular school schedule of six hours per day for 180 days. Not all districts chose to utilize the four-day week for the full school year — some used it only during the winter months. Most often, the Colorado districts on the four-day week were rural, sparsely populated and had some students with long bus rides to and from school.

State Department of Education staff indicate that the four-day week has been very popular with students, parents and teachers. Reasons for the popularity include more time for family and family activities, use of the fifth day for teacher preparation, and the longer weekend break. Aside from the potential for financial savings, other issues addressed in the report include child care, instruction and student performance.



The issue of arranging child care was deemed a “wash.” Students in school for the longer day often arrive home about the same time as their working parents. This has served to diminish the “latchkey” issue for older students and the need for after-school care for younger ones. Because schools are closed on the unscheduled day, more babysitters (such as high school students) are available, and communities have responded with services. Also, families in many of the communities involved, which are primarily rural, are more likely to have at least one parent working in the home. Child care issues may be more of a concern for urban districts where parents are more likely to work outside of the home.

The report notes that instructional time — and making the best use of it — was a hurdle initially as teachers had to rearrange lessons to accommodate the longer day. Diligence in reducing interruptions and making full use of time was an important factor, just as it is when schools move from a traditional to a block schedule. (The fifth day can be used for personal appointments that often remove students and teachers from school; however, if an instructional day is missed, the student or teacher loses 20 percent more time than in a traditional six-hour day.) Concern was expressed about the length of the day, particularly for younger students, but the report indicates that students and parents were able to adapt.

Student performance was not a significant issue in the decision of Colorado districts to use a four-day week, according to the report, and there are no conclusive studies on the impact. However, state Department of Education staff say that students do no worse than students on a traditional calendar.

Potential Benefits

- Savings on fuel, food, utilities and the salaries of some workers
- Longer blocks of time available to complete lessons such as science labs
- Use of the unscheduled day for professional development, planning, tutoring, special programs, or to make up lost days due to inclement weather or other disruptions to the regular schedule
- District's use of the unscheduled day to plan athletic events, limiting disruptions to normal instructional time
- Students (particularly in sparsely populated areas) having fewer long commutes
- Lower absenteeism of students and teachers
- Fewer substitutes needed because teachers can schedule appointments on unscheduled days
- Students generally arriving home at the same time as their parents, diminishing the need for after-school child care and supervision

Potential Challenges

- Collective bargaining
- Unpopularity of reduced salaries for cafeteria workers and bus drivers
- Child care and supervision of students on the unscheduled day
- Length of day for young students, particularly when long commutes are involved
- The extended focus required of students during the longer day
- Student safety during winter months when daylight hours are fewer
- Twenty percent more instructional time lost when a student or teacher misses a day
- Impact on extracurricular activities and their schedules
- Teacher preparation for the change in schedule to assure the maximum use of instructional time
- Difficulties with students (especially at-risk and special-needs students) retaining subject matter during the extra day off
- The need to run utilities during the unscheduled day to prevent mold due to heat and humidity, thereby offsetting savings
- The perception of "giving a day off," although instructional time is the same or greater

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(08S06)

ALASKA STATE LEGISLATURE



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REPRESENTATIVE PEGGY WILSON
HOUSE DISTRICT 33

SPONSOR STATEMENT

HB 21

“An Act relating to the length of a school week; and providing for an effective date.”

HB21 would allow a pilot program for one rural school district to implement a 4 day school week.

There is continued concern of poor student performance in our schools. We should be actively seeking alternative solutions that may improve district results. There are over 22 states in the US that have implemented a 4 day week in rural districts.

For most schools this has been a positive achievement – increased morale for students and teachers, reduced absenteeism and allowing teachers and students to have more direct contact time which then leads to better understanding of educational materials.

Provisions in HB 21 require the district to show that the majority of the community, students and teachers support the implementation of this program. Additionally, the district will have to prove that the students are receiving the equivalent of a 5 day school week. They will also be required to file quarterly reports to the Department of Education on student and teacher performance and the effect of the program. Specifically an annual report will be required to be submitted to the legislative education committee on the progress and performance ratings from the school district. This report will be due no later than January 15th and must include a comparison of the performance ratings before and after implementation of the 4 day week.

This bill is specific for a 3 year pilot program; at the end of that time period, the State Board of Education will evaluate the program and determine if it is beneficial to the district.

RESEARCH BRIEF:
**A Review of the Evidence on the
Four-Day School Week**

Prepared by

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February 2009

RESEARCH BRIEF
A Review of the Evidence on the Four-Day School Week

Christine Donis-Keller

David Silvernail

January 2009

Introduction

Faced with volatile fuel and energy prices and rising education costs, school districts across the country are considering ways in which to reduce their expenditures and increase efficient use of limited resources. The four-day school week has been proposed as one solution to address budget shortfalls. News reports indicate that districts in several states including New York, Iowa, Minnesota, Ohio, Pennsylvania, Kansas, and Louisiana are considering such a shift in instructional time. Proponents argue that reducing the number of days students attend classes may yield savings in transportation, facilities, and personnel costs.

At present, the four-day school week is being used in more than 120 school districts across the country, in states including New Hampshire, Colorado and New Mexico. Use of the four-day school week also extends beyond our borders to several provinces in Canada, France, and Britain.

This research brief provides a history of the reform and presents a synthesis of the research base, albeit limited, focused on the implementation and impact of moving to a four-day school week schedule. Also included is a discussion of the most commonly voiced concerns.

Methodology

Research for this brief relied on many resources, including a literature search of the Educational Resources Information Center (ERIC), Pro-Quest-UMI, and the World Wide Web, for the terms “four-day school week” and “4-day school week.” In addition, researchers examined state and district websites known to use a four-day school week, and other sources, including a major news media, using similar search terms. Researchers also contacted education administrators and offices across the country concerning local regulations governing the four-day week. It is important to note that while there is

considerable anecdotal information about the potential benefits of four-day school weeks, there is limited systematic research on the impacts of this reform.

Background

The four-day school week has a nearly 40-year history in the US. Approximately 17 states currently have some school districts that operate on a four-day week for some part of the school year. Most are west of the Mississippi and include Arizona, California, Colorado, Idaho, Kansas, Kentucky, Louisiana, Michigan, Minnesota, Montana, New Mexico, Oregon, South Dakota, Texas, Utah, Wisconsin and Wyoming (Chmelynski, 2003; Darden, 2008; Durr, 2003). Other states, such as Arkansas, Delaware, and Virginia, have authorized a four-day week, but currently have no districts using the condensed schedule (Darden, 2008). The practice has been used in other states such as Hawaii (Koki, 2002) and yet other states are considering legislation to permit an alternative school schedule. A July 2008 national survey of school administrators concerning fuel and energy issues indicates that while 3% of the responding superintendents were in districts implementing a four-day school week, 15% were in districts considering such a move. Daily news reports from across the country reflect this increased interest.

The four-day week is currently most widely used in the states of Colorado, Wyoming and New Mexico (Dam, 2006; Darden, 2008). Cimarron School District in New Mexico has the longest established use of the schedule in the country: they have consistently utilized the four-day schedule since switching to it in 1973-74 (Feaster, 2002). The majority of districts utilizing a four-day week are small and rural and serve on average less than 1,000 students (Chamberlain & Plucker, 2003).

Although the earliest use of the four-day week seems to have been in the 1930s in South Dakota, the most recent wave of implementation may have originated in Maine. In 1971-72, Maine School Administrative District 3 (MSAD 3) began a three-year experiment with a four-day week schedule (Feaster, 2002; Roeth, 1985). Two factors led to the decision to implement the four-day week: citizens had voted to cut district operating expenses by ten percent and the school district was awarded a federal Title III grant for professional development. The superintendent of MSAD 3 addressed the United

States House of Representatives in a special report to Congress about the four-day school week, bringing the practice to the national stage (Roeth, 1985). Although the experiment yielded cost savings and improved professional practice, MSAD 3 returned to the five-day school week after three years. At the conclusion of their federal grant, an easing of energy concerns coupled with an increase in the number of required in-service days for teachers led the commissioner of education to deny the school board's request for the continuation of the four-day school week (Roeth, 1985).

