Page 1

1   UNITED STATES DISTRICT COURT

2   EASTERN DISTRICT OF MICHIGAN

3   SOUTHERN DIVISION

4

5   _____
)
6   LEAGUE OF WOMEN VOTERS OF   )   Case Number
     MICHIGAN, ROGER J. BRDAK,   )
7   FREDERICK C. DURHAL, JR.,   )   17-cv-14148
     JACK E. ELLIS, DONNA E.   )
8   FARRIS, WILLIAM "BILL" J.   )
     GRASHA, ROSA L. HOLLIDAY,   )
9   DIANA L. KETOLA, JON "JACK"   )
     G. LASALLE, RICHARD "DICK"   )
10   W. LONG, LORENZO RIVERA   )
     AND RASHIDA H. TLAIB,   )
11   )
          Plaintiffs,   )
12   )
     vs.   )
13   )
     RUTH JOHNSON, in her   )
14   official capacity as   )
     Michigan Secretary of State,   )
15   )
          Defendant.   )
16   _____)

17

18   DEPOSITION OF CHRISTOPHER WARSHAW, Ph.D.

19   Washington, D.C.

20   Wednesday, August 8, 2018

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22

23

24   Reported by: John L. Harmonson, RPR

25   Job No. 145530

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2
3
4
5                    August 8, 2018
6                    9:25 a.m.
7
8
9        Deposition of CHRISTOPHER WARSHAW, Ph.D.,
10   held at the offices of Faegre Baker Daniels LLP,
11   1050 K Street, N.W., Washington, D.C., pursuant
12   to the Federal Rules of Civil Procedure, subject
13   to such stipulations as may be recited herein or
14   attached hereto, before John L. Harmonson, a
15   Registered Professional Reporter and Notary
16   Public of the District of Columbia, who
17   officiated in administering the oath to the
18   witness.
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1                 A P P E A R A N C E S
2
3    On behalf of the Plaintiffs:
4        FAEGRE BAKER DANIELS
5        300 North Meridian Street
6        Indianapolis, IN  46204
7        BY:  JAY YEAGER, JR., ESQ.
8
9
10
11   On behalf of the Defendant:
12       JONES DAY
13       51 Louisiana Avenue, N.W.
14       Washington, D.C.  20001
15       BY:  MICHAEL CARVIN, ESQ.
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1                    C. WARSHAW
2    ----------------------------------------------------
3               P R O C E E D I N G S
4                    9:25 a.m.
5    ----------------------------------------------------
6    Whereupon,
7         CHRISTOPHER WARSHAW, Ph.D.,
8    after having been first duly sworn or affirmed,
9    was examined and did testify under oath as
10   follows:
11              EXAMINATION
12   BY MR. CARVIN:
13      Q.   Good morning, Professor.  How are you?
14      A.   Good morning, sir.
15      Q.   My name is Mike Carvin.  I'm
16   representing the defendants in this case.
17          Have you ever had your deposition
18   taken before?
19      A.   I have not.
20      Q.   Okay.  You were not deposed in the
21   Pennsylvania litigation?
22      A.   I was not.
23      Q.   Did you provide in-court testimony in
24   that case?
25      A.   I did.
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1                    C. WARSHAW
2       Q.   Is there any reason, including
3    medications, that you won't be able to testify
4    fully and truthfully today?
5       A.   No.
6       Q.   Okay.  Just so you understand the
7    protocol, I'll need a verbal response to my
8    questions rather than a nod or something like
9    that so the court reporter can get it.  Do you
10   understand that?
11      A.   Thank you.  I understand.
12      Q.   Okay.  And if there's any confusion
13   about the clarity of my questions or whatever,
14   please ask me to clarify.
15      A.   I'll do that.
16      Q.   Thanks.
17          You've been retained as an expert by
18   the plaintiffs in this case?
19      A.   I have.
20      Q.   And when were you retained?
21      A.   I don't know exactly.  I would have to
22   look at my notes.  Probably February, maybe March
23   of this year.  It was sometime in the spring of
24   this year.
25      Q.   Okay.  And who retained you?
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C. WARSHAW

1
2   A.   Mr. Yeager.
3   Q.   And how much are you being paid for
4 your services?
5   A. $275 an hour.
6   Q. $275?
7   A.   Correct.
8   Q.   And you've put in a report in this
9 case?
10   A.   I have, sir.
11   Q.   I'm handing you what's been marked
12 Deposition Exhibit 1.
13   (Exhibit 1 marked for identification
14   and attached hereto.)
15 BY MR. CARVIN:
16   Q.   I know you also provided an errata and
17 a rebuttal report, but this is your initial
18 principal report in this case?
19   A.   Correct.
20   Q.   And your CV is at the end of this
21 report?
22   A.   I believe so, yes.
23   Q.   Okay. If you could turn to that,
24 please.
25   A.   Sure.

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C. WARSHAW

1
2   Q.   And I see that you became an assistant
3 professor at George Washington University in
4 2017?
5   A.   Correct.
6   Q.   Prior to that, you were an associate
7 professor at MIT?
8   A.   Correct. I was an associate professor
9 without tenure.
10   Q.   And is there a higher ranking,
11 associate versus assistant?
12   A.   In general, associate professor means
13 with tenure. MIT had an unusual system where
14 before tenure you could get promotion to
15 associate professor. It's very unusual, and
16 George Washington doesn't have that. So at
17 George Washington, as at most other universities,
18 before tenure you're just called an assistant
19 professor.
20   Q.   Were you up for tenure at MIT?
21   A.   I would have been up this year at MIT,
22 and I'll be up next year at George Washington.
23   Q.   Did anybody make a decision as to your
24 tenure at MIT?
25   A.   No.

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C. WARSHAW

1
2   Q.   Why did you leave?
3   A.   My wife has a job with the federal
4 government.
5   Q.   Okay.
6   A.   So it's personal reasons that brought
7 us to D.C.
8   Q.   Okay.
9   A.   I was fortunate to find gainful
10 employment here.
11   Q.   In reviewing your articles, I see
12 you've done articles like the 2017 Election Law
13 Journal about gerrymander's effect on roll call
14 voting and the like. But have you ever done an
15 article on how to best measure a partisan
16 gerrymander or a partisan bias?
17   A.   I have not.
18   Q.   Have you ever done an article
19 comparing various measures of partisan
20 gerrymandering?
21   A.   I have not.
22   Q.   Have you done any articles or
23 testimony about Democratic concentrations
24 throughout a state and the potential effect that
25 has on political advantage to Republicans?

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C. WARSHAW

1
2   A.   I don't believe so, but it's possible
3 that's a small part of one of my articles.
4   Q.   And the only other case you list is
5 League of Women Voters v. Pennsylvania?
6   A.   Correct. That's the only other case
7 in which I've provided an expert report.
8   Q.   Okay. Have you been involved in any
9 way in any other litigation?
10   A.   I have not provided any expert reports
11 in other litigation.
12   Q.   Right. But have you been involved in
13 ways where you didn't provide an expert report?
14   A.   No. I may be involved -- I may in the
15 future be involved and may provide expert reports
16 in other cases but I have not been -- I have
17 never been employed and then, like, not provided
18 an expert report.
19   Q.   Okay. What other cases would those
20 be?
21   MR. YEAGER: Objection. I think we
22   have a federal rules issue here because to
23   the extent the professor has been engaged as
24   a consulting expert in other cases, that
25   would be confidential under the rules.

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C. WARSHAW

1
2   MR. CARVIN: That's perfectly fair.
3   BY MR. CARVIN:
4   Q.   I'm not asking you to reveal that.
5   I'll just ask, without revealing the name of the
6   case, have you been involved, retained as a
7   consulting expert in any other litigation?
8   A.   Yes.
9   Q.   And when did that occur?
10   MR. YEAGER: Wait, wait, wait. I'm
11   going to object to that question as well
12   because given the run of the national cases,
13   I think if he tells you when out loud you're
14   going to be able to draw some inferences
15   that would violate not only his obligations
16   but the Federal Rule 26 boundaries.
17   MR. CARVIN: That's fine.
18 BY MR. CARVIN:
19   Q.   Really what I was getting at, I take
20 it none of those have evolved to the situation
21 where you have been identified as an expert in
22 the litigation --
23   A.   That's correct.
24   Q.   -- is that correct?
25   A.   That's correct, yeah.

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C. WARSHAW

1
2   Q.   And what was the topic or scope of
3   your testimony in the Pennsylvania case?
4   A.   The Pennsylvania case focused on their
5   congressional districting plan. So it focused on
6   the degree of partisan bias in the plan and the
7   consequences for voters in Pennsylvania.
8   Q.   And that was the topic of your
9   testimony, the partisan bias of the plan?
10   A.   Correct.
11   Q.   And how did you calculate that?
12   A.   I calculated that through the
13 efficiency gap.
14   Q.   Did you calculate the efficiency gap
15 in the same way that you did in this case?
16   A.   I did.
17   Q.   You used endogenous selections?
18   A.   I did.
19   Q.   Okay.
20   A.   Although in both cases I used
21 exogenous selections; in other words,
22 presidential elections as a robustness check and
23 found very similar results, especially in the
24 recent election cycles.
25   Q.   Okay. I'll come back to that. So you

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C. WARSHAW

1
2   used the presidential elections as a robustness
3   check on the results that were produced through
4   the endogenous election?
5   A.   Yes.
6   Q.   And endogenous in Pennsylvania was
7   congressional elections?
8   A.   Correct, sir.
9   Q.   And did you supplement that analysis
10 with either a mean-median or a declination
11 analysis --
12   A.   I did not.
13   Q.   -- of partisan bias?
14   MR. YEAGER: If I could just --
15   MR. CARVIN: It's very --
16   MR. YEAGER: Please. you need to let
17   him finish, then answer.
18 BY MR. CARVIN:
19   Q.   This is typical. Obviously, you know
20 what my question is going to be, but this poor
21 court reporter has to do a Q and A. So if you
22 could let me finish my question and then answer,
23 I would much appreciate it. Okay?
24   All right. If you could turn to
25 page 6 of your expert report, please. Beginning

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C. WARSHAW

1
2   on the bottom of page 5 and top of page 6 you
3   make the obvious point that the way to accomplish
4   a gerrymander is through the classic
5   gerrymandering techniques of packing and
6   cracking. Is that a fair summary?
7   A.   Yes.
8   Q.   And packing is putting one party in
9   districts where they constitute an overwhelming
10 majority?
11   A.   Yes.
12   Q.   What percentage would constitute
13 packing, in your mind?
14   A.   I don't think there is a particular
15 percentage that either I would -- there is no
16 bright line in my head based on the literature.
17 I think it's a little bit of a qualitative
18 assessment.
19   Q.   And would 75 percent constitute
20 packing?
21   A.   Yes. In my view, that would.
22   Q.   And you say cracking. Would cracking
23 constitute putting the disadvantaged party in any
24 minority situation -- for example, a 49 percent
25 district -- would that constitute cracking the

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1   C. WARSHAW
2   disadvantaged party?
3   A.   I think it could. But I think that
4   would be obviously a risky cracking procedure.
5   So you would be unlikely to see that in the real
6   world because there are obviously small swings in
7   election results.
8   Q.   What's a generally accepted definition
9   in the academic community for what constitutes a
10   competitive district?
11   A.   I don't think there is a consensus on
12   that in the academic literature. But I think to
13   the extent -- the modal definition would be one
14   between with around a ten point margin.
15   Q.   Meaning 55 to 45?
16   A.   Correct.
17   Q.   And that's not the consensus view?
18   A.   I don't think there is a single -- I
19   don't think -- I haven't looked at this closely.
20   But thinking about the literature that I can
21   imagine, I think that would be the modal way of
22   doing it.
23   Q.   And I don't understand the word
24   "modal."
25   A.   Sorry. I think that would be the most

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1   C. WARSHAW
2   likely. That would be the most common way of
3   doing it.
4   Q.   Okay.
5   A.   But I don't think there's a universal
6   consensus in the literature in part because the
7   notion of a competitive election is a little bit
8   fuzzy by nature. Which I think is fine, but
9   there can still be different ways of
10   characterizing that that people use.
11   Q.   So depending on the district or the
12   election cycles, the definition of "competitive
13   district" could extend beyond 55/45?
14   MR. YEAGER: Objection; incomplete
15   hypothetical.
16   You may answer.
17   THE WITNESS: I don't think I have a
18   view on that.
19   BY MR. CARVIN:
20   Q.   Okay. Have you looked at whether
21   representatives from competitive districts tend
22   to be more moderate than representatives from
23   safe districts?
24   A.   I have looked at that, and in general
25   they do not.

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1   C. WARSHAW
2   Q.   In general --
3   A.   They do not. They are not more
4   moderate.
5   Q.   They are not more moderate.
6   A.   Yes. In general, the literature has
7   found that representatives across a range of
8   different district compositions take very similar
9   ideological positions. That's especially true in
10   state legislatures and to a slightly lesser
11   degree it's true in Congress.
12   Q.   And in Congress, for example, is there
13   any correlation between being in a competitive
14   district and --
15   A.   It's a very small -- it's a very --
16   MR. YEAGER: Wait.
17   BY MR. CARVIN:
18   Q.   -- and how moderate the representative
19   is?
20   A.   I apologize.
21   Yes, there is a slight correlation in
22   Congress. I believe in state legislatures there
23   is essentially -- I don't want to say no
24   correlation, but a very small correlation in
25   state legislatures. And in Congress there's

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1   C. WARSHAW
2   certainly a small correlation but the substantive
3   size of the effect is very small.
4   Q.   Okay. And is that something you've
5   researched personally or is this a conclusion
6   you've drawn from reading the literature?
7   A.   That is something I have researched
8   personally.
9   Q.   And have you written an article on
10   this?
11   A.   I have. For state legislatures it's
12   in my Election Law Journal article. And for
13   members of Congress, I've looked -- a working
14   paper of mine in the Senate that's not for the
15   Senate that's not published. I don't think I
16   have a published article that looks at this for
17   Congress, but I think this is well known in the
18   literature.
19   Q.   Okay.
20   A.   There is a very famous article by
21   someone Lee which was published in an economics
22   journal in 2008 that essentially argued there's
23   no relationship between the competitiveness of a
24   district and legislators' positions. I think
25   that's probably not true. I think there's, as I

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1   C. WARSHAW
2   said, I think a slight correlation. But the
3   consensus in the literature is the relationship
4   between the competitiveness of a district and the
5   positions that legislators take, particularly in
6   the modern era, is very small.
7   Q.   And Lee is spelled L-e-e?
8   A.   Yes. I would say that's the most
9   prominent article on the subject.
10   Q.   If you could turn to your footnote 4
11   on page 6 of your report, please.
12   A.   Sure.
13   Q.   "The efficiency gap calculations here
14   focus on wasted votes in legislative elections,"
15   italicized, "since these results directly capture
16   voters' preferences in these elections."
17   Just to be clear, when you say
18   "legislative elections," that means when you're
19   calculating the efficiency gap for Congress you
20   looked at congressional elections; when you were
21   looking at elections for the state house you
22   looked at state house elections; and when you
23   were looking at the state senate you looked at
24   state senate elections?
25   A.   Yes.

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1   C. WARSHAW
2   Q.   Okay. And those are known as
3   endogenous elections?
4   A.   Yes. In the sense that they are
5   endogenous to the districting plan. Although
6   there is no guarantee that other statewide
7   elections aren't also endogenous in some way.
8   Any election that's measured after a districting
9   plan goes into place is in some way endogenous
10   since it's post-treatment.
11   Q.   Okay. Well, I'm using the word
12   "endogenous" to mean elections for the office
13   that we're examining. Is that a generally
14   accepted definition? I want to avoid any
15   ambiguity.
16   A.   No. A generally accepted definition
17   for endogenous is an outcome -- when the outcome
18   variable could be affecting the treatment.
19   Q.   So how would you characterize
20   elections for statewide office such as president,
21   governor and senator that don't relate directly
22   to the offices that you're examining? Would you
23   call them --
24   A.   I would just call them --
25   Q.   Excuse me. Would you call those

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1   C. WARSHAW
2   exogenous elections?
3   A.   I would call them statewide elections
4   or non-legislative elections. I'm sorry. I
5   think there is nothing necessarily exogenous
6   about them if they're measured after the
7   redistricting plan. If they're measured before
8   the redistricting plan goes into place, then I
9   might call them exogenous. But then also
10   legislative elections would also be exogenous
11   that are measured before the districting plan
12   goes into place.
13   Q.   All right. All I'm trying to do is
14   clarify the record on what we're talking about.
15   So if it's okay with you, I'm going to refer to
16   elections for the particular legislative offices
17   at issue as legislative elections and elections
18   other than that as statewide elections. Is that
19   okay?
20   A.   Sure.
21   Q.   Okay. And you cite -- Why did you
22   choose legislative elections to measure the
23   various measures -- Oh, let me ask you that
24   first.
25   Did you use legislative elections for

Page 21

1   C. WARSHAW
2   efficiency gap, mean-median, and declination
3   analysis?
4   A.   Yes, sir.
5   Q.   And why did you do that?
6   A.   Well, I believe the goal of a
7   gerrymander is to maximize a party's seats
8   relative to the number of votes they get. So I
9   think the target of a gerrymander is the
10   legislative elections. So I think in general, if
11   you're looking at the actual election results, it
12   makes the most sense to use the election that the
13   gerrymander is actually about, which is the
14   legislative elections.
15   Q.   Okay. But nonetheless you say: "We
16   might also calculate the efficiency gap using
17   district-level results from presidential
18   elections or other statewide races. These have
19   the 'advantage of being mostly unaffected by
20   district-level candidate characteristics.'"
21   And then you cite Stephanopoulos and
22   McGhee's 2015 article in the Chicago Law Review
23   for that proposition. Is that right?
24   A.   Yes.
25   Q.   Okay. And why is it an advantage to

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C. WARSHAW

1
2   be mostly unaffected by candidate
3   characteristics?
4   A.   Well, you might argue there's some
5   idiosyncratic candidate characteristics that
6   affect elections. So for instance, if one party
7   nominates somebody who is particularly weak or
8   strong, on the margin that could affect elections
9   by a small amount.
10   Q.   Well, if they are affected by those
11   district-level candidate characteristics, why
12   would you want to ignore them?
13   A.   Well, I think if you're looking at the
14   actual election results, in general you wouldn't
15   because those are all a result of the districting
16   plan. So for instance, if you have a gerrymander
17   that cracks a party's voters across many
18   districts where they're likely to lose, then the
19   disadvantaged party is likely to nominate weak
20   candidates in those districts. The best
21   candidates are not going to run in districts
22   where they think they're going to lose.
23   So I think that it's not accidental,
24   then, that you might get weak candidates and that
25   the advantaged party would overperform in those

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C. WARSHAW

1
2   districts and the disadvantaged party would
3   underperform. That's actually a direct result of
4   the gerrymander.
5   Q.   Did that occur in Michigan?
6   A.   I haven't looked explicitly at the
7   actual candidates that ran.
8   Q.   But it's a plausible hypothesis?
9   A.   Sure.
10   Q.   Okay. And the district-level
11   candidate characteristic that would probably have
12   the most profound effect would be incumbency,
13   right?
14   A.   Yes. Although the effect of
15   incumbency is much smaller than it used to be.
16   Q.   How much is it?
17   A.   There's the general -- I think
18   consensus in the literature is that it's around
19   three or four percentage points now. There is an
20   article by Gary Jacobson that was published in
21   the Journal of Politics in I believe 2015 or '16
22   that I view as the best recent article on this.
23   Q.   And what was the conventional wisdom
24   prior to the Jacobson article about the effect of
25   the incumbency advantage's magnitude --

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C. WARSHAW

1
2   A.   Well, in the 19 -- I'm sorry, I
3   interrupted you.
4   In the 1970s and '80s the incumbency
5   advantage peaked. Maybe the early '90s as well.
6   The incumbency advantage peaked at probably
7   around eight points. However, in the modern era,
8   the incumbency advantage has gradually declined
9   so that in recent House elections, you know, as I
10   said, it's probably only three or four points.
11   Q.   And when you use the word "House," you
12   mean congressional elections?
13   A.   Correct.
14   Q.   Okay. Have you analyzed the
15   incumbency advantage in state legislative
16   elections?
17   A.   I have actually in an unpublished
18   paper. In general, the incumbency advantage for
19   state legislative elections is very similar to
20   congressional elections. I don't have an exact
21   point percentage in my head for state
22   legislatures, but I know both in my work and the
23   literature it's very similar. So I would expect
24   that what Jacobson found for congressional
25   elections to be very similar for state

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C. WARSHAW

1
2   legislative elections.
3   Q.   If I could direct your attention to
4   the last sentence in footnote 4, please. You
5   say: "The data indicate that the correlation
6   between efficiency gap estimates based on
7   congressional elections and presidential
8   elections is approximately 0.8 for elections held
9   after 2000 and 0.9 for elections held after the
10   2011 redistricting cycle."
11   A.   Uh-huh.
12   Q.   Just to break this down into its
13   component parts, you're talking about efficiency
14   gap estimates that are based strictly on
15   presidential elections versus those strictly
16   based on congressional elections?
17   A.   Correct, sir.
18   Q.   And what does it mean to --
19   A.   Well, one correction to that. I'm
20   sorry. The only -- the only slight way the
21   presidential election would influence the
22   efficiency gap estimates for congressional
23   elections is that the presidential election
24   results are used to impute those shares in
25   uncontested districts. But, for instance, in

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C. WARSHAW

1
2 Michigan there is essentially -- there's almost
3 no uncontested elections in Michigan. Nationwide
4 there are some, but that's certainly a small part
5 of the data.
6   Q.   Okay. But other than the uncontested
7 elections, you're saying that the correlation
8 between efficiency gap estimates based on
9 congressional elections and those based on
10 presidential elections is approximately 0.8 for
11 elections held after 2000, right?
12   A.   That's correct.
13   Q.   What does that mean?
14   A.   Well, it means in -- you know, we can
15 disagree. And as I think I said in my rebuttal
16 report, I think it's reasonable for different
17 scholars to have different views on whether we
18 should use legislative or statewide elections,
19 particularly if we're using, say, simulations
20 versus actual election results.
21   But I think in reality the choice
22 isn't all that consequential in the modern era
23 because legislative elections are very similar,
24 you know, follow national presidential elections
25 very closely because voters tend to vote based on

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C. WARSHAW

1
2 their partisanship, and that leads them to vote
3 very similarly across presidential and
4 congressional elections as these elections have
5 become more nationalized.
6   Q.   But I'm just trying to figure out what
7 does it mean that there is a 0.8 correlation.
8   A.   It means that the efficiency gap
9 estimates are very, very similar whether you use
10 congressional or presidential elections.
11   Q.   It means you'll get it right
12 80 percent of the time?
13   A.   No, sir, that's not what a correlation
14 means. A correlation means that it explains -- a
15 .8 correlation implies that the variation in the
16 efficiency gap using congressional elections
17 predicts about 64 percent of the variation -- if
18 I do my math right -- in the efficiency gaps in
19 presidential elections. It's a very high
20 correlation.
21   Q.   64 percent?
22   A.   Correct. And I've also looked -- I
23 think in some of the footnotes in the text I've
24 actually compared efficiency gaps measured using
25 the legislative -- the congressional elections

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C. WARSHAW

1
2 with those with presidential elections. You
3 know, the exact numbers you get, particularly
4 after the 2011 plans went into place in recent
5 years, are very, very similar.
6   Q.   And that's 0.9?
7   A.   Correct.
8   Q.   And what would the predictive
9 percentage be for 0.9?
10   A.   81 percent of the variation.
11   Q.   Okay. And does that include the 2016
12 presidential elections?
13   A.   I believe it does, but I couldn't say
14 for sure.
15   Q.   What literature are you referring to?
16   A.   Sorry. Literature?
17   Q.   In your thing you say -- oh, I'm
18 sorry. The data indicate.
19   A.   I made all these calculations myself.
20   Q.   And is that published anywhere?
21   A.   It's in my report.
22   Q.   Did you provide us the underlying
23 data?
24   A.   I did.
25   Q.   Where is it in the report other than

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1
2 in this footnote?
3   A.   It's in this footnote.
4   Q.   Okay. So you said "the data
5 indicate." This is your own study of relevant
6 data, right?
7   A.   Yes, sir. It's based on the
8 replication data that I provided for my report.
9 However, I think the general assertion that
10 elections have become more nationalized and
11 there's a stronger correlation between
12 congressional elections and presidential
13 elections today than in earlier periods, and
14 indeed today presidential elections are very
15 closely related to congressional elections.
16 It's a consensus view in the literature.
17   So for instance, you could look at the
18 2015 Gary Jacobson article, and that's one of the
19 reasons that the incumbency advantage has
20 declined so much. Because people tend to vote
21 with their party, you don't have very many people
22 that are, like, switching back and forth between
23 parties.
24   Q.   What's the percentage of
25 ticket-splitters in Michigan?

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1   C. WARSHAW
2   A.   I don't know the answer to that. I
3 haven't looked at that explicitly.
4   Q.   Do you know what percentage of voters
5 in Michigan are registered as independents?
6   A.   In my view, that's not very relevant
7 information.
8   Q.   You can tell me whether it's relevant
9 or not, but if you could answer the question
10 before you tell me why it's relevant.
11   A.   I do not, sir.
12   Q.   And what do you do in off-year
13 elections when there is no presidential election?
14   A.   I use the previous year's presidential
15 election.
16   Q.   For example, is it not well
17 established that in the off-year election
18 following the presidential election the
19 president's party tends to do worse --
20   A.   Yes.
21   Q.   -- in congressional elections?
22   A.   Yes.
23   Q.   So in those circumstances there
24 wouldn't be a correlation between the preceding
25 presidential vote and the subsequent off-year

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1   C. WARSHAW
2 elections, correct?
3   A.   There would be a very strong
4 correlation, but there would be an intercept
5 shift in general against the president's party.
6   Q.   What is an intercept shift?
7   A.   Intercept shift would be, in general,
8 in all districts, the president's party tends to
9 do a little bit worse than they did during the
10 presidential election year, particularly in the
11 president's first midterm.
12   Q.   Do you know whether Stephanopoulos and
13 McGhee used legislative elections to calculate
14 their efficiency gap numbers?
15   A.   I believe they used legislative
16 elections.
17   MR. CARVIN: If we could mark this as
18 Exhibit 2.
19   (Exhibit 2 marked for identification
20 and attached hereto.)
21 BY MR. CARVIN:
22   Q.   I've handed you what's a Stanford Law
23 Review article by Stephanopoulos and McGhee which
24 also discusses the efficiency gap. Have you read
25 this article?

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1   C. WARSHAW
2   A.   I have, sir.
3   Q.   If you could turn to page 1544 of this
4 article, please.
5   A.   Uh-huh.
6   Q.   I'm going to read you the last -- the
7 first two sentences of the last paragraph on
8 1544. Stephanopoulos and McGhee state, do they
9 not: "To start, it is poor methodological form
10 to analyze plans using exogenous election
11 results. Voters may well behave differently in
12 these elections than when casting their ballots
13 for the office actually at issue."
14   Do you agree with that statement?
15   A.   I agree with them that if you're
16 looking at the actual election results, in
17 general we should look at the target of the
18 gerrymander, which is legislative elections.
19 However, as I said, I think empirically it's not
20 a very consequential decision because the
21 estimates you're going to get using presidential
22 elections or other statewide elections are very
23 similar to what you get with legislative
24 elections.
25   Q.   Have you examined the correlation

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1   C. WARSHAW
2 between other statewide elections and
3 congressional elections besides president?
4   A.   I have not. I've only looked at
5 presidential.
6   Q.   Have you looked at the correlation
7 between other statewide elections and state
8 legislative elections?
9   A.   Yes, I did. For the 1970s and '80s I
10 use that in my imputation model. I couldn't tell
11 you the exact point estimate of the effect but
12 they are closely related.
13   Q.   Did you do that in this case?
14   A.   I haven't done that for the 2010s
15 because there's not good data available on that,
16 on statewide elections at the statewide
17 legislative district level.
18   Q.   So you haven't done it for any state
19 and you've not done it for Michigan either?
20   A.   I haven't for recent years, correct.
21 I've done it for the 1970s and '80s. But the
22 data is not available to do that calculation
23 across -- all of the calculations in my report
24 are across all states essentially, or all states
25 where I could get data. So data on statewide

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1
2 elections are unavailable across all 50 states.
3 It's possible I could have gotten it for
4 Michigan, but I couldn't have gotten it for other
5 states.
6   MR. CARVIN: If you could mark this as
7   Exhibit 3, please.
8   (Exhibit 3 marked for identification
9   and attached hereto.)
10 BY MR. CARVIN:
11   Q. Have you seen this draft? Is this one
12 of the articles listed in your --
13   A. I don't believe so. I don't believe I
14 read this article closely. It's possible I've
15 seen it at some point, but I certainly have not
16 read it closely.
17   Q. Okay. If you could turn to page --
18 well, let me just ask you before we do that, the
19 authors of this article are Krasno, Magleby,
20 McDonald, Donahue and Best, correct?
21   A. Yes.
22   Q. And McDonald and Best are the ones who
23 came up with this mean-median differences of
24 partisan bias measure?
25   A. I believe that's right.