Districts in Massachusetts and New Jersey also conducted early trials of the four-day week in the early 1970s, but returned to a five-day week when budget pressures eased (Feaster, 2002). Although their number of school districts using the four-day school week in the US has increased over 100 percent since its introduction, the 120 school districts utilizing a four-day week constitute less than one percent of all school districts in the US.

Four-day Models

Districts and schools implement the four-day model differently. A review of the literature reveals three primary four-day week 'models':

- *4-day week in winter months only*: Closing school on the fifth days allows for additional energy savings during the most energy-intensive (coldest) months. This model has been used in some districts in New Mexico, Michigan's Arenac Eastern School District, and Southern Columbia Area School District in Pennsylvania.
- *4-day week every other week*: Lengthened instructional days are held for nine consecutive school days with the tenth day off. This model was used in MSAD 3 in Maine in the early 1970s.
- *4-day week during the entire school year*: Each week consists of four lengthened instructional days with a fifth day off. This is the model most recently implemented in MACCRAY School District, MN in 2008-09.

Most of the school districts that have implemented four-day school weeks take either Monday or Friday off, but do so at different intervals and for different reasons. Fridays are often chosen because of competing commitments on this day such as athletic events and other activities. Other districts elect to close on Monday because gymnasiums

often have to be lit and heated to accommodate Friday athletic events and other activities, whereas fewer such activities occur on Mondays (Blankenship, 1984).

In all models, the use of the fifth day varies. In some districts the off day is used for extracurricular activities, sports, professional development for teachers, parent teacher conferences, enrichment activities, or extra student supports (Wilmoth, 1995). In other districts, school is simply closed on the fifth day and students and teachers use the time at their discretion. The fifth day is often used to schedule personal business such as medical and dental appointments, for students to work at part-time jobs, as preparation time for teachers, and for time with family (Dam, 2006). In rural areas where medical offices may be a great distance, a trip to the doctor often means missing a day from school for teachers and students; encouraging people to schedule appointments on the day off may in some cases reduce absenteeism (Dam, 2006).

During the 1970s, the most compelling reason for districts to consider alternative scheduling was the energy crisis. To date, potential savings on facilities and transportation continues to be one of the primary reason districts consider the switch. However, federal grants for professional development and other instructional and educational issues have also prompted districts to consider consolidation of instructional time. Federal grants for professional development led districts such as Franklin Pierce School District in Washington and MSAD 3 in Maine to seek alternative schedules to promote more time for professional development activities and common planning time for teachers (Roeth, 1985). A lengthened school day also provided increased learning blocks for instruction.

With a waiver from the state, in 1972 MSAD 3 embarked upon their “experiment” with the four-day school week. In addition to cost savings, the goal of the change was to bring about a shift in teaching practice toward a more individualized learning program in order to increase teachers’ effectiveness with students. The fifth day of the week was frequently used for intensive professional development activities to support teachers’ change in practice.

A similar intervention was funded by the federal government in Colorado in the early 1980s. Guided by the Effective Schools research literature, emphasizing greater collaboration, common planning, professional development, and measuring time-on-task

performance, the Cotopaxi/Westcliffe School District used the reduction in the number of student school days and transportation savings to provide extra time for teachers to participate in professional development and common planning. Additional savings accrued because the district did not have to pay substitute teachers to cover those workshop hours (Blackadar & Nachtigal, 1986).

Impacts

Despite over 35 years of implementation, few studies have documented the impact of the four-day school week. The impact of the four-day week is generally considered in four areas: (1) financial savings, (2) student achievement, (3) other student and teacher outcomes, and (4) stakeholder satisfaction. The most common means of identifying its success or failure are reports or evaluations conducted by districts themselves. As noted by many observers, the literature that exists on the four-day school week is mainly positive, but not often peer-reviewed or scientifically-based, and few summaries of this literature provide any critical analysis of the results.

1. Financial

As one of the primary motivations for considering, switching to, and maintaining a four-day school week, it is important to consider actual savings accrued in districts that use the four-day schedule. Anticipated savings are typically in transportation, food and food service staff, hourly staff, as well as facilities energy costs and substitute teacher pay. Calculating those savings in real terms is more difficult, and limited data are available, but savings range from two to nine percent of a school districts operating budget.

In the earliest applications of the four-day week, districts did see savings, though often not as much as originally hoped. For example, in Maine, a report issued by the district after one year of implementation in 1972 lists total one-year savings of \$18,794 (\$92,190 adjusted for inflation) for 18 no-school Fridays (the “experiment” operated a four-day week bi-weekly). The amount, nearly 1.5% of the total operating budget, reflected savings in transportation including salaries, bus depreciation, and fuel as well as in the operation of the physical plant, school lunch and teacher aides (Feaster, 2002). The

district's report estimates that utilizing a four-day week schedule every week (in contrast to bi-weekly) would yield savings closer to \$35,496 (the equivalent of \$174,117 in 2007; MSAD #3, 1972).

Researchers report that districts implementing a four-day week schedule have found savings on utilities, school buses, and long-term building wear and tear (Blankenship, 1984; Culbertson, 1982; Fager, 1997; Grau & Shaughnessy, 1987; Koki, 1992; Sagness & Salzman, 1993). While transportation and utilities provide obvious areas for savings, districts have found that pay for substitute teachers has also decreased because of reduced teacher absences (Nelson, 1983; Yarbrough and Gilman, 2006). Nelson's evaluation of the four-day week in Sheridan County, WY found that the biggest difference in cost was in substitute teachers. In their evaluation of the implementation of a four-day week in Webster County, KY, which serves 1,800 students, Yarbrough and Gilman report savings amounting to two percent of the school system's budget: approximately \$200,000 per year in transportation, reduced overtime for support staff, reduced worker's compensation, and reduced need for substitute teachers. Reeves (1999) reports four percent in similar cost savings in the \$5.5 million budget in East Grand School District in East Granby, CO during the mid-1980s.

In an evaluation of Colorado's 62 school districts using a four-day school week, Dam (2006) notes the following "reliable" trends in financial outcomes in four areas: transportation, food service, utilities, and staff. He states that transportation costs may be reduced by about 20% but notes that in order to realize that level of savings districts must severely restrict or eliminate transportation for activities or programs not conducted on regular school days. While some costs remain relatively constant, such as capital, insurance, maintenance, and administrative costs, reductions may be made in fuel, oil, salaries, and supervisory costs. Net pay for transportation employees would be reduced. In food service, Dam finds that if districts are subsidizing their food service program from the general fund, 20% of that subsidy may be saved since the program runs only four days. However, certain fixed costs within this category are not reduced. Utilities savings, he observes, may be comparable to those on a typical three-day weekend if buildings are actually closed. However, he notes that common practice is for school buildings to be open for extra activities and for the use of staff and in most cases, heat is

provided. Finally, in terms of staff, the majority are either on contract or on regular work weeks. In the four-day week districts, he reports that secretaries usually work 10-hour days with offices closed on the off day, and teachers and administrators usually receive the same annual salary. Hourly employees who are tied directly to the school day, such as aides and paraprofessionals, may or may not work the same number of hours per week.