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C. WARSHAW

1
2   Q. If you could turn to page 5 of this
3 article, please.
4   A. I'm glad you printed it double-sided.
5   Q. If you could look at the middle
6 paragraph with me. And I'm going to read it to
7 you. "Finally, because the median-mean
8 comparison explicitly uses election results to
9 measure the partisan complexion in districts its
10 promoters insist that jurisdiction-wide elections
11 such as presidential, U.S., senatorial or
12 statewide constitutional offices, hold the most
13 probative value when comparing the median and
14 mean district percentages."
15   Were you aware that the promoters of
16 the mean-median comparison insist that you use
17 jurisdiction-wide elections?
18   A. I was not.
19   Q. And in this case, you did not use
20 jurisdiction-wide elections to calculate the
21 mean-median difference, right?
22   A. I did not. But I think I would
23 disagree with this assessment. I think that
24 regardless of what metric we're using, the target
25 of a gerrymander is legislative elections. So I

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C. WARSHAW

1
2 think that I would still focus on legislative
3 election results.
4   Q. Okay. If we could go back to --
5   A. Can I answer that more?
6   Q. I'm going to ask you more questions.
7   MR. YEAGER: I'm sorry. If the
8   witness has more to add --
9   THE WITNESS: I just want to --
10   MR. YEAGER: Wait, wait.
11   May I ask that the witness be allowed
12   to finish his answer?
13   MR. CARVIN: I thought he had given a
14   complete answer, but sure.
15   THE WITNESS: And the reason for that
16   is there's no necessary -- in the modern
17   era, the choice is inconsequential whether
18   you use statewide or legislative elections.
19   But certainly in earlier years this would be
20   a consequential choice. For instance, in
21   the South in the 1970s and '80s, they would
22   vote Republican in presidential elections
23   and Democratic in legislative elections.
24   In fact, the correlation between
25   presidential and legislative elections was

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1
2   not zero but it was relatively small. So in
3   that case it would make no sense for a
4   legislator to target presidential elections
5   as, like, the target of a gerrymander and
6   use that as their main metric when they knew
7   that presidential elections didn't reflect
8   legislative election results.
9 BY MR. CARVIN:
10   Q. Well, you say "in earlier years." But
11 Stephanopoulos and McGhee said in 2018 it was not
12 appropriate to use exogenous elections and
13 McDonald and Best said in 2017 or 2018 it was not
14 proper to use endogenous elections. So they
15 disagree with you even in the modern world,
16 correct?
17   MR. YEAGER: Objection; argumentative.
18   Misstates the record.
19   You may answer.
20   THE WITNESS: I believe that
21   legislative elections are appropriate for
22   all of the gerrymandering metrics.
23 BY MR. CARVIN:
24   Q. So you disagree with McDonald and
25 Best?

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1
2   A.   Correct.
3   Q.   So if we could go back to your report,
4 please. If you could turn to page 13. I'm
5 looking at Figure 2. And in this figure you look
6 at, do you not, the national distribution of
7 efficiency gaps for congressional elections with
8 states with more than six seats from 1972 to
9 2016?
10   A.   That's correct.
11   Q.   And when you were computing these
12 national efficiency gaps, were you using
13 congressional election results only?
14   A.   Yes.
15   Q.   If you would turn to page 1 of your
16 report. You use -- the data you used for this
17 was collected by the Constituency-Level Elections
18 Archive?
19   A.   Yes, sir.
20   Q.   And those were all congressional
21 elections?
22   A.   Correct.
23   Q.   And they were adjusted by CLEA you
24 say?
25   A.   Yes. In some cases there's typos in

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1
2 the raw ICPSR data or incorrect district numbers
3 that they fixed.
4   Q.   But it was just typos and the like
5 that they changed?
6   A.   Correct. They didn't -- Sorry for
7 interrupting you. Correct. They didn't change
8 any underlying -- any of the underlying data
9 except to fix typos and incorrect district
10 numbers, things like that.
11   Q.   And then the other thing you said you
12 have here is data on presidential elections and
13 incumbency status in congressional elections.
14   Why did you need presidential election
15 returns?
16   A.   Well, I needed it for two reasons.
17 One was to impute the vote -- to estimate what
18 would have happened in uncontested elections, as
19 we briefly discussed earlier.
20   Then the second reason was to check
21 the robustness of the efficiency gap estimates
22 and other -- well, the efficiency gap estimates
23 that I calculate using legislative elections
24 using presidential elections.
25   Q.   So when you say "calculate the

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1
2 robustness," when you did that calculation,
3 that's the results you put into the footnote we
4 had previously discussed about that 0.8
5 correlation?
6   A.   Yes.
7   Q.   Okay. And why did you need -- why did
8 you look at incumbency status?
9   A.   Incumbency status, as we -- again, as
10 we briefly discussed earlier, incumbents tend to
11 do a little bit better in elections. In the
12 modern era it's only three or four points better,
13 but in the earlier eras there was a larger
14 incumbency advantage. So certainly if you're
15 imputing the vote share, how incumbents would do
16 in congressional elections, you would want to
17 take that into account.
18   Q.   How did you adjust the congressional
19 election returns to account for incumbency
20 status?
21   A.   Yes, I used that in my imputation
22 model for uncontested districts. I used the
23 incumbency status in my imputation model for
24 uncontested elections. So I took that into
25 account when I estimated the Democrats and how --

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1
2 how -- what percentage of the vote Democrats and
3 Republicans would have gotten if the election had
4 been contested.
5   Q.   So you only looked at incumbency
6 status for uncontested?
7   A.   The model I used is based on contested
8 elections, obviously, because that's how I
9 estimate the incumbency advantage. But I only
10 changed -- I used the raw election returns for
11 all contested districts. I think -- I don't
12 have -- I can't remember exactly, but I may have,
13 like, for districts where there was -- you know,
14 the loser got, like, less than 3 percent or
15 5 percent, I might have used the imputation
16 model. But in general, if they got more
17 than a -- if -- if candidates from each party
18 received more than a de minimis share of the
19 vote, I used the actual election returns.
20   Q.   And I apologize. I may not have
21 understand that last answer.
22   You not only did this for uncontested
23 elections but also elections where one party
24 received only a de minimis vote?
25   A.   Yes, like 1 or 2 percent.

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Q.   Okay.

A.   Because I assume those are essentially uncontested. In many cases, the data -- I did that -- and again I can't remember exactly what that percentage is, but I counted those as uncontested because in many cases those are actually write-in candidates that might have a -- you know, the data may say they have a party next to them but in fact they're actually write-in candidates. So that's why they only received 1 or 2 percent.

Q.   Okay. And so if I'm understanding this correctly, you used those 1 or 2 percent elections, you imputed the same way you did --

A.   Exactly.

Q.   -- for formally uncontested elections. Is that correct?

A.   Yes, sir.

Q.   Okay. Do you recall at this point what you used as your cutoff for de minimis?

A.   I do not. It's in my replication code, but I do not -- I don't remember.

Q.   Okay. Now, with respect to state legislative elections, if you could turn to the

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bottom of page 2, please. You say here that there is "a large canonical dataset on candidacies and results in state legislative elections. I obtained results from the 1972-2016 collected by Carl Klarner and a large team of collaborators." Correct?

A.   Yes, sir.

Q.   And then it says: "The results from 1972-2012 are based on data maintained by Inter-university Consortium for Political and Social Research."

So I'm a little confused. Is that a different dataset than the one that Klarner and his team put together?

A.   No. Essentially what happened is there's a -- there was a series of National Science Foundation grants that a large team of political scientists worked on to put together this canonical data that Klarner in recent years -- this political scientist named Carl Klarner was the lead, the manager -- the lead political scientist on that project.

The data from 1972 to 2012 was funded by the National Science Foundation, and that data

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is available freely for download on the ICPSR website.

The data from 2013 to '16 was collected privately by Klarner, and you have to contact him to obtain it directly. It's not available freely for download.

Q.   And you did contact him?

A.   Yes.

Q.   And that's how you got the 2013 through 2016 data?

A.   Correct.

Q.   And just to clarify, you're telling me that the 1972 to 2012 data which is maintained by ICPSR was nonetheless compiled by Klarner and his team?

A.   Yes, it was compiled and cleaned by Klarner and his team. The earlier -- It was compiled in a series of -- "waves" is not quite the right term, but in a series of efforts. So the earlier -- I think the earliest effort was around 1990. So, obviously, Professor Klarner -- not obviously, but Professor Klarner was not a part of the original team that worked on it in 1990 for elections in the 1970s and '80s. I

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don't know who led that effort. But Professor Klarner has been the lead in recent years.

Q.   And I don't see anything here about collecting information on incumbency status with respect to state legislative elections like you reference with respect to congressional elections. Why is that?

A.   That data is in the Klarner dataset. It was, I guess, a typographical omission on my part. But it's in the Klarner dataset. It's all part of it. I didn't quite do that for presidential elections because the election results and the incumbency status come from different datasets, whereas here they all come from one integrated dataset. But I should have said that explicitly.

Q.   Just so I understand the general gist of your report, you analyzed the efficiency gap and these other measures for the 2012, 2014, and 2016 elections, correct?

A.   Yes. However, I also calculated them for all elections between 1972 and 2016.

Q.   Fair enough. But what I'm getting at is these are backward-looking calculations. You

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1   C. WARSHAW
2   haven't made any projections for vote totals in
3   the 2018 Michigan congressional or state
4   legislative elections, correct?
5   A.   That's correct.
6   Q.   You haven't estimated the Democratic
7   vote share statewide for any of the three offices
8   at issue, right?
9   A.   No.
10   Q.   And you're not making any
11   district-specific projections?
12   A.   I am not.
13   Q.   Okay. Now, if you could turn to
14   page 6 of your report, please.
15   MR. CARVIN: Off the record.
16   (Off the record.)
17   BY MR. CARVIN:
18   Q.   So at various points here you produce
19   various estimates of, for example, where the
20   Michigan redistricting compares to the
21   mean-median difference for prior elections
22   throughout the nation and various other things.
23   Are you representing to me that all of the data
24   underlying this analysis has been provided to the
25   defendant?

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1   C. WARSHAW
2   A.   Yes, sir. I believe that all of the
3   figures, numbers, calculations in my report can
4   be easily generated from the data that I
5   provided.
6   Q.   So they could be calculated. You
7   didn't produce the actual results. You produced
8   the data from which one could replicate your
9   analysis?
10   A.   I produced the code that I used. The
11   person -- readable code that any trained
12   political scientist or economist or statistician
13   could read to regenerate my results.
14   Q.   You did at least one supplemental
15   report, your rebuttal report, involving the
16   connection between degree of voter confidence and
17   the efficiency gap where you provided margins of
18   error. Did you provide the defendants with that
19   data?
20   A.   I did not provide updated code for
21   that. However, the underlying data for that was
22   part of my original submission.
23   MR. CARVIN: All right. Could we get
24   that updated code from you, please?
25   MR. YEAGER: Sure.

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1   C. WARSHAW
2   BY MR. CARVIN:
3   Q.   I'm not going to stop at each point in
4   this analysis and ask you if you provided it
5   because I think we've covered the territory. So
6   I'll just ask you as generically as I can to save
7   us time.
8   Have you provided all data in the way
9   you just described relative to all the
10   conclusions in your initial report and with the
11   one exception you mentioned in your rebuttal
12   report?
13   A.   I believe so, yes.
14   MR. CARVIN: If not, we have a
15   standing request to supplement the data.
16   MR. YEAGER: Understood.
17   BY MR. CARVIN:
18   Q.   All right. Back to your report,
19   page 6.
20   A.   Page 6, yes, sir.
21   Q.   You say that "There are a number of
22   approaches that have been proposed to measure
23   asymmetries and the efficiency of the vote-seat
24   relationships of the two parties." Correct?
25   A.   Yes, sir.

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1   C. WARSHAW
2   Q.   And in recent years, at least ten
3   different approaches have been proposed, correct?
4   A.   That's what McGhee asserts in this
5   article. I think -- I believe that's true,
6   although I couldn't name all ten.
7   Q.   But it's fair to say that the
8   profession is striving for some uniform generally
9   accepted measure of partisan asymmetry or
10   partisan bias?
11   A.   I think the profession is trying to
12   improve our metrics. I think whether we will
13   ever have one single metric remains to be seen.
14   Q.   But we haven't arrived at that point
15   yet?
16   A.   I think there's differences of
17   opinions about whether we've arrived at that
18   point.
19   Q.   Now, previously it was my
20   understanding that the most accepted consensus
21   measure was the partisan symmetry analysis
22   championed largely by Gary King and Grofman. Is
23   that fair?
24   A.   Yes.
25   Q.   Has that fallen out of favor in recent

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1   C. WARSHAW
2 years?
3   A.   I think it has, yes.
4   Q.   Do you subscribe to that method of
5 measuring partisan bias or partisan asymmetry?
6   A.   Well, I didn't use it in my report.
7 So in general, I think it's a little bit -- I
8 think I tend to agree with people that it's
9 fallen out of favor.
10   Q.   And you say all these measures have --
11 are not perfect, I take it, right?
12   A.   That's correct. I think I can -- I
13 think in general that's because the latent
14 variable here, the theoretical concept that we're
15 trying to measure, which is the partisan bias --
16 I know that's one of the terms also that Gary
17 King uses, but I'll use in a more -- I use it in
18 my report in a more general way.
19   In my view, what a gerrymander is
20 trying to do is to -- a party is trying to
21 maximize the number of seats they get relative to
22 the votes. And there's a -- this leads to this
23 theoretical concept of partisan bias. And
24 because this is a theoretical concept, I think,
25 you know, all of the empirical measures are just

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1   C. WARSHAW
2 proxies for this theoretical concept.
3   And indeed, you know, none -- we'll
4 never have an approach that is exactly perfect,
5 but that's true for most political science
6 concepts that we're trying to measure. You know,
7 all social science measurements are
8 simplifications of some theoretical concept we're
9 trying to measure.
10   Q.   Okay. And you're using the efficiency
11 gap as your main measure of this theoretical
12 concept?
13   A.   That's correct.
14   Q.   And that was first proposed by
15 Stephanopoulos and McGhee in the 2015 University
16 of Chicago Law Review article?
17   A.   That's not exactly right. It was
18 actually proposed by Eric McGhee in a
19 peer-reviewed article in the Journal of
20 Legislative Studies Quarterly in 2014.
21   Q.   Okay. And --
22   A.   And then the Stephanopoulos and McGhee
23 article focused on expanding the description of
24 it and then applying it, trying to build a legal
25 standard that they advocated. But the