The savings, however, are not always as great as expected, particularly if personnel costs are not reduced (Chamberlain & Plucker, 2003; Richard, 2002). As a result of limited savings some districts have abandoned the practice early on (Reeves, 1999). An analysis by Michael (2003) of potential savings in Indiana demonstrates the difficulties of finding widespread savings without reducing teacher, administrator, and support staff salaries. A 20% reduction in transportation, facilities, and food services costs, he argues, amounts to a small fraction of the overall budget, the bulk of which is made up of salaries. In addition, these savings would be offset by childcare costs generated by a fifth non-school day.

2. Student Achievement

One of the primary concerns about the implementation of the four-day week pertains to the impact on student learning and achievement. Critics worry that the reduction in instructional days will negatively affect student learning. Few studies have sought to document the impact of the four-day week on student achievement, and researchers argue that because the four-day week is implemented in small, rural districts, data have been limited. Much of the literature on the practice concludes that a condensed schedule may have a positive effect, and in most cases has no negative impact. Some of the key studies in the field are described below.

In a study conducted using achievement data from five rural Colorado school districts before and after implementation of a four-day week calendar, researchers examined scores across the same group of students for four years, and across the same grade level for the same period. They found that the change in schedule had no discernable impact on test performance (Daly & Richburg, 1984).

In a study of New Mexico's four-day schools McCoy (1983) demonstrates that not only did students' achievement not suffer as a result of the change in calendar, in

some districts it actually improved. In addition, performance on standardized tests remained above state and national averages (Koki, 2002). Cimarron, New Mexico's results show more gains on the four-day schedule than those made on the five-day schedule according to a summary of test score results provided by Grau and Shaughnessy (1987). Yarborough and Gilman (2006) report similar findings in Webster, KY, which switched to a four-day week in 2003. Reinke's (1987) summary of annual reports delivered to the Oregon State Department of Education by districts using the four-day week similarly documents maintenance or slight improvement in student achievement during the period after implementation of the condensed calendar. However, although widely cited, the report provides no actual achievement data or analysis.

Using a pre-post cohort design, Sagness and Salzman (1993) examined the changes in achievement test scores during a one-year experiment with a four-day week in a district in suburban Idaho. Their findings were uneven for each cohort with no clear pattern of gains or losses, which they find is consistent with trends in previous years before the implementation of the four-day week.

Finally, Feaster (2002) examined achievement data in Custer, SD over a ten-year period and found that district fourth- and eighth-grade students continued to exceed the state average after the implementation of a four-day week calendar (as they had done using a five-day week), and that achievement levels among all district students did not significantly change with the advent of the revised schedule.

3. Other Student and Teacher Outcomes

One of the most positive and ubiquitous findings in several studies and reports examining the four-day week has been in increased attendance for both teachers and students (Blankenship, 1984; Koki, 1992; Grau & Shaughnessy, 1987; Sagness & Salzman, 1993). A decline in the high school drop out rate has also been observed (Grau & Shaughnessy, 1987), as well as a decline in student disciplinary referrals (Koki, 1992).

Studies using surveys of teachers and students have found that other observed benefits include fewer class interruptions and distractions because of the lengthened day (and thus class periods) which leads to increasing the efficiency of instruction (Blankenship, 1984; Koki, 1992; Grau & Shaughnessy, 1987; Culbertson, 1982). A

common worry among districts considering the calendar shift stems from research literature that calls for increasing students' contact hours in order to improve achievement. However, proponents of the schedule argue that the lengthened day used in a four-day week schedule allows for longer class periods and thus better use of class time, with more in-depth focus on particular subjects during a given class (Reinke, 1987).

The separation of academic and extra-curricular activities is also facilitated by a four-day schedule as these activities may be pursued on the fifth day of the week (Feaster, 2002). Greater participation in extracurricular activities has been observed in some cases and is attributed to the increased time available for such activities (Fager, 1997). For teachers, the fifth day provides more time for staff development if the day off is used for this purpose (Blankenship, 1984). Administrators also note that a four-day schedule allows for flexibility in the event of weather-related school cancellations, as schools can make up missed days without lengthening the school year (Blankenship, 1984).

4. Stakeholder Satisfaction

Many studies have focused on teacher, student, and community satisfaction with the switch to a four-day school week (Feaster, 2002; Hale, 2007; Maine State Department of Education, 1972; Nelson, 1983; Wilmoth, 1995). Although there is often public pushback on the initial approval of a four-day schedule, once implemented districts have often been surprised by the level of public support they find for the practice (Chmelynski, 2002; Reeves, 1999). For example, Dam (2006) reports that among Colorado school districts using a four-day school week, 80-90% of teachers, students, and parents favor the continuation of the schedule, noting that opposition often comes from those not directly associated with the schools.

Surveys have revealed that the switch to the four-day week yields a marked improvement in school morale (Blankenship, 1984; Grau & Shaughnessy, 1987). For example, a school survey conducted in Custer School District in rural South Dakota which adopted the four-day week in 1995, found that the switch boosted morale, reduced absenteeism, decreased the need for substitute teachers, and led to a boom in participation in extracurricular activities. Survey results also indicated that teachers felt they were

covering more academic content in their classes than they had under the traditional five-day calendar (Durr, 2003).

Researchers have noted additional benefits of the four-day week. Koki (1992) reports rural Hawaiian districts use of the practice as a teacher retention strategy (Koki, 1992), and Nelson (1983) found that after the implementation of a four-day schedule, employee departures from the district declined. As noted above, survey respondents have also noted the added benefits of creating time for students to work part-time jobs (Nelson, 1983; Reinke, 1987) and more time with family (Nelson, 1983; Reinke, 1987).

Summary of Impact Findings

A review of the literature on the impact of the four-day school week in the four areas of financial, achievement, other student and teacher outcomes, and stakeholder satisfaction reveals generally positive trends. Districts may not save as much as they hoped, but there are reported savings in transportation, food costs, and substitute teachers. The degree of additional cost reductions are dependent on the use of facilities during the off day and salaries for staff tied to the school calendar. The broadest conclusion that may be drawn from the limited research on the impact of the four-day week on student achievement is that it has no negative impact. There is some evidence that student and teacher absenteeism is lessened under a four-day week calendar, and there is greater opportunity for concentrated professional development. While it is sometimes difficult to persuade stakeholders to move to a four-day school week, surveys have found that students, teachers and parents are generally enthusiastic about the practice. It should be noted, however, that few of the studies cited above have been held to professional scrutiny, and the results are often reported by states and districts implementing the practice.

Challenges to Implementation

The switch to a four day week is rarely a swift transition and requires districts to research the practice, examine existing models, and weigh advantages and disadvantages. While the research literature and news reports tell the story of many districts that are

satisfied with their decision to implement the four-day week, they also caution that districts must consider a range of issues in order to make an informed decision. Some of these concerns are:

- **Childcare:** Often an initial concern with the four-day week, many districts have found that parents prefer having to find good childcare only one day a week, in contrast to some care every day. Some schools have alleviated this concern by using high school students as baby-sitters for those in need, and providing training courses to increase the quality of care provided (Blankenship, 1984; Fager, 1997).
- **Student Fatigue:** There is often concern as to how students, particularly young students, will respond to a lengthened school day. Blankenship (1984) reports that many schools address this concern by creating school schedules that put the bulk of academic work into the earlier parts of the day.
- **At-risk students:** Concerns arise that a three-day break creates additional difficulties for at-risk and special-needs students, though there is limited research to support the claim (Blankenship, 1984; Culbertson, 1982; Fager, 1997).
- **Contact hours:** Despite increasing the length of the school day to accommodate a condensed school schedule, the four-day week appears to run counter to the increased emphasis on more, not less, time in school (Blankenship, 1984; Fager, 1997; Prendergast, Spradlin & Palozzi, 2007).
- **Shift in Costs:** Savings by the school systems are offset by new costs incurred by parents for childcare and food. In addition, savings may be found by reducing hours for some of the school districts' lowest paid, hourly workers (Chmelynski, 2002; Durr, 2003).
- **Legal/Legislative:** State laws typically delimit required instructional time in days per year. Teacher and other labor contracts, as well as retirement and pension plans in many states and districts, are framed in terms of days instead of hours (Darden, 2008; Gains, 2008). While some states allow districts to use the four-day week by applying for a waiver of these requirements, others have

sought to change their laws to reflect instructional hours instead of days. For example, in Nebraska, state law does not stipulate a timeframe, but requires a minimum number of hours (1032 hours of instruction in elementary grades and a minimum of 1080 hours of instruction in high school grades). The state department of education reports that “it is up to the school districts to construct their school days and weekly schedule to meet the aforementioned hours of instruction. A few school districts in Nebraska have met the aforementioned hours of instruction using a 4 day school week” (Correspondence with Maine Department of Education). Sample legislation from other states is included in an appendix.

Conclusion

The four-day week is the preferred calendar of many small rural districts scattered across the country. These districts mostly boast widespread public support, no or positive impact on academic performance, and some financial savings. Savings, however, must be weighed against an increased length of the school day, childcare needs on the off day, and professional development needs to help teachers adapt to an alternative schedule. Thus, it is important for any school district considering changing to a four-day school week to weigh the costs and benefits of such a decision.

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APPENDIX:

Legislation in other states may serve as a guide for allowing schools to elect a four-day school week. Below are examples provided by state departments of education in response to a request by the Maine Department of Education and from a National Conference of State Legislatures Brief on the four-day week (Durr, 2003).

Arizona:

15-801. School year; school month; holidays

A. Except as may be otherwise authorized by the superintendent of public instruction to accommodate a year-round school operation, an educational program offered on the basis of a four day school week or an alternative kindergarten program offered on the basis of a three day school week, the school year shall begin July 1 and end June 30 and a school month is twenty school days, or four weeks of five days each.

<http://www.azleg.gov/FormatDocument.asp?inDoc=/ars/15/00801.htm&Title=15&DocType=ARS>

Arkansas:

6- 10- 117. Four- day school week.

(a) It is found and determined by the General Assembly that granting local school districts greater flexibility in scheduling instructional time can reap educational benefits for the students and financial rewards for the school district. It is the intent of this section to authorize local school districts to initiate and maintain public school educational programs on a four- day school- week basis, so long as planned instructional time is in accord with requirements established by the State Board of Education.

(b) As used in this section, "four- day school week" means an educational program in which all students attend school for four (4) days a week but no fewer than the total number of hours required by the Arkansas Standards for Accreditation in a five- day school week.

(c) The board of directors of any school district is authorized to initiate and maintain a four- day school week in any or all of the public schools in the school district.

(d) (1) The State Board of Education shall establish appropriate standards, guidelines, rules, and regulations for the determination of average daily membership of school districts and for the distribution of state aid to each local school district that elects to operate any or all of the public schools of its school district on a four- day school- week basis, to provide the school district with an equitable share of aid funds designated to equate a four- day school- week operation by the school district to the educational opportunities provided by a school district offering a five- day school week.

(2) Provided, however, that a school district shall not receive any more state financial aid for offering a four- day school week of instruction than it would have received for offering a five- day school week of instruction.

History. Acts 1997, No. 1147, § 1.

<http://arkansased.org/rules/pdf/current/066.pdf>

Colorado:

As reported by the state department of education, Colorado law requires school districts to schedule 1080 hours per year of instructional time for secondary schools and 990 instructional hours for elementary schools. The 1080 hours equate to six hours per day for 180 days. The 990 hours equate to five and one-half hours per day. Up to 24 hours may be counted for parent-teacher conferences, staff in-service programs, and closing for reasons of health, safety, or welfare of students.

The law also requires any district offering less than 160 days of school to obtain permission from the Commissioner of Education. One of the duties of local school boards is:

C.R.S 22-32-109 (n) (I) To determine, prior to the end of a school year, the length of time which the schools of the district shall be in session during the next following school year, but in no event shall said schools be scheduled to have less than one thousand eighty hours of planned teacher-pupil instruction and teacher-pupil contact during the school year for secondary school pupils in high school, middle school, or junior high school or less than nine hundred ninety hours of such instruction and contact for elementary school pupils or less than four-hundred-fifty hours of such instruction for a halfday kindergarten program. In no case shall a school be in session for fewer than one hundred sixty days without the specific prior approval of the commissioner of education. Districts scheduling a school year of 160 days or more need no state approval. Local boards of education annually establish district calendars, but there is no requirement to report or submit calendars to the Colorado Department of Education (CDE). Scheduling a school year of more than 160 days is at the discretion of local districts.

Virginia

HB2806, *Signed by Governor 3-19-03*

Provides that schools may request and local school boards may approve, pursuant to guidelines developed by the Board of Education, school-proposed alternative school schedule plans, including those providing for the operation of schools on a 4-day weekly calendar, so long as a minimum of 990 hours of instructional time is provided for grades 1 through 12 and 540 hours for kindergarten. Specifies that no alternative plan that reduces the instructional time in the core academics will be approved.

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ABSTRACT

Findings of a study that investigated the impact of a 4-day school week in an Idaho suburban school district (Shelley School District) are presented in this paper. Data were derived from: (1) surveys of all district stakeholders, which included 2,039 K-12 students, 492 parents, 103 teachers, and 85 support staff; (2) a comparison of student-achievement scores with previous years; (3) classroom observations of engaged time; (4) an analysis of student, teacher, and staff absenteeism data; and (5) cost-factor analyses. Findings indicate that student achievement increased at some grade levels, and at other grade levels it was comparable with achievement for previous years. Other outcomes included high levels of student on-task behaviors, less disruption of instructional time, sustained student engagement, a decrease in employee and student absenteeism, and an approximate 1.6 percent savings in the district budget. However, the district abandoned the 4-day week after 1 year of implementation. Abandonment of the 4-day week is attributed to the district's lack of the following key elements of systematic change--vision, public and political support, cooperative networks, attention to teachers and learning, clearly defined administrative roles and responsibilities, and policy alignment. Two tables are included. (LMI)

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Evaluation of the Four-Day School Week
in Idaho Suburban Schools

Faced with decreases in state aid, diminishing resources, and increasing costs, a growing number of school districts across the United States are experimenting with the four-day school week. Nationally, students in approximately 200 schools in eleven states attend class four days a week for all or part of the school year (Featherstone, 1991). By scheduling school four long days, usually Tuesday-Friday or Monday-Thursday, school officials hope to trim costs by saving energy and transportation monies, as well as realize advantages in such areas as teacher and student attendance. Indeed, impact studies of the four-day school week show that schools utilizing the schedule experience savings in heating, transportation, maintenance, and some instructional costs, while providing for better instructional opportunities and use of facilities (Daly & Richburg, 1984; Grau & Shaughnessy, 1987; Nelson & Dunn, 1985; Reinke, 1987; Richburg & Edelen, 1981). Implementation of the four-day school week schedule, however, has been limited to schools and districts in rural areas.

In the fall of 1992, Shelley School District, a suburban school system in southeastern Idaho, changed to a four-day schedule in which classes were conducted Monday through Thursday for 7.5 hours per day for 144 days over 36 weeks to meet state requirements for 1,080 hours per school year. This paper summarizes the results of an impact study of the implementation of the four-day school week schedule in the District.

Purpose of Study

The purpose of the present study was to investigate the impacts of the four-day school week in an Idaho suburban school district. Toward that end, answers to four major questions were sought:

1. What are the perceptions of district shareholders (students, parents, teachers, and staff) regarding the effects of the four-day school week on the district educational program; student, teacher, and staff performance; and out-of-school activities?
2. What are the effects of the four-day school week on student attendance, behavior, and achievement?
3. What are the effects of the four-day school week on teacher and staff absenteeism?
4. Does the district experience cost savings as a result of the four-day school week schedule?