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1   C. WARSHAW
2 original -- the original measure was actually
3 developed by Eric McGhee.
4   Q.   Okay. And the Chicago Law Review is
5 not a peer-reviewed journal, right?
6   A.   That's correct.
7   Q.   And during the two and a half years or
8 three years since its proposal it's received a
9 lot of scholarly criticism in the Political
10 Science Academy. Is that correct?
11   A.   I think there has been a robust
12 discussion of the merits of different measures
13 with some of that centering around criticism of
14 the efficiency gap.
15   Q.   Okay. If you could turn back to
16 Exhibit 2.
17   A.   Which one is that?
18   Q.   I'm sorry. The Stanford Law Review
19 article.
20   A.   Great.
21   Q.   And again, this is the Stanford Law
22 Review article by Stephanopoulos and McGhee
23 themselves, right? And at the top of 1508 they
24 say --
25   MR. YEAGER: Hold on just one moment,

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1   C. WARSHAW
2 please.
3   MR. CARVIN: Sure.
4   MR. YEAGER: Thank you.
5 BY MR. CARVIN:
6   Q.   Stephanopoulos and McGhee say that
7 "The academic discussion of the efficiency gap
8 includes a number of criticisms of the measure."
9 Is that accurate?
10   A.   Yes.
11   Q.   And then they list, I believe, at
12 least five scholarly articles criticizing the
13 efficiency gap?
14   A.   Yes, that's correct.
15   Q.   And they cite an article by Cho, by
16 Best, by Krasno and colleagues, by John Nagle.
17   Are these critics well-respected
18 political scientists?
19   A.   Yes, sir.
20   Q.   And then also by Christopher Chambers.
21 Is he a well-respected political scientist?
22   A.   I don't know him, to be honest. I
23 couldn't say. I assume -- I'll take it as a
24 supposition.
25   MR. YEAGER: Could I just clarify. I

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1   C. WARSHAW
2   don't think the witness was saying he
3   doesn't know Mr. Chambers, to be honest.
4   MR. CARVIN: I take your point.
5   THE WITNESS: Outside of this paper,
6   I've never -- outside of this citation, I've
7   never heard of Professor Chambers.
8   BY MR. CARVIN:
9   Q.   Okay. So Cover says that one
10   criticism is it favors uncompetitive elections.
11   Is that a fair criticism?
12   A.   In my view, it's not.
13   Q.   And why is that?
14   A.   What Stephanopoulos and McGhee show
15   here is there is no empirical correlation,
16   particularly in state legislative elections,
17   between the efficiency gap and the
18   competitiveness of the elections. Indeed, I
19   think thinking about it beyond the actual data,
20   thinking about it at a more theoretical level,
21   there's many ways in which a state could achieve
22   a neutral efficiency gap. There's no reason that
23   competitive elections are the only or even the
24   best path to achieve it.
25   Q.   But you say there's no correlation

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1   C. WARSHAW
2   between competitive election districts and the
3   efficiency gap?
4   A.   Yeah. That's on page 1523 of this
5   article.
6   Q.   Right. And in there they're making
7   the point that they're not trying to capture in
8   the efficiency gap whether or not election
9   districts are competitive, right? That's a
10   separate inquiry?
11   A.   That's correct.
12   Q.   Okay.
13   MR. CARVIN: If you could mark that
14   Exhibit 4.
15   (Exhibit 4 marked for identification
16   and attached hereto.)
17   BY MR. CARVIN:
18   Q.   Now I've handed you Exhibit 4. This
19   is an article by Best and others, "Considering
20   the Prospects for Establishing a Packing
21   Gerrymandering Standard."
22   You cite this article in your report,
23   do you not?
24   A.   I can't remember off the top of my
25   head.

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1   C. WARSHAW
2   Q.   Why don't you go check your report.
3   A.   It looks like I do.
4   Q.   And again, Best and his co-authors are
5   well-respected political scientists?
6   A.   Yes, I believe they are.
7   Q.   And Best and McDonald came up with the
8   median-mean difference that you partially rely on
9   in your report?
10   A.   Yes.
11   Q.   Okay. If you could turn to page 5 of
12   this article. I'm reading now from their middle
13   paragraph where they're discussing the efficiency
14   gap, are they not?
15   A.   Yes, I believe so.
16   Q.   And they say: "It runs into
17   manageability difficulties in two regards (1) it
18   assumes wasted votes are to be counted in an odd
19   way, and (2) it has no secure baseline for
20   establishing the degree of wasted votes that
21   indicates a gerrymander."
22   Do you see that?
23   A.   Yes.
24   Q.   Let's start with the second
25   proposition. Do you agree that the efficiency

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1   C. WARSHAW
2   gap has no secure baseline for establishing the
3   degree of wasted votes that indicates a
4   gerrymander?
5   A.   In my view, there's no bright line for
6   any of the metrics that would establish a
7   gerrymander based on one metric alone.
8   Q.   So as to the efficiency gap, the
9   mean-median difference and declination, there's
10   no baseline for separating an impermissible
11   gerrymander from a tolerable result?
12   A.   I think you have to look at a number
13   of different factors. As in Michigan, I think
14   that all of those point in the same direction,
15   that this is an extreme partisan gerrymander.
16   But there's no single number where I would say
17   above 5 percent or something is definitely a
18   gerrymander.
19   Q.   So there is no well-accepted view in
20   the profession about what efficiency gap score
21   renders a redistricting plan unacceptable or an
22   extreme partisan gerrymander?
23   A.   That's correct.
24   Q.   And the same is true of both the
25   mean-median difference and the declination

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1
2   scores?
3   A.   That's correct.
4   Q.   Then it discusses effectiveness
5   difficulties -- I'm now back to the preceding
6   paragraph -- arise for three reasons. And the
7   first reason they give are votes are wasted for
8   reasons other than gerrymandering.
9   Do you agree with that?
10   A.   Yes. Certainly I think that a number
11 of factors affect election results, and those can
12 influence the efficiency gap estimates as they do
13 any of the other metrics to some degree.
14   Q.   Then it says: "The wasted vote gap
15 co-varies with a party's vote percentage."
16   Do you agree with that?
17   A.   I don't necessarily agree. I haven't
18 run a regression that tests that statement,
19 although I certainly -- we certainly -- I
20 certainly could. My -- I know in the
21 Stephanopoulos and McGhee, in their article they
22 argue that's not necessarily true, in their
23 Stanford Law Review article.
24   And in my qualitative assessment of
25 just spending a lot of time with the data,

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1
2   there's nothing -- there's nothing in looking at
3   the data and building lots of graphs and running
4   lots of, you know, different types of analyses
5   that would lead me to believe that. But I
6   haven't done that analysis explicitly, so I
7   couldn't say for sure.
8   Q.   Okay. And what does that mean in
9   English, that it "co-varies with a party's vote
10 percentage"?
11   A.   Well, I think their assertion here is
12 that there's some necessary relationship between
13 the efficiency gap and the differential and
14 wasted votes and the party's percentage of the
15 statewide vote. But certainly mathematically
16 that's not true. The efficiency gap is not -- is
17 not calculating the vote share. It's calculating
18 the differential between the number of votes you
19 get and the number of seats you get via the
20 wasted votes.
21   So certainly no mathematical, you
22 know, relationship that would presume -- that
23 would imply this to be true. And like I said, my
24 understanding of the data does not lead me to
25 think it's true either, but I couldn't say for

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1
2   sure.
3   Q.   And then the third criticism is: "The
4   method seeks to cover both cracking and packing
5   gerrymanders in one calculation and thereby can
6   allow some amount of cracking to disguise an
7   undue amount of packing."
8   Do you agree with that?
9   A.   Clearly the method seeks to cover both
10 packing and cracking. I would have to think more
11 about the second half of that sentence. I don't
12 have a view on -- a necessary view on the second
13 half of the sentence. But the first half is
14 certainly true, that the efficiency gap
15 incorporates both packing and cracking.
16   Q.   All right. To hopefully save some
17 time, I would like you to turn to page 6. I'm
18 going to give you a chance to read this to
19 yourself beginning with the sentence in the
20 middle of the paragraph "In a three-district
21 state." If you could read the next couple of
22 sentences, and then I can ask you some questions
23 about that. Okay?
24   MR. YEAGER: Just so we're clear,
25   you're talking about two sentences or three

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1
2   that you want us to focus on here?
3   MR. CARVIN: Three.
4   MR. YEAGER: Okay. Thank you.
5   BY MR. CARVIN:
6   Q.   Professor, have you had an opportunity
7   to read that?
8   A.   I need another minute.
9   Q.   Sure. Just to be clear, please
10 indicate to me when you've had enough time to
11 digest that.
12   A.   Yes, I'm thinking.
13   Q.   Sure.
14   A.   Okay.
15   Q.   In the example they give, do they not,
16 is they give three relatively competitive
17 districts, and they point out that an 8.3 gap in
18 favor of the majority party turns into an 8.3 gap
19 against the majority party if the vote shifts
20 during the decade four points in one direction.
21 Is that correct?
22   A.   I'm sorry, the four points -- oh,
23 turns into -- yes. Although I'm not sure -- I'm
24 not sure about the eight-point calculation, if
25 that's correct. But trying -- I was having a

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1
2 tough time doing the math in my head. But I
3 don't think that's correct.
4   But putting that aside, yes. I mean,
5 I think the bottom line, their criticism here is
6 that the efficiency gap estimates are sensitive
7 to small variations in who actually wins each
8 seat. But in my view that's a virtue, not a
9 vice. I mean, in our single-member -- in our
10 single-member districts with first-past-the-post
11 elections the winner of an election is the person
12 that gets 50 percent plus one. And that has
13 enormous consequences for the partisan and
14 ideological composition of legislature and
15 therefore the roll call votes that legislators
16 take and the policies that are passed by our
17 government.
18   So I think taking into account who
19 actually wins the election is not necessarily a
20 bad thing. And yes, if you have uniform swings,
21 that will affect the efficiency gap, but the
22 authors of a gerrymander are aware of the
23 likelihood of different types of uniform swings.
24   So in -- surely you can have uniform
25 swings across elections, but the most likely

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1
2 outcome is the one that the authors of a
3 gerrymander are planning based on. So I think
4 it's a little bit unrelated to the main point
5 here just to point out in various hypothetical
6 scenarios what might happen with different
7 uniform swings.
8   Q.   Well, if you're worried about the
9 durability of a gerrymander, one gerrymandering
10 technique is to have relatively thin majorities
11 for the favored party and then pack the
12 disfavored party into safe districts. If they
13 miscalculate or the electorate shifts during the
14 decade, then what would be viewed as -- in this
15 case we'll use Republican districts, would become
16 Democratic districts, correct?
17   A.   Yes.
18   Q.   And therefore one of the concerns they
19 raise is that if you attribute a very negative
20 efficiency gap score to districts that are, say,
21 51/49, that will create a false positive where
22 that district could change very rapidly and the
23 efficiency gap score would disappear, indeed
24 shift to the other side, correct?
25   MR. YEAGER: Objection; incomplete

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1
2 hypothetical and misstates the evidence.
3   THE WITNESS: Well, I'm not sure I
4 completely followed the hypothetical you
5 just said. But I'll just say at a general
6 level, I think that the -- there is going to
7 be variation within cycles in the efficiency
8 gap, particularly if you only have three
9 districts. But to my knowledge, there are
10 no state legislators -- legislatures in the
11 United States that only have three
12 districts.
13   And my analysis of congressional
14 districts, I believe following other people
15 that have looked at the efficiency gap,
16 focuses on states with more than five or six
17 congressional districts; in my case, more
18 than six. For exactly this very reason,
19 that the efficiency gap estimates are going
20 to be more stable when there's more
21 districts.
22   Clearly, if you only have three
23 districts, it's going to -- the efficiency
24 gap could be sensitive to idiosyncratic
25 variation in election results, which is why

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C. WARSHAW

1
2 in my analysis I didn't actually look at
3 states with only three districts.
4 BY MR. CARVIN:
5   Q.   Well, that's fair enough. Perhaps the
6 magnitude of the difference will be different.
7 But let's go to the last sentence on the opposite
8 column. All right?
9   And the authors say, do they not, that
10 the efficiency gap "overreaches when it offers a
11 false positive reading of gerrymandering by
12 indicting a districting plan as a gerrymander
13 because it has many competitive districts that
14 slightly favor one party..."
15   And since it does indict districts
16 that are competitive, as a gerrymander they may
17 be condemning things as gerrymanders that could
18 shift if these competitive districts shift in the
19 next election. Is that a fair criticism?
20   MR. YEAGER: Objection; misstates the
21 record.
22   You may answer.
23   THE WITNESS: Again, thinking of this
24 at a more abstract level, I think my view is
25 that if a gerrymander were to draw all

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1
2 the -- or to draw a large number of
3 districts where they expected to win
4 54 percent of the vote, those might be
5 termed competitive districts depending on
6 your metric of competitive districts.
7 However, the expected -- the most likely
8 outcome would be that the favored party
9 would win most or all of those districts.
10 BY MR. CARVIN:
11 Q. Right.
12 A. So in fact that would be a
13 gerrymander. Which is why I think that
14 looking -- trying to conflate competitiveness and
15 partisan bias is -- those are two different
16 values. And the goal of a gerrymander in general
17 is to maximize the partisan bias in terms of the
18 translation of votes to seats. And they might do
19 that -- one optimal way to do that is to do that
20 by creating many relatively competitive
21 elections. And on average they're going to be
22 advantaged in the translation of votes to seats.
23 I wouldn't want to throw out that kind
24 of situation merely because we thought that a
25 54 percent election was competitive, because

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1
2 that's -- that's ignoring the fact that the most
3 likely outcome in most scenarios is the favored
4 party will win that election.
5 Q. Fair enough. But just to get to the
6 two points we can agree on, a 52/48 district has
7 a very poor efficiency gap score, right? It says
8 that the disadvantaged party has wasted 46 votes
9 in that?
10 A. I think 48 in the hypothetical you
11 just gave.
12 Q. 48. And in relative terms, 46 because
13 the majority party is only --
14 A. I see what you're saying.
15 Q. -- wasting two points. Is that fair?
16 A. Yes, sir.
17 Q. Okay. So we agree that those kinds of
18 districts perform very poorly in terms of the
19 efficiency gap, correct?
20 A. Sure. The disfavored party is wasting
21 a lot of votes in those districts. Which is one
22 of the reasons why cracking voters across these
23 district is such a good strategy for the favored
24 party.
25 Q. Right. Well, it could be a good

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1
2 strategy in 2012 if an incumbent dies or if there
3 is a relatively minor shift in the state or you
4 have an off-year election following a
5 presidential win. Then those districts that
6 slightly favor Republicans could favor Democrats
7 and Democrats can win those seats, correct?
8 A. Surely.
9 Q. I've got two more questions and then
10 would that be a convenient time for a break? I'm
11 going to move on to a new topic.
12 MR. YEAGER: Is that okay with you,
13 Professor?
14 THE WITNESS: Yes, sir.
15 BY MR. CARVIN:
16 Q. Did you use the full method efficiency
17 gap? Are you familiar with that term?
18 A. I'm not sure -- I can't remember how
19 Stephanopoulos and McGhee -- the terms have
20 shifted a little bit. But I use what I call the
21 turnout adjusted model that incorporates --
22 accounts for differential turnout across
23 districts.
24 Q. So you do account for differential
25 turnout --

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1
2 A. Correct.
3 Q. -- in your analysis?
4 A. I do that for all three legislative
5 chambers.
6 Q. And then if you could turn to page 15
7 of your report, please.
8 A. I'm happy to talk -- I should say one
9 of the consequences of that decision is that it
10 means that, compared to a non-turnout adjusted
11 estimated efficiency gap, my estimates are a
12 little bit more pro-Democratic. So in other
13 words, it gives you -- it's going to create a
14 little bit less, like, pro-Republican
15 gerrymandering or something than if you didn't
16 account for turnout since Democrats tend to have
17 lower turnout in districts they win.
18 Q. But you think it's the better
19 analysis?
20 A. Exactly. I view it -- I view it as
21 the better analysis even though here it certainly
22 cuts against the incumbent conclusions in the
23 report.
24 Q. At the top of page 15 under the
25 bracket heading you say: "Of course the

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1
2 efficiency gap can be nonzero and differ across
3 states for reasons unrelated to the drawing of
4 district lines such as variations in how
5 different demographic groups are distributed
6 across geographic space."
7   Do you see that?
8   A.   Yes.
9   Q.   You didn't analyze how Democratic
10 groups are distributed across geographic spaces
11 in Michigan, did you?
12   A.   No.
13   Q.   "The efficiency gap can also be
14 affected by the intentional drawing of district
15 lines to accomplish goals other than maximizing
16 partisan seat share such as ensuring the
17 representation of racial minorities."
18   Is that right?
19   A.   Yes.
20   Q.   And the reason that is is because, as
21 we can see from the majority black districts in
22 Michigan, all of those are heavily packed
23 Democratic districts, right?
24   A.   I haven't looked at that in my
25 analysis. But from my knowledge of other states,

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1
2 I will take that as probably true.
3   Q.   Can you identify the counties or
4 localities or municipalities in Michigan that
5 have the highest Democratic concentrations?
6   A.   At a general level I could. The city
7 of Detroit I'm sure is heavily Democratic, as in
8 general are other cities, particularly those with
9 many racial minorities or union members and
10 things like that.
11   Q.   Do you know where those are?
12   A.   I could name cities in Michigan, but
13 I'm not -- I'm not -- I don't -- I don't claim to
14 be -- to know the distribution of voter groups
15 across Michigan in detail.
16   Q.   Do you know what county Detroit is in?
17   A.   Wayne County?
18   Q.   Are you asking?
19   A.   I think it's Wayne County.
20   Q.   So if it is true that Democrats are
21 clustered naturally either because of demographic
22 factors or because of the effects of creating
23 majority black districts, the only way to avoid
24 an efficiency gap, an anti-Democratic efficiency
25 gap, would be to draw districts that break up

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1
2 those natural clusters, right?
3   A.   I don't necessarily agree with that.
4 I haven't analyzed that in depth. I know other
5 reports -- I know the work of other experts in
6 this case speak to that. I don't have a view on
7 the matter.
8   Q.   And have you read those reports?
9   A.   I've read parts of Professor Chen's
10 report. I have not read Professor Mayer -- I
11 think I read the introduction of Professor
12 Mayer's report, but I haven't read his report in
13 any depth.
14   MR. CARVIN: This would be a
15   convenient time for a break.
16   (Recess taken.)
17 BY MR. CARVIN:
18   Q.   If you could turn in your report to
19 page 18, please, Professor.
20   A.   Yes.
21   Q.   And you're discussing here the
22 efficiency gaps in Congress, and you say these
23 efficiency gaps imply that the Republicans in
24 Michigan won two to three more seats in these
25 elections than they would have if Michigan had no

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C. WARSHAW

1
2 partisan bias in its efficiency gap. Then you
3 cite Stephanopoulos and McGhee's 2015 article and
4 say that has similar estimates. Is that correct?
5   A.   Yes. I believe both their article and
6 The Brennan Center place seats -- estimate the
7 number of seats that the efficiency gap -- you
8 know, put the efficiency gap in seat terms.
9   (Exhibit 5 marked for identification
10   and attached hereto.)
11 BY MR. CARVIN:
12   Q.   If you could look at Exhibit 5,
13 please, which has just been handed to you.
14   A.   Sure.
15   MR. YEAGER: Did you send me one?
16   MR. CARVIN: Sorry.
17 BY MR. CARVIN:
18   Q.   And this is the University of Chicago
19 Law Review article you referenced on page 18?
20   A.   Yes, I believe that's true.
21   Q.   Okay. Now, it did estimate that the
22 efficiency gap in Michigan was more than two
23 congressional seats, right? Why don't you turn
24 to page 890.
25   A.   890? I think 879 is the one where

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1   C. WARSHAW
2   they showed the efficiency gap in Michigan is
3   three seats, according to their graph.
4   Q.   Okay. But they nonetheless said that
5   Michigan's congressional map was not crossing
6   their threshold of a presumptively invalid
7   efficiency gap -- and I'm reading from the
8   article -- because "the sensitivity testing shows
9   that plausible shifts in voter sentiment could
10   result in the Michigan, North Carolina, and Texas
11   plan advantaging Democrats instead."
12   Is that true?
13   A.   That's what they say in this article.
14   I haven't analyzed that.
15   Q.   You haven't analyzed whether or what
16   kind of plausible shifts in voter sentiment will
17   occur in Michigan in future congressional
18   elections, right?
19   A.   Correct.
20   Q.   And on page 889 of the same article it
21   says in the second sentence of the first full
22   paragraph: "We recommend the sensitivity testing
23   because, as we have stressed, a plan's efficiency
24   gap may change substantially from one election to
25   the next." Correct?

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1   C. WARSHAW
2   A.   Yes, that's true in theory. But the
3   efficiency gap in Michigan has stayed relatively
4   stable over the past three election cycles.
5   Q.   We're going to discuss that.
6   But the authors of this article stress
7   that a plan's efficiency gap may change
8   substantially from one election to the next. Do
9   you disagree with that as a general proposition?
10   A.   No.
11   Q.   We'll come back to how much it's
12   changed in Michigan.
13   They recommend the sensitivity test is
14   to take into account whether under realistic
15   voter shifts the efficiency gap could actually
16   favor in this case the Democrats, correct?
17   That's their sensitivity test?
18   A.   I believe that's true.
19   Q.   And you've not done any sensitivity
20   testing to determine whether or not the
21   efficiency gap could be zero or close to zero in
22   the 2018 or 2020 elections, right?
23   A.   I have not. My entire report focuses
24   on actual observed elections, where we now have
25   three elections since the 2011 plan went into

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1   C. WARSHAW
2   place.
3   Q.   Right.
4   A.   I don't look at hypothetical
5   elections.
6   Q.   Right. Well, the fact that there's
7   elections in 2018 is not hypothetical; they just
8   haven't occurred yet. Right?
9   A.   Fair. Yes.
10   Q.   And you're not making any projections
11   about what will happen --
12   A.   That's correct.
13   Q.   -- in future elections?
14   A.   That's correct.
15   Q.   If you turn to page 864 of this
16   article. If you read the fourth sentence in the
17   first full paragraph on 864, it says:
18   "Specifically, a plan's efficiency gap in one
19   election is a relatively weak predictor of its
20   gap in the next election (coefficient equals
21   0.23) in a model that also includes a variety of
22   other factors."
23   Is that correct?
24   A.   I haven't -- I couldn't say for sure.
25   I haven't looked at -- what I say -- what I show

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1   C. WARSHAW
2   in my report is that in recent election cycles,
3   the efficiency gap in 2012 is a very good
4   predictor of the efficiency gap in 2016, and
5   that's what I've -- that's what I've looked at.
6   Q.   In Michigan?
7   A.   Not just in Michigan but across the
8   country.
9   Q.   Okay. So you disagree with the
10   creators and authors of the efficiency gap about
11   whether or not a plan's efficiency gap in one
12   election is a relatively weak predictor of its
13   gap in the next election?
14   A.   Their analysis may be based on all of
15   the elections over the past, you know, 45 years,
16   which I haven't looked at.
17   Q.   Do you know whether or not they were
18   looking at it for the past 45 years?
19   A.   I don't know. I'd have to -- I assume
20   so.
21   Q.   This article was written in --
22   A.   I think their -- their analysis, like
23   mine, looks at plans, I think over the course of
24   the 1970s, '80s, '90s, 2000 and 2012. And I did
25   some -- it's not shown in my report, but I did

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1   C. WARSHAW
2   some, you know, just exploratory analysis that
3   suggests that the relationship is a little bit
4   weaker in earlier decades. I couldn't say
5   exactly what it is. But certainly in recent
6   elections the relationship is quite strong
7   between the efficiency gap after a plan --
8   immediately after a plan goes into place and
9   mid-decade.
10   Q.   And you say you didn't put that in
11   your report?
12   A.   I didn't. I didn't make -- I thought
13   the most relevant piece was what happens after
14   the 2011 plans went into place since those are
15   the plans that we're focused on.
16   Q.   And the analysis in your report is of
17   the relationship between the 2012 and 2016
18   election results, right?
19   A.   Exactly.
20   Q.   Which you characterize as similar?
21   A.   Yes.
22   Q.   Okay.
23   A.   I believe that's true.
24   Q.   And they went from 19.7 efficiency gap
25   in 2012 to 13.2 in 2016? We come back to this if

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1   C. WARSHAW
2   you want.
3   A.   I would have to look at my report for
4   the precise numbers.
5   Q.   But that's what you considered a very
6   strong correlation?
7   A.   Yes.
8   Q.   6 percent change in efficiency gap?
9   A.   Yeah. Those are very both very --
10   both very pro-Republican efficiency gaps. I
11   mean, to be clear, what they talk about in this
12   article is the odds that a pro-Republican
13   efficiency gap would become a pro-Democratic
14   efficiency gap.
15   Q.   Right.
16   A.   And, of course, in Michigan we see
17   nothing like that. The efficiency gap has
18   fluctuated a little bit, as of course any of
19   these measures will do in real-world election
20   results. But on balance it shows a very
21   pro-Republican map now as it did in 2012.
22   Q.   But you consider a --
23   A.   I don't have a different view, I
24   should say. If it had gone -- if the efficiency
25   gap had gone from negative 20 percent to positive

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1   C. WARSHAW
2   10 percent or something, I mean, I might have a
3   different view. But, you know, despite many
4   different election results, 2012 was a very good
5   year for Democrats. 2014 was a very bad year for
6   Democrats. 2016 was somewhere in the middle in
7   terms of their vote share. Across all of those
8   different scenarios the efficiency gap in
9   Michigan has looked relatively similar.
10   Q.   Relatively similar. I just want to
11   make sure that you consider 6.5 percent change
12   similar.
13   A.   Yeah.
14   Q.   So 13.2 percent would be similar to
15   6 percent? That's a 6 percent change,
16   6.5 percent change?
17   A.   I think that -- I don't have a view on
18   that. But in thinking about it, a couple
19   percentage point change I think is a relatively
20   small change. I wouldn't want to put a precise
21   number on what I viewed as the small change.
22   Within a couple percentage points is --
23   Q.   What about 6.5 percent?
24   A.   I think -- I think I would view that
25   as relatively similar.

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1   C. WARSHAW
2   Q.   Not similar?
3   A.   No, I said I would view them as
4   relatively similar.
5   Q.   But not similar?
6   MR. YEAGER: Objection; misstates the
7   testimony. Asked and answered.
8   BY MR. CARVIN:
9   Q.   Would you view them as similar?
10   MR. YEAGER: Asked and answered.
11   THE WITNESS: I believe the word
12   "similar" is in my report. I don't...
13   BY MR. CARVIN:
14   Q.   And you're standing by that?
15   A.   I stand by that.
16   Q.   Okay. So I'm going to ask you again.
17   Have you analyzed whether a plan's efficiency gap
18   in one year is a weak predictor of gaps in the
19   next election year? Have you assigned a
20   coefficient from one election to another?
21   A.   No. What I show in my report, though,
22   is that there is a .78 correlation, I believe, in
23   congressional plans and a .68 correlation in
24   state legislative plans between the efficiency
25   gaps in 2012 and '16, which suggests that the --

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1
2 certainly for the congressional plans the
3 majority -- the vast majority -- I don't want to
4 say vast, but the majority of the variation in
5 2016 efficiency gaps can be predicted based on
6 the 2012 gaps.
7   Q.   And you looked at three election
8 cycles?
9   A.   Correct.
10   Q.   Do you disagree with the authors'
11 conclusion with respect to efficiency gaps in
12 general that as a practical matter it tends to
13 fluctuate?
14   A.   Yes. Because, as we talked about
15 earlier, the efficiency gap is sensitive to, you
16 know, the actual winner of a seat. So, you know,
17 as the winner of a seat can fluctuate due to
18 election, you know, fluctuation -- uniform swings
19 or idiosyncratic factors the efficiency gap is
20 going to change. That variation will get
21 smaller, in general, as the number of seats
22 increase.
23   Q.   So you agree with them?
24   A.   Yes. And that's why -- and that's why
25 I stated in my report that I think no -- no

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C. WARSHAW

1
2 metric is perfect, including the efficiency gap.
3   Q.   Right.
4   A.   I think all of these metrics have
5 weaknesses, and that's one of the weakness,
6 perhaps the most important weakness of the
7 efficiency gap.
8   Q.   Okay. So you agree with the
9 efficiency gap's potentially more important
10 limitation is instability as the authors state at
11 page 864?
12   A.   I do think that's a weakness. But I
13 think one -- one area where I would disagree with
14 the authors is that elections have consequences.
15 Even if a measure is -- even if -- even if future
16 elections can't be predicted precisely -- and I
17 also think, you know, going back to even the
18 Gelman and King 1994 article, it's
19 longstanding -- it's long been known that the
20 consequences of a gerrymander decay somewhat over
21 time due to changing election circumstances. No
22 one can predict the future precisely. So I don't
23 think that's necessarily a new point.
24   So, for instance, in Michigan the
25 efficiency gap decreases a little bit. And

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C. WARSHAW

1
2 that's been a longstanding finding in the
3 literature. But I think that each election has
4 consequences.
5   Q.   Right.
6   A.   So I don't think we should focus -- I
7 don't think our burden of proof should be that
8 the 2020 -- the efficiency gap in 2020 has to be
9 exactly the same as 2012.
10   Q.   You don't think so?
11   A.   To evaluate a gerrymander. I think
12 that's not -- when parties are trying to maximize
13 their seats, I think that's not what they're
14 trying to do. They're trying to -- they can only
15 see so far into the future, and they're trying to
16 maximize their seat share knowing -- with the
17 information they have.
18   Q.   Fair enough. The court can't do
19 anything about the 2016 elections, right?
20   MR. YEAGER: Objection; calls for a
21   legal conclusion.
22 BY MR. CARVIN:
23   Q.   You're not advocating or you're not
24 understanding anybody to advocate that we throw
25 out the winners of the 2016 election, right?