Method

The study consisted of the following components; (1) surveys of all shareholders of the district including students, parents, teachers, and support staff; (2) comparison of student achievement scores with previous years; (3) classroom observations of engaged time; (4) analysis of student, teacher, and staff absenteeism data; and (5) cost factor analyses.

Study Context

Shelley School District, while having a relatively small total student population ($n = 2333$), meets the parameters for a suburban school system as defined by the U.S. Department of Education (1993). The district is located near an urban center, and many of its patrons commute outside the district for employment.

The district includes five schools located at separate sites: (1) Shelley Senior High School (grades 10-12), Shelley Junior High School (grades 8-9), Hobbs Middle School (grades 6-7), Stuart Elementary School (grades 3-5), and Goodsell Primary School (grades K-3).

Subjects

The subjects for the student survey component of the study included 500 students in grades 1-3, 807 students in grades 4-7, and 732 students in grades 8-12 representing approximately 93% of the total number of students in grades 1-12 enrolled in the district during the 1992-1993 academic year. For the parent survey component of the study, names of parents and legal guardians of all students registered in the district were collected and then combined into a master list so that parents with more than one child enrolled in the district would be included in the survey sample only once and so that each household would receive only one survey. Of the total 1027 parents, 492 (48%) completed and returned surveys and were subsequently included in the study sample. Finally, subjects for the survey component of the study included 103 (96%) teachers and 85 (91%) support staff (i.e.,

administrators, clerical and food service personnel, bus drivers, etc.) employed in the district.

The subjects for the student achievement component of the study included the students for whom standardized achievement test scores were available for two consecutive years--one year prior to and one year following the district's change to the four-day school week. Because the district standardized testing program requires administration of the Iowa Tests of Basic Skills (ITBS) at grades 3, 4, 5, 6, and 8 and the administration of the Tests of Achievement and Proficiency (TAP) at grade 11, the study sample was comprised of the following cohort groups:

1. students in grade 4 for whom third and fourth grade test scores were available ($n = 189$);
2. students in grade 5 for whom fourth and fifth grade test scores were available ($n = 186$);
3. students in grade 6 for whom fifth and sixth grade test scores were available ($n = 184$);
4. students in grade 8 for whom sixth and eighth grade test scores were available ($n = 179$);
5. students in grade 11 for whom eighth and eleventh grade test scores were available ($n = 145$).

Subjects for the classroom observation component of the study included all first- through twelfth-grade students in the district. For the attendance component of

the study, absenteeism data was accessed for all students, teachers, and staff in the district.

Procedures

During February of 1993, surveys were sent or personally administered to all teachers and staff of the school district, students in grades 1-12, and parents of children in district schools. The surveys assessed perceptions about the effects of the four-day school week schedule on the quality of the district's educational program including curriculum, instruction, and learning environment and the effects of the schedule on out-of-school activities. The survey also assessed opinions, overall impressions, and recommendations regarding the four-day school week.

Students in grades 1-12 were administered the survey by class teachers on February 24, 1993 during regularly scheduled first-hour classes. Students in grades 1-3 received a primary version of the survey consisting of 10 yes/no questions read orally by the teacher; students in grades 4-7 received an intermediate version of the survey consisting of 15 multiple-choice items; and students in grades 8-12 received a secondary version of the survey consisting of 27 likert-type items and an open-ended question regarding schedule preference and recommendations. Upon completion, the surveys were placed in a sealed envelope by the class teacher for collection by the principal investigators on the same day as the survey administration.

Survey packet (letter, survey, and prepaid return envelope) were mailed to parents on February 24, 1993 by the principal investigators. The parent survey

consisted of 29 likert-type items and an open-ended question regarding schedule preference and recommendations. Parents were instructed to mail completed surveys directly to the principal investigators by March 5, 1993.

Certified classroom teachers with responsibility for direct instruction (including music, special education, etc., but excluding specialists, librarians, and other noninstructional certified staff) were administered the teacher survey by the principal investigators on February 17, 1993 during specially scheduled faculty meetings in each school building. The teacher survey consisted of 50 likert-type items and an open-ended question regarding schedule preference and recommendations.

Survey packets (letter, survey, and prepaid return envelope) were mailed to all classified, administrative, and certified support staff in the district on February 17, 1993 by the principal investigators. The staff survey consisted of 24 likert-type items and an open-ended question regarding schedule preference and recommendations. Staff were instructed to mail completed surveys directly to the principal investigators by March 5, 1993.

For the student achievement component of the study, a pre-post cohort design was employed in order to compare the performance of the same students before and after implementation of the four-day school week in the district. This methodology involved selecting those students in grades 4-6 for whom data were available for two consecutive years and selecting those students in grades 8 and 11 for whom retroactive test scores at grades 6 or 8, respectively, were available. For the five

cohort groups identified, the mean grade equivalent score for each subtest of the ITBS and TAP was computed for each of the two years compared. These scores were then converted to percentile ranks of average grade equivalent scores using national school norms. The significance of any difference between the two means for each group was then tested using *t*-tests.

For the classroom observation component of the study, all building administrators attended a data collection training session during which the principal investigators explained the procedures for observing and recording student engaged learning time. At the conclusion of the training session, administrators viewed a videotape and recorded their observations on student on/off task behavior forms. Interrater reliability indices were then computed for the observation ratings; the resulting reliability coefficients indicated an agreement rate of approximately 96%. Each administrator completed two observations of all first-hour and last-hour classes in his or her building between October, 1992 and April, 1993. Percent of student engaged time was then computed for each observation and then averaged across observations, classrooms, and schools.

For the attendance component of the study, student, teacher, and staff absenteeism data for three consecutive years--two years before and one year during the district's implementation of the four-day school week schedule--were accessed from district records. Likewise, for the cost analyses component of the study, item expenditures for heating fuel and electricity, water and sewer, telephone, substitute teacher salaries,

transportation, and clerical, custodial, and food services for the three years were accessed from district records.

Results

The following summary presents results relative to each of the five study components (i.e., shareholder surveys; student achievement; classroom observations of engaged learning time; student, teacher, and staff absenteeism; and cost factor analyses).

Shareholder Survey Results

Shareholder survey results are categorized by students in grades 1-3, students in grades 4-7, students in grades 8-12, parents, teachers, and support staff.

Students in grades 1-3. Responses of the primary grade students indicate overwhelmingly positive attitudes toward school. Of the 500 students surveyed, 445 (89%) answered that they liked being at school, 490 (98%) said they learn a lot at school, and 446 (89%) responded that school is fun. In terms of the length of the school day, 183 (42%) of the primary grade students felt that the school day is too long, and 209 (42%) said that they get tired at school. When asked about their schoolwork, 369 (74%) of the students responded that they have enough time to finish their work in school, and 353 (71%) said that they remember their lessons on Monday.

Students in grades 4-7. Responses of the intermediate grade students indicate generally positive perceptions of the effects of the four-day school week. Of the 807 students surveyed, 573 (71%) said that they liked school better this year (with the

four-day week), and 580 (72%) answered that they preferred the four-day schedule over the five-day schedule. In addition, 509 (63%) of the students reported that they were absent less this year than last year, and 548 (68%) said that, compared to last year, they have learned more in school. However, 298 (37%) students felt that, with the four-day week, the school day is too long. In terms of what they do on Friday when there is no school, 413 (51%) of the students said they "just goof around." When asked their recommendations for the school schedule, 516 (64%) students felt that the four-day week schedule should be continued 184 (23%) felt that the schedule should be continued with some changes, and 109 (13%) felt that the four-day week should be discontinued.