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C. WARSHAW

1
2   A.   That's correct.
3   Q.   And you don't understand this case to
4 involve enjoining the 2018 elections, right?
5   A.   I don't know.
6   Q.   You don't know? It's August of 2018.
7 I'm telling you that no one is seeking to stop
8 the 2018 elections in this litigation. Okay?
9   If that's true, then the only election
10 that matters relative to this litigation is the
11 2020 election, right?
12   A.   (Nodding head.)
13   Q.   I need a verbal response.
14   A.   Yes.
15   Q.   Okay. So if the efficiency gap has
16 decayed to the point where it is no longer
17 significant or crosses your threshold as an
18 extreme partisan gerrymander in 2020, then there
19 would be no point in enjoining the 2020
20 elections, right?
21   A.   I think that calls for a legal view
22 that I don't have. But I think that -- What I
23 can say is that the 2016 -- empirically, the 2016
24 efficiency gaps have decayed a little bit but
25 they're similar to the 2012 efficiency gaps.

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C. WARSHAW

1
2   Q.   And you're making no prediction about
3   how much they're going to decay in 2018 or 2020,
4   correct?
5   A.   I'm not, except to say that they are
6   relatively similar -- they're similar in 2012 and
7   2016.
8   Q.   Right. But you haven't made any --
9   MR. YEAGER: Objection. Let him
10   finish, please.
11   BY MR. CARVIN:
12   Q.   Go ahead.
13   A.   I think as a -- that's correct. I'm
14   not making -- There's no forecast in my report
15   for what's going to happen in 2020.
16   MR. CARVIN: Could you mark this as
17   Exhibit 6, please.
18   (Exhibit 6 marked for identification
19   and attached hereto.)
20   BY MR. CARVIN:
21   Q.   All right. This is the rebuttal
22   report you submitted in this case. Is that
23   correct?
24   A.   Yes, it is.
25   Q.   If you would turn to page 4, please.

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C. WARSHAW

1
2   You have a heading of (b). And you state on
3   page 9: "Dr. Johnson argues that we should not
4   be concerned that Michigan's districts are
5   gerrymandered because it is possible to imagine a
6   3 to 4 percent uniform swing in the two-party
7   vote shares which would give Democrats a majority
8   of Michigan's congressional seats."
9   Do you see that?
10   A.   Yes.
11   Q.   Do you disagree that a 3 to 4 percent
12   swing would give Democrats a majority of seats?
13   A.   I can't remember, to be honest. I
14   neither agree nor disagree. I just don't
15   remember.
16   Q.   Have you made any projections for
17   potential swings in 2018?
18   A.   I have not.
19   Q.   You say that there have been
20   relatively large swings in statewide votes since
21   2012 in Michigan, right?
22   A.   Where do I say that?
23   Q.   Do you see the last sentence? You
24   say: "There have been regionally large swings in
25   the statewide vote." Second-to-last sentence.

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C. WARSHAW

1
2   A.   Yes.
3   MR. YEAGER: Hold on one second. If I
4   might just read.
5   THE WITNESS: I say despite --
6   MR. YEAGER: Stop. Stop. Just wait.
7   Okay, no objection.
8   BY MR. CARVIN:
9   Q.   Can you tell me what those reasonably
10   large swings were in 2012, 2014, and 2016?
11   A.   I believe -- I don't have -- Nowhere
12   in my report do I state exact numbers. I don't
13   have them exact precisely in my head. But from
14   thinking about the data, I think the Democratic
15   vote share goes from maybe 51 or 52 percent in
16   2012, I think is in what is in my report, to 47
17   percent-ish -- somewhere around 47 percent in
18   2010. So it goes -- it swings a couple of
19   percentage points.
20   Q.   In whose favor?
21   A.   In the Republicans' favor. Sorry, in
22   2014. I might have said 2010. In 2014 it swung
23   in Republicans' favor.
24   Q.   And how about 2016?
25   A.   It swung a little -- it swung a little

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C. WARSHAW

1
2   bit back to the Democrats. I think Democrats had
3   a majority, had a bare majority of the statewide
4   vote, but I can't remember for sure.
5   Q.   So just so I understand it, you think
6   Republicans had a bare majority of the statewide
7   vote in congressional elections in 2014 and
8   Democrats had a bare majority in 2016? That's
9   your testimony?
10   A.   I think that's true, but I would have
11   to look for -- for precise numbers.
12   Q.   It's well established, is it not, that
13   most congressional plans swing up to 7.5 percent
14   during an election cycle?
15   A.   Well, Stephanopoulos and McGhee assert
16   that in their article. I wouldn't say it's well
17   established. I mean, I think -- I couldn't say
18   that for sure.
19   Q.   Do you have contrary analyses?
20   A.   I don't.
21   Q.   So you can't dispute it?
22   A.   I can't dispute it, no.
23   Q.   Back to your rebuttal report. You
24   say -- you state in your initial report:
25   "Democrats would have needed about 57.5 percent

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1   C. WARSHAW
2   of the vote to win a majority of the seats in the
3   Michigan congressional delegation." Right?
4   A.   Yes.
5   MR. YEAGER: Objection. Incomplete
6   reading of that sentence.
7   BY MR. CARVIN:
8   Q.   You said that, right?
9   A.   As I stated in my initial report:
10 "Democrats would have needed about 57.5 percent
11 of the vote to win a majority of the seats in the
12 Michigan congressional delegation."
13   Q.   Right. And you're not suggesting that
14 they would need 57.5 percent to win a majority of
15 the seats in 2018 or 2020, are you?
16   A.   I have not analyzed that, but I have
17 no reason to believe that that wouldn't be true,
18 that it would change dramatically.
19   Q.   So you haven't made any projections
20 about what percentage of the statewide vote would
21 be necessary for Democrats to win a majority of
22 the seats under the current redistricting plan in
23 2018 or 2020, correct?
24   A.   No. But I don't -- my -- in my -- in
25 my view, the number that was required in 2012

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1   C. WARSHAW
2   wouldn't change dramatically over time.
3   Q.   And that's not based on any analysis
4   or conclusion suggested in your report, correct?
5   A.   That's correct.
6   Q.   Let's figure out how you came to this
7   57.5 percent. If you could turn to footnote 9,
8   page 9 of your initial report.
9   A.   I have to find my report.
10   Q.   The first report.
11   A.   Okay. What page number are you on?
12   Q.   Page 9, footnote 9 at the bottom.
13   A.   Yes.
14   Q.   So the way you came up with this 57.5
15 was you just added -- you just figured out they
16 needed to win an additional 4.5 percent of the
17 vote in the 3rd District, which would have been
18 the majority district, in that year to get a
19 majority of the seats, right?
20   A.   Correct.
21   Q.   Okay. And so that wasn't any kind of
22 swing analysis based on election results. That
23 was just looking at the particular result in
24 District 3 for 2012, right?
25   A.   Yes. But in this case District 7, 3

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1   C. WARSHAW
2   and 11 all have very similar vote shares. So
3   even if District 3 had changed a little bit, that
4   wouldn't affect this dramatically, this
5   calculation.
6   Q.   Well, let's look --
7   A.   District 7 was the median -- was the
8   district to get the majority rather than District
9   3.
10   Q.   Well, let's look at that. What
11 increase would it take to give Democrats half the
12 seats even in 2012?
13   A.   About 3.5 percent.
14   Q.   3.5 percent?
15   A.   They would have had to have gone to --
16 they would have had to have gotten 56.5 percent
17 of the statewide vote to get half the seats.
18   Q.   They would have needed a 0.31 percent
19 increase to win District 1, which is hardly
20 anything, right?
21   A.   Correct.
22   Q.   And then they would just need to win
23 District 11 to win half the seats, right?
24   A.   That's correct.
25   Q.   And do you know what the vote share

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1   C. WARSHAW
2   was in District 11 in 2014 and 2016?
3   A.   I don't off the top of my head.
4   Q.   Do you know who the incumbent is in
5   District 11?
6   A.   I don't.
7   Q.   Have you made any projections about
8   what the likely result is in District 11 in 2018?
9   A.   I have not.
10   Q.   So in this very close race, if they
11 win that, then they'll win half the seats, right?
12   A.   Sure, if they also win District 1.
13   Q.   Right. And just so I'm clear, would
14 you think it would be an extreme partisan
15 gerrymander if Democrats won seven of the 14
16 seats in 2018?
17   A.   I would obviously have to --
18   MR. YEAGER: Objection. Wait, wait,
19 wait. Objection; vague and ambiguous.
20   You may answer.
21   THE WITNESS: You would have to give
22 me more information in order to evaluate
23 that statement.
24 BY MR. CARVIN:
25   Q.   Well, in terms of seats-votes

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C. WARSHAW

1
2 proportionality, that's pretty proportionate,
3 isn't it?
4   MR. YEAGER: Objection; vague and
5 ambiguous.
6   You may answer.
7   THE WITNESS: If the Democrats
8 received 53 percent of the statewide vote
9 and they received half the seats, then I
10 would not view that as necessarily a
11 gerrymander. I think that would imply -- I
12 think that would imply a pro-Republican
13 efficiency gap of six points, which I think
14 could be due to a number of factors.
15   MR. CARVIN: If you could mark this.
16   (Exhibit 7 marked for identification
17 and attached hereto.)
18 BY MR. CARVIN:
19   Q.   This is an article by McGhee in 2014
20 in Legislative Studies Quarterly. I believe this
21 is one of the articles you cited in your report.
22   A.   Yes, that's correct.
23   Q.   And McGhee is one of the co-creators
24 of the efficiency gap?
25   A.   He's the original creator of it. This

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C. WARSHAW

1
2 article I believe is the article that creates the
3 efficiency gap, and then the article with
4 Stephanopoulos expanded upon it and applied --
5 developed their proposed legal standard.
6   Q.   If you could turn to page 75 of this
7 article. If you look at the third full
8 paragraph, McGhee states, does he not: "These
9 theoretical insights lead to the key empirical
10 finding of the article. Because efficiency is a
11 function of both vote share and seat share, it is
12 sensitive to changes in party performance. Thus,
13 the effects of partisan gerrymanders, though
14 real, are easily undone. The partisan legacy of
15 the last plan is usually gone by the following
16 redistricting..."
17   Do you agree that the partisan legacy
18 of the last plan is usually undone -- is usually
19 gone by the following redistricting?
20   A.   I haven't -- I couldn't evaluate that
21 statement specifically.
22   Q.   Okay.
23   A.   I don't have a view either way.
24   Q.   All right. If you could turn to your
25 report at the bottom of 17, please. Just to go

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C. WARSHAW

1
2 over what I think we've chatted about already, if
3 you look at the bottom of 17, you point out that
4 the efficiency gap in 2012 was a huge Republican
5 efficiency gap of approximately 19.7 percent.
6 Right?
7   A.   Yes.
8   Q.   Okay. And you say the results in the
9 next two elections were similar to those in 2012.
10 Correct?
11   A.   Yes.
12   Q.   In 2014 and 2016, the efficiency gap
13 was approximately minus 16 in 2014 and minus
14 13.2 percent in 2016. Correct?
15   A.   Correct.
16   Q.   And you're saying that this
17 6.5 percent difference between 13.2 and 19.7 is
18 similar, correct?
19   A.   Yes. I think those are both very
20 pro-Republican efficiency gaps.
21   Q.   Would a 6.7 percent efficiency gap be
22 similar to a 13.2 percent efficiency gap?
23   MR. YEAGER: Objection; incomplete
24 hypothetical.
25   You may answer.

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C. WARSHAW

1
2   THE WITNESS: I think quantitatively
3 those are not wholly dissimilar, but I think
4 the context is very different. Whereas 13.2
5 indicates to me a very clear -- clear
6 evidence of partisan bias, once you go down
7 to 5 or 6 percent then I think that would
8 be -- I would need -- the efficiency gap by
9 itself probably wouldn't be dispositive. It
10 wouldn't be like -- no piece of evidence is
11 dispositive, but I think it would be less
12 significant evidence in favor of a partisan
13 bias.
14 BY MR. CARVIN:
15   Q.   So if this trend continues of the
16 efficiency gap decreasing by 6.5 percent, then it
17 would be roughly 6.7 percent in 2020, correct, if
18 this trend continues?
19   A.   Yes. But I think there is no evidence
20 either way that the trend is going to continue,
21 and certainly not that it's going to be linear.
22 In fact, what we've seen in prior decades in
23 Michigan is the efficiency gap -- you know, there
24 hasn't been a linear trend in the efficiency gap.
25   So for instance in the 1990s, in

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C. WARSHAW

1
2 Figure 5, the efficiency gap bounced around but
3 it was always pro-Democratic, whereas in the
4 2000s, for instance, the efficiency gap trended
5 toward Republicans and it trended a little bit
6 toward Democrats.
7   So I think the historical evidence in
8 Michigan does not provide any reason to believe
9 the efficiency gap is going to trend linearly in
10 a particular direction over time.
11   Q.   We just don't know?
12   A.   That's correct. But I think certainly
13 having a hypothetical that assumes it's going to
14 continue in some linear direction toward a
15 neutral or a pro-Democratic efficiency gap isn't
16 supported by the historical evidence.
17   Q.   Why don't we turn to the historical
18 evidence. If you could turn to page 17.
19   A.   Yes.
20   Q.   See the efficiency gap in the 2000s?
21   A.   Yes.
22   Q.   And the best I can tell in 2006, it
23 was around 14.5 percent?
24   A.   The chart is a little grainy, but that
25 looks roughly right.

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C. WARSHAW

1
2   Q.   What was it in 2010?
3   A.   Again, I don't have an exact number in
4 my head. The chart is a little grainy, but it
5 looks like around 5 percent, negative 5 percent.
6   Q.   5?
7   A.   4 percent. Negative 4 or 5 percent.
8 I don't know.
9   Q.   Is the line halfway between 5 percent?
10 Is the line halfway between 10 percent and
11 0 percent 5 percent?
12   A.   Fair. It's probably negative
13 4 percent.
14   Q.   4? Try again. In 2008 it was 4,
15 right?
16   A.   Sorry. That's what I'm looking at.
17   Q.   And then what was it in 2010?
18   A.   Oh, in -- Yeah. I may have misheard
19 you. My reading of the chart is a negative --
20 yeah, in 2008, I think I had originally said
21 negative 5, but in looking at it, maybe it's
22 negative 4. And then in 2010, negative
23 2 percent, maybe.
24   But I think what -- to me, speaking at
25 a little higher level of abstraction, the

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C. WARSHAW

1
2 efficiency gap is going to bounce around a little
3 bit. But in the pre-2011 period, if anything,
4 the efficiency gap was trending -- to the extent
5 there was a trend, it was a trend toward
6 Democrats which was -- that trend was broken
7 after the 2011 plan went into place. So the plan
8 immediately after the 2011 plan went into place
9 became dramatically more pro-Republican.
10   Q.   Dramatically more pro-Republican?
11   A.   Yeah, going from whatever the 2010
12 number is, maybe negative 2 to the negative 20.
13   Q.   You keep looking at the first year.
14 Right? But if you look at the midpoint year,
15 2006 relative to 2016, which gap is more
16 pro-Republican?
17   A.   Can you repeat the question?
18   Q.   Which is more pro-Republican, the
19 efficiency gap in 2006 or the efficiency gap in
20 2016?
21   A.   It looks like the efficiency gap in
22 2006. But I couldn't say for sure.
23   Q.   Okay. Then you have this analysis of
24 durability, right?
25   A.   What page are you on?

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C. WARSHAW

1
2   Q.   16.
3   A.   Great.
4   Q.   Okay. And you say that this line here
5 somehow shows that the efficiency gap is durable.
6   A.   I --
7   MR. YEAGER: Wait. That's not a
8 question.
9 BY MR. CARVIN:
10   Q.   That's the purpose of this chart? And
11 then I'm going to ask more questions.
12   A.   Yes, the purpose of this chart is to
13 show the durability of the efficiency gaps
14 between 2012 and 2016.
15   Q.   Okay. And that's where I'm confused.
16 I see "MI" on the line that looks to me like it's
17 around, I don't know, 13 percent. But I don't
18 see -- I only see one "MI" dot on this line.
19   A.   Got it. Its position on the x-axis
20 shows it's the efficiency gap in 2012 and the
21 position on the y-axis shows the efficiency gap
22 in 2016.
23   Q.   So what are you --
24   A.   So the fact --
25   MR. YEAGER: Let him ask a question.

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C. WARSHAW
1
2   Okay?
3   BY MR. CARVIN:
4   Q.   I'm just trying to figure out what
5   this number means.
6   MR. YEAGER: I'm sorry. Is that a
7   question?
8   MR. CARVIN: Yeah.
9   MR. YEAGER: Do you understand that
10   question?
11   THE WITNESS: Which number are you
12   referring to?
13 BY MR. CARVIN:
14   Q.   You have "MI." You don't have a
15 number assigned to it. I'm going to guess it's
16 around 12.5 percent.
17   A.   Well, I think I state that elsewhere.
18 I say on page 18 that in 2014 the efficiency gap
19 was negative 16 percent.
20   Q.   Right. In 2016?
21   A.   Uh-huh.
22   Q.   I think it was 13.2 percent in --
23   A.   I'm sorry. That was 2014 I'm talking
24 about. You're right. In 2016, I say negative
25 13.2. You're right.

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C. WARSHAW
1
2   Q.   Is that that number?
3   A.   Yes. The position on the y-axis here
4   is negative 13.2, the y-axis being the left-hand
5   axis is negative 13.2.
6   Q.   Right. And there's no number for the
7   efficiency gap or dot for the efficiency gap in
8   2012?
9   A.   No, that's not correct. The
10 efficiency gap in 2012 is shown on the x-axis,
11 which is the bottom axis. So if you go up from
12 the bottom axis where it says negative 20 percent
13 pro-Republican, the Michigan dot or abbreviation
14 lies just to the right of the negative
15 20 percent, which in fact is I think negative
16 19.7 percent precisely.
17   Q.   So all this chart is showing me is
18 that the efficiency gap in 2016 was 13.2 percent
19 and it was almost 20 percent in 2012?
20   A.   Well, it's showing you that. But it's
21 also showing you across all of the states in the
22 country the efficiency gap in 2016 was extremely
23 closely related to the efficiency gap in 2012.
24 The correlation, as I say -- in this version I
25 said .82. I think in my errata I corrected that

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C. WARSHAW
1
2   to .78. But that's not a consequential
3   difference.
4   Q.   So maybe I'm misunderstanding this.
5   New Jersey had a, what, 11 percent pro-Republican
6   efficiency gap in 2012?
7   A.   I haven't looked at New Jersey in
8   detail, but I believe that's true based on the
9   chart.
10   Q.   And it had zero in 2016?
11   A.   That's what the chart implies. So
12 that implies that New Jersey -- the efficiency
13 gap in New Jersey, changed more than it did in
14 other states. So it's perhaps less durable in
15 New Jersey than in other states.
16   Q.   Okay. Maybe I'm misunderstanding
17 this. Then you've got, like, a 19 percent
18 efficiency gap in Indiana in 2012 and a
19 5.5 percent in 2016?
20   A.   Sure. There's always going to be
21 observations that are outlier observations. But
22 the general trend here shows that looking across
23 all the states, most of which or many of which, I
24 think most, lie within the confidence interval of
25 the smooth line, essentially the smooth line.

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C. WARSHAW
1
2   You know, most -- most of these states are
3   similar -- the 2012 and 2016 efficiency gaps are
4   similar, and the 2016 efficiency gap is -- you
5   know, could be predicted based on the 2012
6   efficiency gap.
7   Q.   All right.
8   A.   And that's certainly the case in
9   Michigan. It's the case in states like
10 Pennsylvania or Ohio or North Carolina or
11 Alabama. On the Democratic side, Massachusetts,
12 which had nearly -- you know, roughly identical
13 efficiency gaps, pro-Democratic efficiency gaps
14 in 2012 and 2016.
15   Q.   Are you suggesting that the efficiency
16 gap in Michigan was roughly identical in 2012 and
17 2016?
18   A.   I'm not, but it's similar.
19   Q.   The 6.5 percent conversation we've
20 already had?
21   A.   Yes.
22   Q.   And you put R equals 0.82. You now
23 think it's 0.78?
24   A.   I believe that's true. I think that's
25 in my errata report.

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1 C. WARSHAW
2 Q. Okay.
3 A. That was based on the methodological
4 discussion in that report.
5 Q. What does that mean?
6 A. It means that what the correlation is
7 telling us is how much of the variation in the
8 2016 efficiency gaps can be predicted by the 2012
9 efficiency gaps. So if -- I mean, if we take --
10 suppose the correlation is .82 as it is here.
11 That implies that 67 percent of the variation
12 could be predicted four years later which is --
13 you know, it's a large -- a large, not
14 overwhelming, share of the variation.
15 Q. Does that mean that there will be a
16 67 percent variation between 2012 and 2016? What
17 do you mean, it can predict 67 percent of the
18 variation?
19 MR. YEAGER: Objection; misstates the
20 testimony.
21 MR. CARVIN: I'm just trying to
22 straighten this out.
23 THE WITNESS: Well, the statistical --
24 It suggests that it -- or it shows that the
25 efficiency gaps in 2012 statistically

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1 C. WARSHAW
2 predict 67 percent of the variation four
3 years later if the correlation was .82.
4 BY MR. CARVIN:
5 Q. So it's off by a third?
6 A. No. It's saying that a third of the
7 variation -- roughly a third of the variation
8 cannot be predicted. It's not saying it's off by
9 a third.
10 Q. Okay. And that would be true --
11 that's true for all states?
12 A. That's true --
13 Q. For all the states on your chart?
14 A. On average, that's true. It's not
15 true for all states individually because
16 obviously there's going to be state-specific
17 errors. But on average, that's true.
18 Q. And you can't calculate Michigan
19 individually? You need all these states to do
20 that?
21 A. Well, what I was trying to
22 characterize here was the general statistical
23 relationship, so on average how good a predictor
24 is 2012 of the efficiency gap halfway through a
25 plan, which is, you know, the most recent plan we

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1 C. WARSHAW
2 have data for. If I had 2018 elections, I would
3 have analyzed that.
4 But I think obviously Michigan -- the
5 number for Michigan is the most probative here.
6 But I think that it's important to also establish
7 the general statistical relationship as well.
8 Q. Okay. You say that the 2011
9 efficiency gap has been durable. Did you look at
10 whether it was durable prior to 2011 in Michigan?
11 A. I did not specifically. I guess I'll
12 say I do think the -- I couldn't put a precise
13 number on it, but the stability of the efficiency
14 gaps has increased over time which is probably
15 why there's such a strong relationship today, in
16 part because elections are more predictable. So
17 as elections are -- particularly the distribution
18 of voters across districts. You may have uniform
19 swings, but, you know, we sort of -- it's more
20 predictable which voter -- which districts are
21 going to be more Republican or more Democratic
22 than other districts.
23 Q. And there's a strong correlation
24 between the presidential vote and the
25 congressional vote?

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1 C. WARSHAW
2 A. Precisely.
3 Q. And people predicted in Michigan
4 Trump's victory pretty solidly because it's so
5 predictable these days?
6 A. The predictability of elections is
7 much greater than it used to be. Certainly at
8 the individual level, the vast majority of people
9 vote with their party. And even in Michigan, you
10 know, sure there was a swing, but it was a
11 relatively small swing compared to earlier eras
12 where you might have had Reagan won all but one
13 or two states in the 1984 election.
14 Nixon won an overwhelming victory in
15 1972. You don't see those kinds of huge swings
16 across elections that we used to. Elections
17 today are much more stable.
18 Q. But again, you haven't analyzed how
19 many ticket-splitters there are in Michigan or
20 how many independent voters there are in
21 Michigan, right?
22 A. No.
23 Q. All right. So on page 19 you say that
24 "Michigan had more extreme pro-Republican
25 efficiency gaps than it has ever had before in

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1   C. WARSHAW
2   Congress." Right?
3   MR. YEAGER: I'm sorry. Could you
4   point to where that is?
5   MR. CARVIN: I apologize. It's the
6   first full sentence at the top of page 19.
7   THE WITNESS: Yes.
8   BY MR. CARVIN:
9   Q.   And then you say: "This further
10   suggests that the geographic factors are unlikely
11   to be the root cause of the large efficiency gaps
12   in Michigan in recent elections." Right?
13   A.   Yes.
14   Q.   So if the pro-Republican efficiency
15   gaps in this decade are in fact similar to the
16   pro-Republican efficiency gaps in the prior
17   decade, that would suggest that geographic
18   factors are likely to be the root cause of a
19   large efficiency gap, correct?
20   A.   Not necessarily. In 2001, there is --
21   I believe there was Republican -- unified
22   Republican control of government. So there could
23   have been a Republican gerrymander in the 2000s
24   as well, although I haven't analyzed that in
25   depth. So I think that the statement -- the

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1   C. WARSHAW
2   negative of the statement here I make is not
3   true. Like the --
4   Q.   All right. Let me restate it.
5   A.   I think the greater efficiency -- the
6   greater efficiency gaps in Michigan reduced the
7   likelihood that geography is the root cause. But
8   the -- the earlier -- if there were
9   pro-Republican efficiency gaps earlier, I would
10   not say those were necessarily due to geography.
11   I just don't know.
12   Q.   But if the efficiency gaps for this
13   decade or the prior decade were similar, that
14   would not provide evidence that the geographic
15   factors are likely to be the root cause of a
16   large efficiency gap in this decade, right?
17   A.   Correct. It wouldn't necessarily
18   suggest that geography is the root cause, but it
19   would be less probative of the argument -- the
20   conclusion that intentional gerrymandering is the
21   cause.
22   Q.   And if neutral plans drawn according
23   to traditional districting principles and without
24   any partisan considerations produced efficiency
25   gaps similar to the enacted plan's efficiency

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1   C. WARSHAW
2   gap, this would be evidence that geographic
3   factors are a root cause of the large efficiency
4   gaps in the plan, right?
5   MR. YEAGER: Objection; vague and
6   ambiguous. Incomplete hypothetical.
7   You may answer.
8   THE WITNESS: In general, I haven't --
9   obviously I didn't look at any kind of
10   simulated plans in my report. You know, if
11   you were to look at simulated plans based on
12   some sort of random algorithm and find they
13   were the same as the enacted plan, then I
14   think that would suggest the enacted plan
15   may be due to factors aside from intentional
16   gerrymander.
17   BY MR. CARVIN:
18   Q.   Well, what if you used a benchmark
19   plan that was clearly drawn without partisan
20   intent and strictly adhering to traditional
21   districting principles and that resulted in an
22   efficiency gap similar to that in the enacted
23   plan? Wouldn't that be strong evidence that
24   geographic, demographic factors are the root
25   cause of the efficiency gap in this plan?