Students in grades 8-12. Responses of students in grades 8-12 indicate generally positive perceptions of the effects of the four-day school week. In terms of the effects of the four-day week on the school program, 560 (77%) students felt that more can be learned in class, 538 (74%) believed that there is enough time to cover each lesson, 538 (74%) said they can remember key points of lessons, and 519 (70%) felt that lessons flow smoothly from day to day. Moreover, 523 (71%) students said that the four-day week had positive effects on participation in class, and 434 (59%) felt the four-day week allows more time for special activities and makeup work. However, 162 (22%) students said that fewer field trips and out-of-school activities are used, and 136 (19%) believe that students get more tired in class.

In terms of out-of-school activities, 501 (68%) secondary school students said that, with the four-day week, they have more time to plan and do things at home, and 474 (65%) felt that they have more time to complete school work and prepare for class. In addition, 526 (72%) students answered that they have more time to spend with family and friends, and 437 (60%) students reported that they have more time to work at a job. On the other hand, 104 (14%) students felt that, with the four-day week, they have less time to participate in school-related extracurricular activities.

When asked their recommendations for the school schedule, 497 (68%) students said the four-day school week should be continued, 143 (19%) said the four-day week should be continued with some modifications, 63 (9%) recommended that the four-day schedule be discontinued, and 29 (4%) students had no opinion. A number of students suggested specific modifications to the four-day schedule including 7th period physical education classes for sports; lengthening the school year and shortening the day; setting aside one Friday each month for makeup days due to weather; and rotating A/B days with four classes each day. The most commonly mentioned recommendation was that students be consulted for their input on scheduling decisions.

Finally, in an open-ended question, students were asked to cite advantages and disadvantages of the four-day school week schedule. The preponderance of student comments about the four-day week were positive. The advantages they listed included coming to school Monday refreshed and ready to work, better attendance

and less absences; more time to finish homework at school; more time to understand and review the material, ask questions, get individual help from the teacher, and complete projects and activities in class; greater opportunity to work at an outside job; and more time to spend with family and friends. Of the 732 students in grades 8-12 responding to the survey, 43 listed disadvantages of the four-day schedule. The disadvantages they listed included insufficient time on week-nights for homework and extracurricular activities; fatigue due to long classes and long days; and less time after school for sports practice.

Parents. The parent survey responses indicate mixed perceptions regarding the effects of the four-day week on the school program. Of the parents, 226 (46%) believed that there is enough time to adequately cover lessons, and 263 (53%) said that students and teachers are absent less. On the other hand, 126 (26%) parents felt that, with the four-day week, there is less time for special activities and makeup work, and 202 (41%) parents believed that students and teachers are more tired in class.

Relative to out-of-school activities, 258 (53%) parents felt that the four-day week provides more time for the family to spend together, 250 (51%) parents said that there is more time for their child to work at home, and 305 (62%) responded that there is more time for medical appointments. However, 166 (34%) parents said that, with the four-day school week, their child has less time to complete schoolwork and prepare for class, and 162 (33%) answered that their child wastes more time.

When asked their recommendations for the school schedule, 173 (35%) parents said the four-day week should be continued as currently designed, 89 (18%) believed the four-day week should be continued with some modifications, 205 (42%) recommended that the four-day schedule be discontinued, and 25 (5%) had no opinion. A number of parents suggested specific modifications to the four-day schedule including 7th period physical education classes for sports, requiring teachers to use Friday as a preparation day, enrichment and remedial classes on Saturday, and moving to a Tuesday-Friday schedule to better match national and state holidays. The most commonly mentioned recommendation was that parent input be sought prior to developing the school calendar.

Finally, parents were asked in an open-ended question to cite the advantages and disadvantages of the four-day school week. In a number of cases, an element considered as an advantage by some parents was considered by other parents to be a disadvantage. The conflicting nature of the parent perceptions of the four-day week becomes evident when the most frequently cited negative and positive comments are compared. The advantages of the four-day week mentioned most frequently by parents included more positive student attitudes toward school, decreased stress and less boredom, increased student achievement and higher grades, better student time management and work habits, more time for students to spend with family, and greater opportunities for students to work on school projects and reports. On the other hand, the most frequently mentioned disadvantages of the four-day week

mentioned by parents included increased student fatigue, higher student and parent stress, decreased student achievement and lower grades, more wasted time and poorer work habits, insufficient time for weekday homework and extracurricular activities, increased cost of daycare, and children left alone on Fridays.

Teachers. The teacher survey responses indicate generally positive perceptions of the effects of the four-day school week. In terms of the effects of the four-day week on the school program, 79 (77%) teachers felt that a greater variety of learning activities are used, 81 (79%) believed that curriculum continuity enables students to smoothly progress through the material, 84 (82%) felt that enough learning time is provided. Furthermore, 78 (76%) teachers said that, with the four-day school week, students participate more actively in learning, 91 (89%) teachers reported that student absenteeism is minimized, and 76 (74%) teachers said that disruption of class time is reduced. However, 26 (24%) teachers felt that student and teacher fatigue is greater with the four-day week.

Relative to their job performance, 87 (85%) teachers felt that the four-day week enables them to use time more effectively, and 75 (73%) teachers said that they are able to accomplish tasks in a more timely and quality manner. In addition, 71 (69%) stated that, with the four-day week, they had a greater sense of accomplishment and interest in their job, and 73 (71%) said they like their work better. However, 14 (12%) teachers felt that the four-day week had a negative effect on their opportunity to work with other staff members, and 26 (24%) reported that they suffered from greater stress and fatigue.

In terms of out-of-school activities, 82 (80%) teachers felt that the four-day week provides greater opportunity for them to plan and develop instructional activities, and 69 (67%) believed that they have more time for personal and professional renewal. Furthermore, 86 (84%) stated that, with the four-day week, they have greater opportunity to plan and do personal activities, and 81 (79%) said they are able to develop closer ties with family and friends.

When asked their recommendations for the school schedule, 75 (74%) teachers said the four-day week should be continued as currently designed, 15 (14%) believed the four-day school week should be continued with some modifications, 9 (9%) teachers recommended that the four-day week be discontinued, and 3 (3%) teachers had no opinion. A number of teachers suggested specific modifications to the four-day schedule including building makeup days (due to the weather) into the school schedule, establishing a Friday School for student enrichment and remediation, moving all extracurricular activities to Thursday and Friday, making copy machines and materials available to teachers on Friday, and scheduling 7th period physical education classes for sports.

Finally, teachers were asked in an open-ended question to cite the advantages and disadvantages of the four-day school week. The preponderance of teacher comments about the four-day week were positive. The advantages they listed included better attitudes and increased enthusiasm of students and teachers, especially on Mondays; better teacher and student attendance; higher student

performance and achievement; longer class periods with fewer interruptions; more time for guided practice, labs, special projects, and hands-on learning; and more time for teacher planning and professional development. Of the 103 teachers responding to the survey, only 6 listed disadvantages of the four-day schedule. The disadvantages they listed included diminished continuity of learning; untended children while parents work on Friday; negative "backlash" created in the community; and fatigue of primary grade students.

Support staff. The support staff survey responses indicate generally positive perceptions of the effects of the four-day school week. In terms of the effects of the four-day week on staff performance, 54 (64%) respondents said that they have more opportunities to try new ways of doing their work. In addition, 52 (61%) respondents said that they come to work with more enthusiasm, and 51 (60%) reported that they have more pride and interest in their job. On the other hand, 18 (21%) respondents felt that, with the four-day week, they suffer from increased stress and fatigue. Relative to out-of-school activities, 62 (73%) respondents said that the four-day week provides greater opportunities to develop closer ties with family and friends, and 63 (74%) believed that they have more time for rest and renewal.

When asked their recommendations for the school schedule, 55 (65%) support staff said the four-day week should be continued as currently designed, 13 (15%) believed that the four-day week should be continued with some modifications, 13 (15%) recommended that the four-day week be discontinued, and 4 (5%) respondents

had no opinion. A number of support staff suggested modifications to the four-day week schedule including providing for makeup days due to weather, defining changes in the master agreement (contract) in advance, and building staff development time into the school schedule.

Support staff were asked in an open-ended question to cite the advantages and disadvantages of the four-day schedule. The preponderance of staff comments about the four-day week were positive. The advantages they listed included more student, teacher, and staff enthusiasm and dedication to school, fewer student discipline problems, better student attendance, more in-class guided practice that helps low-achieving students, and the opportunity to complete maintenance work on Friday when students are not in the school building. Of the 85 support staff responding to the survey, only 9 listed disadvantages of the four-day week. The disadvantages they listed included less time for student after-school activities, increased student fatigue, cutbacks in bus routes and concomitant decreases in pay, and high stress for district employees because of community opposition to the four-day school week.

Summary. Perceptions of the effects of the four-day week differed across shareholder groups (i.e., students, parents, teachers, support staff) with parents generally being the most negative about the alternative schedule. Indeed, 42% of the parents, compared with only 9% of the teachers and students and 15% of the support staff, recommended that the four-day school week be discontinued. Many

respondents in all shareholder groups, however, felt that student achievement should be analyzed before any decision regarding the school schedule is made.

Student Achievement

A pre-post cohort design was employed in order to compare the standardized achievement test scores of the same students for two consecutive years--one year prior to and one year during the district's adoption of the four-day school week schedule. Table 1 summarizes the performance of the five cohort groups on the ITBS and/or TAP before and after change to the four-day week. Mean percentile ranks of average grade equivalent scores and results of the *t*-tests for each subtest are reported.

The fourth-grade group obtained higher scores on all subtests of the ITBS in 1993 following the change to the four-day week. As indicated by the *t*-test results, the increases were significant for five subtests (reading, language skills, mathematics skills, social studies, and science) and the complete composite score.

The fifth-grade group obtained higher scores on two subtests (reading and language skills) but lower scores on all other subtests. The *t*-test results show that the changes in scores were significant for two subtests, mathematics skills and social studies, indicating a significant decrease in those scores following implementation of the four-day school week.

The sixth-grade group obtained higher scores on all subtests of the ITBS except one, work study skills, following the change to the four-day week. As indicated

Table 1
Achievement Test Scores of Same Students
Before/After Change to Four-Day Week

Cohort Group Scores	Read	Lang	Wk Study	Math	Soc St	Science	Basic	Complete
Grade 4 (<i>n</i> = 189)								
PR of Average GE								
Grade 3 (1992)	38	38	41	24	68	63	34	37
Grade 4 (1993)	47	47	48	46	79	74	41	47
<i>t</i>	1.96	1.96	1.52	3.30	2.01	2.01	1.52	1.98
<i>p</i>	.05	.05	ns	.001	.05	.05	ns	ns
Grade 5 (<i>n</i> = 186)								
PR of Average GE								
Grade 4 (1992)	41	35	44	49	71	67	36	43
Grade 5 (1993)	47	38	43	34	62	59	33	40
<i>t</i>	-1.50	.98	.87	2.23	1.96	1.89	.98	.98
<i>p</i>	ns	ns	ns	.01	.05	ns	ns	ns
Grade 6 (<i>n</i> = 184)								
PR of Average GE								
Grade 5 (1992)	65	43	57	55	80	79	51	55
Grade 6 (1993)	80	61	55	74	84	88	70	67
<i>t</i>	2.32	2.59	.89	2.61	1.01	1.96	2.61	2.09
<i>p</i>	.01	.01	ns	.01	ns	.05	.01	.05

Table 1 (continued)
 Achievement Test Scores of Same Students
 Before/After Change to Four-Day Week

Cohort Group Scores	Read	Lang	Wk Study	Math	Soc St	Science	Basic	Complete
Grade 8 ($n = 179$) PR of Average GE								
Grade 6 (1991)	59	43	52	60	74	75	56	52
Grade 8 (1993)	59	52	51	53	71	78	53	53
<i>t</i>	0	1.94	.86	1.50	.96	.96	.96	.51
<i>p</i>	ns	.05	ns	ns	ns	ns	ns	ns
Grade 11 ($n = 145$) PR of Average GE								
Grade 8 (1990)	60	50	43	66	69	74	57	56
Grade 11 (1993)	65	46	62	58	50	82	57	55
<i>t</i>	1.14	1.10	2.68	1.91	2.68	1.91	0	.53
<i>p</i>	ns	ns	.01	ns	.01	ns	ns	ns

by the *t*-test results, the increases were significant for four subtests (reading, language skills, mathematics skills, and science) and the basic and complete composite scores.

The eighth-grade group obtained higher scores on two subtests (language skills and science) and the complete composite, identical scores on the reading subtest, and lower scores on three subtests (work study skills, mathematics skills, and social studies) and the basic composite. The *t*-test results indicate that only one change in scores, the increase in language skills, was significant.

The eleventh-grade group obtained a higher score on the reading subtest, identical basic composite scores, and lower scores on five subtests (language skills, work study skills, mathematics skills, social studies, and science) and the complete composite. Results of the *t*-tests show that the changes in scores were significant for only two subtests, work study skills and social studies, indicating a significant decrease in those scores following implementation of the four-day school week.

Table 2 presents the basic composite and complete composite scores for all five cohort groups before and after implementation of the four-day school week. The basic composite scores of students at grades 4 and 6 increased after the change to the four-day week, while the scores of students at grades 5 and 8 decreased, and the scores of students at grade 11 remained the same. For the complete composite, scores of students at grades 4, 6 and 8 increased after the change to the four-day week, while the scores of students at grades 5 and 11 decreased. Results of the *t*-tests indicate that the increase in basic composite scores of the sixth-grade students

Table 2
 Achievement Test Scores of Same Students
 Before/After Change to Four-Day Week
 Basic and Complete Composites

Cohort Group	Basic Composite			Complete Composite		
	PR of Average	<i>t</i>	<i>p</i>	PR of Average	<i>t</i>	<i>p</i>
Grade 3 (1992)	34	1.52	ns	37	1.98	ns
Grade 4 (1993)	41			47		
Grade 4 (1992)	36	.98	ns	43	.98	ns
Grade 5 (1993)	33			40		
Grade 5 (1992)	51	2.61	.01	55	2.09	.05
Grade 6 (1993)	70			67		
Grade 6 (1991)	56	.96	ns	52	.51	ns
Grade 8 (1993)	53			53		
Grade 8 (1990)	57	0	ns	56	.53	ns
Grade 11 (1993)	57			55		

and the increases in complete composite scores of the fourth-grade and sixth-grade students were significant.

Classroom Observations

Student engaged learning time was assessed through observations by building administrators in classrooms during first-period and last-period classes in grades 1-12. The percentages of student on-task behaviors (i.e., attending to teacher, completing assigned work, etc.) were computed for each observation, averaged across observations and classes, and then collapsed into grade level categories. According to the administrator ratings, students in the primary grades were engaged in learning approximately 91% of the total observed time in first-hour classes and 88% of the time in last-hour classes. The administrator ratings of grade 4-7 classrooms indicated that students were on-task approximately 93% of the observed time in first-hour classes and 90% of the observed time in last-period classes. Finally, according to the administrator ratings of on/off task behaviors, students in grades 8-12 were engaged in learning approximately 95% of the total observed time in first-hour classes and 91% of the time in last-hour classes.

Attendance/Absenteeism

Student, teacher, and staff absenteeism data for three consecutive years--two years before and one year after the district's change to the four-day school week schedule--were accessed from district records. The annual average percent of daily absences of students, teachers, and staff were then computed for each year. The

absence rates for students, teachers, and staff during the two years preceding the change to the four-day week remained stable at 5% for students, 4% for teachers, and 4% for staff. Following the change to the four-day week, however, the absence rates decreased to 3% for students, 2% for teachers, and 3% for staff. These figures indicate substantial increases in student, teacher, and staff attendance following implementation of the four-day school week schedule.

Cost Factor Analyses

The following accounts for two consecutive years (one year before and the year during the district's implementation of the four-day school week) were accessed by the principal investigators from district records: (1) heating fuel (natural gas and coal) and electricity, (2) water and sewer, (3) substitute teacher salaries, (4) transportation including personnel, supplies, and fuel, and (5) telephone. As secretarial, custodial, and food service hours were not reduced with the four-day week, only scheduled differently, costs in these areas were not analyzed.

Heating fuel costs including natural gas and coal increased approximately \$4,500 in the year during implementation of the four-day week. However, when adjusted for temperature and other weather factors, the energy costs for the year following the schedule change were indeed lower by approximately \$2,000. In the year during implementation of the four-day week, electricity costs decreased about \$8,400 and telephone costs declined approximately \$3,600, while water/sewer costs increased about \$4,500. Substitute teacher costs decreased an estimated \$25,800.

Relative to transportation expenditures, personnel costs decreased about \$14,000, repairs, supplies, and fuel decreased an estimate \$28,000. However, because by Idaho law 85% of district transportation costs are reimbursed by the state, the total transportation savings were not realized as net savings in the district budget.

In summary, budget savings during the academic year the change to the four-day week was implemented totalled approximately \$46,100. This figure represents a 1.6% reduction of the total operating budget of the district.

Discussion

Findings from the present study support the conclusion that advantages of the four-day school week remain the same when the schedule is implemented in a suburban school system. Consistent with the results of studies conducted in rural settings (Daley & Richburg, 1984; Grau & Shaughnessy, 1987; Nelson & Dunn, 1985; Reinke, 1987), data from the present study show that student achievement increased at some grade levels or at other grade levels was at least comparable with achievement in previous years. Moreover, classroom observations of engaged learning time indicated high levels of student on-task behaviors despite lengthened classes and longer school days. Disruption of instructional time was lower, and teaching practices such as active learning and guided practice maintained student engagement. In addition, with the four-day week, student, teacher and support staff absenteeism decreased, and the district realized an approximate 1.6% budget savings.

Despite these apparent advantages of the four-day week, and unlike rural districts that have retained the schedule, Shelley School District abandoned the four-day week after only one year of implementation. Several factors, including the suburban characteristics of the district, the apparent mixed feelings of patrons as evidenced by the parent survey responses, and the relatively modest monetary savings incurred by the district, could explain the decision to discontinue the four-day week. We hypothesize, however, that examination of the elements of effective change yields a clearer picture of the district's less than successful experience with school restructuring. Our analysis begins with an historical overview of the implementation of the four-day school week schedule in the district.

Historical Overview

In August of 1992, the district Board of Trustees mandated the implementation of the four-day school week districtwide during the 1992-1993 academic year. The stated rationale for the schedule change was to correct a budget deficit created by past financial mismanagement and shrinking resources. Almost immediately, the community began to polarize into those patrons who were for or against the restructuring effort. By the second month of the academic year, the polarization had grown, and groups were forming to force a referendum to eliminate the four-day week. At this point, in response to requests from a state legislator and the State Department of Education, we began the present impact study.

At its March 23, 1993 meeting, the district Board of Trustees announced that a public referendum would be held, in association with a supplemental levy vote, after release of the impact study results. The results were duly presented to the Board in a public meeting, the referendum was held, and the vote was approximately 52% to 48% to retain the four-day week. However, at a subsequent meeting, the Board of Trustees voted in a 2-3 decision to eliminate the four-day week and return to the five-day schedule. In response to public concern, the Board decided to hold a second referendum on the issue in July of 1993. In this second referendum, the four-day week was voted down, and the Board mandated that the district return to a five-day school week schedule for the 1993-1994 academic year.

Obviously, only highlights of the district's experience with the four-day school week have been reported, and some of these actions may appear capricious and ill-intentioned. In reality, however, these events chronicle a community's sincere effort to deal with a serious financial problem. In light of the district's experience, it becomes imperative to reflect on the lessons to be learned about effective change efforts.

Elements of Effective Change

In a synthesis of research on effective change efforts in schools, Anderson (1993) identifies six key elements of the change process: (1) vision, (2) public and political support, (3) networking, (4) teaching and learning changes, (5) administrative roles and responsibilities, and (6) policy alignment. Through a macro-level comparison of the district's actions and these six elements of the change process, an

explanation for the district's less than successful restructuring effort emerges.

Vision. The district's restructuring effort was premised on alleviating a financial problem rather than on a vision of how the system might be changed to improve student learning. The change to the four-day week was a response to a perceived crisis and all attention was focused on details related to implementing the new schedule without perceiving the change as a significant restructuring of the system. The change process began at the end stage of implementation without the benefit of building a vision for the district, understanding the impacts of the change and considering alternatives, and facilitating the transition through continuous communication, shareholder involvement, and consensus building.

Public and Political Support. Rather than involving shareholders (including the public) at the beginning through vision building, the district informed shareholders of the change during implementation. As a result, efforts to involve and seek support from shareholders did not occur until after the public had polarized into pro and con groups with separate political agendas. As such, shareholders were forced to react to the effects of the change instead of playing a proactive role in planning for change.

Networking. Networking certainly occurred in the district and community, but not to facilitate the change effort. Since the initial change elements (i.e., vision, public and political support) had not been instituted, the networks that were established were more confrontational than cooperative and constructive. Community networks were directed at either defeating the restructuring effort or "winning" (maintaining) the

change instead of building teams (networks) to strengthen the change process. Moreover, teacher and student networks were directed at adjusting to the new schedule and surviving the turbulence of community dissension rather than developing the knowledge and skills to support the restructuring effort.

Teaching and Learning Changes. Since the restructuring effort was viewed solely as a scheduling change to address financial deficits, little attention was paid to teaching and learning concerns. A substantive knowledge base was not acquired to support the change, and teachers were not provided with the learning opportunities or planning time to prepare for and meet the challenges of the four-day week. As a result, necessary teaching and learning changes were unsystematic and based on intuition and "craft knowledge" rather than research and data.

Administrative Roles and Responsibilities. Because the change to the four-day week was a unilateral decision by the Board of Trustees, little thought was given to adjustments in administrative roles and responsibilities. As noted by Anderson (1993), in successful change efforts, an implementation plan with specific action steps is clearly identified and concomitant administrative roles and responsibilities are then specified. Without the clear specification of roles and responsibilities, action steps are addressed haphazardly or not at all, and conflict between administrative units is probable.

Policy Alignment. Since the driving force behind the change to the four-day week was to reduce expenses, all consideration of policy focused on meeting state

requirements for instructional time and financial reimbursement. Because the change effort was not viewed as a systematic change, demands created by the new schedule frequently led to conflicts with existing policies. Again, examination of the effective change process indicates that through a clearly articulated vision for the change effort and its effects, policy alignment needs can be anticipated and addressed systematically reducing potential conflicts between elements of the system and shareholders.

In conclusion, the results of the present study indicate that the four-day school week holds potential benefits for both rural and suburban schools in the areas of student achievement, behavior, and attendance and teacher and staff job satisfaction. These benefits are not realized, however, when the school restructuring effort lacks the key elements of systematic change. The major implication of this study, then, is the overriding importance of an understanding of the change process and a commitment of energy and resources to sustain the change. With this understanding and commitment, school restructuring efforts, based on sound research evidence of effectiveness, will meet the challenges and promises of innovation.

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