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1   C. WARSHAW
2   MR. YEAGER: Same objection.
3   THE WITNESS: If the -- I mean, in my
4   view, to evaluate a simulated plan, you
5   should look at a range of simulations rather
6   than one demonstration plan as sort of the
7   arbiter of the one -- the one and only fair
8   and neutrally drawn plan.
9   But certainly if the distribution of
10   simulated plans, as I said, was the same as
11   the enacted plan or nearly the same, then
12   that would weigh against intentional
13   gerrymandering, or weigh against the
14   conclusion that there had been intentional
15   gerrymandering.
16   BY MR. CARVIN:
17   Q.   If you could turn to page 32 of your
18   report, please. You say that "The efficiency
19   gaps in state legislative lower chambers have
20   been quite durable though somewhat" --
21   A.   May --
22   Q.   I apologize.
23   A.   My earlier answer, I think the only
24   thing I would add is I do think that, you know,
25   it's useful to look at the totality of the

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1   C. WARSHAW
2   evidence. And the totality of the evidence here,
3   the extremity of Michigan's plan compared to both
4   other states as well as its own efficiency gaps
5   historically, even without any comparison to some
6   simulated plan, for me strongly suggests -- makes
7   me -- makes me feel very confident that there's a
8   large partisan bias in these plans.
9   And that was why I focused on the
10   historical analysis rather than some comparison
11   to simulated plans. So I think that a comparison
12   to some simulated benchmark is not the only way
13   to evaluate gerrymandering, though it's certainly
14   an indicator.
15   Q.   If you turn to page 32, right
16   underneath your heading "Durability of the
17   Efficiency Gap in State Legislatures," you show
18   that "The efficiency gaps in state legislative
19   lower chambers stemming from the 2011
20   redistricting have been quite durable, though
21   somewhat less durable than congressional plans."
22   Right?
23   A.   Yes, that's what I say here.
24   Q.   And overall there is a 0.68
25   correlation nationwide. Right?

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1   C. WARSHAW
2   A.   Correct.
3   Q.   And what percentage of the variation
4   is predicted by a 0.68 correlation?
5   A.   I'm not sure I can do the math in my
6   head. It would be -- it would be the square of
7   .68.
8   Q.   The square of --
9   A.   You have to square .68. It would be
10   about half the variation.
11   Q.   About 50 percent?
12   A.   Yes.
13   Q.   Okay. And the same question I guess I
14   have here, on Figure 14, you've already explained
15   in connection with the congressional map what
16   these dots mean. And you would give me the same
17   answer with respect to Figure 14?
18   A.   Correct. This is exactly the same.
19   The style of this chart, the presentation of this
20   chart is exactly the same as the congressional
21   chart. The numbers obviously differ but -- So
22   Michigan here, I believe this suggests has a
23   pro-Republican efficiency gap of whatever I said,
24   negative -- well, I wouldn't want to put numbers
25   on it. But it shows they're highly -- closely

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1   C. WARSHAW
2   related to each other in 2012 and 2016. They're
3   right on the regression -- the regression line.
4   Q.   Okay. And in -- So we had in 2012 an
5   efficiency gap of 12.3 percent in the state
6   house?
7   A.   I don't have a number in my head.
8   I'll take it as a hypothetical that's what I said
9   in my report.
10   Q.   No, no. Turn to page 34.
11   A.   Great.
12   Q.   12.3 percent?
13   A.   Uh-huh.
14   Q.   And that's unacceptably large both in
15   historical and relative terms?
16   MR. YEAGER: Objection; calls for a
17   legal conclusion.
18   You may answer.
19   THE WITNESS: Yeah, I have no legal
20   view of the legal benchmark. But I think in
21   historical terms what I show here is that's
22   large.
23   BY MR. CARVIN:
24   Q.   Excuse me?
25   A.   I said I have no legal -- I have no

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1   C. WARSHAW
2   view of the legal standard.
3   Q.   I'm not asking you for legal. I'm
4   asking for your view as a political scientist who
5   characterized this as extreme partisan
6   gerrymandering.
7   A.   Yes. I think that's larger than, as I
8   show in my report, the vast majority,
9   overwhelming majority of previous
10   congressional -- or previous state legislative
11   plans.
12   Q.   And therefore is unacceptable?
13   A.   I wouldn't use the word --
14   "unacceptable" suggests a normative benchmark
15   that, you know, as a social scientist I couldn't
16   say what's acceptable or unacceptable. But I
17   think it's very large and I think has pernicious
18   consequences for our democracy.
19   Q.   And the pernicious consequences for
20   democracy, that's not a normative judgment?
21   A.   It is a normative judgment. But I
22   think to say something is acceptable or
23   unacceptable implies having some normative or
24   legal benchmark, and I don't have that in my
25   head.

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1
2   Q.   Or anywhere else? You don't have
3 anything that distinguishes an extreme partisan
4 gerrymander from a non-extreme partisan
5 gerrymander in terms of the percentage of the
6 efficiency gap, right?
7   A.   There's no bright line benchmark where
8 I would say if it's more than 7 or 8 percent that
9 it is a -- you know, definitely a partisan
10 gerrymander.
11   Q.   Is there a range?
12   A.   I don't know that I have a precise
13 range. But I think what I could say is looking
14 at the totality of the circumstances where, you
15 know, the efficiency gap is large relative to
16 other states historically as here and large
17 relative to other states in the current era as
18 here, when the other gerrymandering metrics all
19 show very similar statistics for extremity. When
20 there's unified control of state government, that
21 suggests, you know, intent to maximize its seat
22 share. I think all of those are factors for me
23 in making an evaluation.
24   Q.   And I'm --
25   A.   And then I should say also, you know,

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1
2 as here, I don't know that it's dispositive on
3 its own, but when the efficiency gap increases
4 dramatically when the new gerrymander goes into
5 place I think is also a useful data point.
6   Q.   And just so I'm clear, if we're
7 focusing exclusively on the efficiency gap, there
8 is no consensus or near consensus in the
9 political science community about either a bright
10 line or a range of percentages that crosses some
11 threshold, right?
12   A.   There's not. But I think this is a
13 case that I don't view as a close call. I think
14 it's a --
15   Q.   I know you've given your opinion. I'm
16 just asking you for the political science
17 consensus --
18   A.   There's no --
19   Q.   -- without looking at this case.
20   A.   Correct. Stephanopoulos and McGhee
21 obviously propose -- what they would propose is
22 some legal standard. But I don't think there's
23 any bright line in the literature of what --
24   Q.   No. And you make it clear in your
25 rebuttal report, don't you, that nobody has

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1
2 accepted Stephanopoulos and McGhee's threshold,
3 correct?
4   A.   Yeah. To my knowledge, there's no
5 other article that has -- you know, that we
6 should accept, we should -- there's some social
7 science reason to say that should be a bright
8 line threshold.
9   Q.   And so to get back to our point. In
10 2012 there was an efficiency gap of approximately
11 12.3 percent, right, in the state house? Do you
12 see that?
13   A.   Yes, that's what I stated here.
14   Q.   Okay. Now, you don't provide the
15 numbers for the efficiency gap for 2014 or 2016
16 in your report, is that correct, for the state
17 house?
18   A.   It would appear so. I don't remember.
19   Q.   So we have to guess. Let's look at
20 the chart and guess. Okay?
21   What is the efficiency gap in 2014 for
22 the state house?
23   MR. YEAGER: Object to the
24 characterization.
25   THE WITNESS: I couldn't say based on

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1
2   this printout. It looks like maybe around
3   negative 10, negative --
4 BY MR. CARVIN:
5   Q.   A little under 10?
6   A.   The chart is too grainy. I couldn't
7 say for sure, but it's in the ballpark of
8 negative 10.
9   Q.   Okay. And how about 2016?
10   A.   A little bit less than that.
11   Q.   Isn't it about halfway between 5 and
12 10, about 7 percent?
13   A.   I don't know. I wouldn't want to make
14 a characterization.
15   Q.   Well, you did characterize them as
16 similar.
17   A.   Yeah, I know. I think they are
18 similar. I think that -- I think they're
19 within two or three. I think the 2016 one is
20 certainly within two or three points of the 2008
21 one, which is in turn within two or three points
22 of the 2012 one.
23   Q.   You said 2008?
24   A.   The 2016 one is within three or four
25 points of 2014. I apologize if I misspoke. And

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1   C. WARSHAW
2   the 2014 one is within two, probably two points
3   of the 2012 one.
4   Q.   All right. And so you're saying that
5   efficiency gaps of 12.3 percent and for
6   discussion sake we'll say 6.5 percent are
7   similar?
8   A.   I wouldn't want to place a number on
9   it. I just don't know what the number is.
10   Q.   Well, I'm asking.
11   A.   Because I wouldn't want to --
12   Q.   Since you haven't provided the number,
13   we have to look at your chart, and your charts
14   suggest, I'll say, 7 percent.
15   Are you saying that efficiency gaps of
16   12.3 percent and 7 percent are similar?
17   MR. YEAGER: Objection. The question
18   misrepresents the fact, which is that the
19   witness has provided all that data. Defense
20   counsel has had that data for weeks. If you
21   would like him to refer to that data, you
22   can show it to him. But please don't
23   represent that he has not provided it.
24   You may answer.
25   THE WITNESS: Yeah, that's correct. I

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1   C. WARSHAW
2   mean, the exact estimate is in the data I
3   provided. But the -- and I think we stated
4   earlier, I think elections are going to
5   change year to year. So I think a 4 or 5 or
6   even 6 percent change, I think those are
7   still similar to each other.
8   BY MR. CARVIN:
9   Q.   So you do think an efficiency gap of
10   12.3 percent is similar to an efficiency gap of 7
11   percent?
12   MR. YEAGER: Asked and answered.
13   THE WITNESS: Yes.
14   BY MR. CARVIN:
15   Q.   And you think that the efficiency gap
16   in Michigan, until the most recent redistricting,
17   was similar to that in other states?
18   A.   I think it was a little bit more
19   pro-Republican than some other states, but not as
20   much as it is today.
21   Q.   Turn to page 18, please.
22   A.   Page 18, you said?
23   Q.   Yes. It says: "The chart shows the
24   efficiency gap in Michigan was generally similar
25   to that of other states until the most recent

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1   C. WARSHAW
2   redistricting."
3   Do you stand by that assertion?
4   A.   I think in 2008 and '10 it was right
5   in the middle of the distribution of other
6   states. In 2002, '04 and '06 it was more
7   pro-Republican than other states. So in that
8   statement I was referring to the years
9   immediately before the redistricting.
10   Q.   So for those purposes you were looking
11   at the efficiency gap at the end of the decade,
12   not the efficiency gap at the beginning of the
13   decade?
14   A.   Can you point me exactly to where
15   you're looking? Sorry. On page --
16   Q.   18, at the bottom. "The chart shows
17   that the efficiency gap in Michigan was generally
18   similar to that of other states until the most
19   recent redistricting."
20   A.   Yes. The statement was based on the
21   totality of the evidence over the past five
22   decades where Michigan is on average in the
23   middle of distribution of other states, with a
24   couple of exceptions in the early 2000s. And
25   it's especially true in 2008 and 2010 when

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1   C. WARSHAW
2   Michigan was right in the middle.
3   Q.   So for purposes of that statement,
4   you're looking at the efficiency gaps at the end
5   of the decade, not the efficiency gap immediately
6   following the decennial redistricting, right?
7   A.   Yes. I mean, in part because I think
8   the 2002 efficiency gaps could have been
9   pro-Republican because of gerrymandering in 2001.
10   Q.   Right.
11   A.   So I think certainly for any kind of,
12   like, long-term geographic kind of assessment
13   it's useful both to look at the long-term -- the
14   long-term average as well as the average right
15   before the new plan went into place.
16   I think looking at the 2002 efficiency
17   gap, just like so too -- just like the 2012
18   efficiency gap, is going to be the one that's
19   most affected by intentional gerrymandering.
20   Q.   And that will wane over time?
21   A.   Yes. The literature -- I think the
22   consensus in the literature is that the effects
23   of gerrymandering decay somewhat over time. They
24   do not decay away completely. They are still, in
25   general, consequential, as I show, six years

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1
2   later, and as previous literature shows eight or
3   ten years later.
4   Q.   What previous literature is that?
5   A.   Gelman and King in their 1994 article
6   they show the effects of gerrymandering on
7   symmetry, which is a slightly different metric
8   than the efficiency gap, but they show that it is
9   persistent across the entire decade but it decays
10 over time.
11   MR. CARVIN: Go off the record.
12   (Recess taken.)
13
14
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C. WARSHAW

1
2   ---
3   AFTERNOON SESSION
4   12:52 p.m.
5   ---
6   BY MR. CARVIN:
7   Q.   Welcome back, Professor. If you could
8   turn to page 6 of your report, please.
9   A.   Sure.
10   Q.   And in the second sentence in the
11 first full paragraph you say: "In a packed
12 district the disadvantaged party wins
13 overwhelmingly, wasting a large number of votes
14 above the 50 percent plus one needed to win."
15 Correct?
16   A.   Yes.
17   Q.   That's sort of Political Science 101,
18 right, that a packed district wastes a lot of
19 votes of the packed party?
20   A.   I don't know if I would say Political
21 Science 101, but yeah, I think that's a
22 well-understood concept.
23   Q.   If you could turn to page 7 of your
24 report, please.
25   A.   Uh-huh.

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1
2   Q.   And on that, in Table 1 you provide an
3   illustrative example of how the efficiency gap
4   works, right?
5   A.   Yes.
6   Q.   And the way you figure out the
7   efficiency gap is you look at how many votes are
8   wasted in each district and then you add them up
9   at the end and you come up with an overall
10 efficiency gap score. Is that how that works?
11   A.   I'm sorry. Can you repeat the
12 question?
13   Q.   You look at the district, figure out
14 how many votes are wasted in those districts in
15 relative terms, and then you add it up for each
16 of the districts and come up with an overall
17 efficiency gap score?
18   A.   Yes. The final equation -- That's
19 essentially right. If you do that, you're not
20 adjusting for turnout. So the way I do it, in
21 equation two it adjusts for turnout. But if
22 there's equal turnout across districts, then the
23 approach where you add the wasted votes in each
24 district yields exactly the same result as
25 focusing on the statewide vote.

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C. WARSHAW

1
2   Q.   And even when you adjust for turnout,
3   the way you do it is add up each of the
4   district's wasted votes and then compare one
5   party to the other?
6   A.   You add up the vote share. No, you
7   calculate a statewide vote share and a seat share
8   because that enables you to account for the
9   unequal turnout, as I show in equation two.
10   Q.   So on Table 1 here in your
11 illustration of how the efficiency gap works,
12 District 1 is 75 percent Democratic, 25
13 Republican, right? That's a classic packed
14 district?
15   A.   Yes.
16   Q.   And that would waste a lot of
17 Democratic votes?
18   A.   Yes.
19   Q.   But under the efficiency gap, as you
20 point out, the Republicans waste all 25 of their
21 votes and the Democrats waste 24 of their votes.
22 So it either shows no wasted votes or that in
23 fact Republicans have wasted votes in District 1,
24 right?
25   A.   Yes. In the first district,

33

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C. WARSHAW
Republicans have wasted more votes than
Democrats.
Q. So under the efficiency gap, a
district where Democratic votes have classically
been wasted suggests that actually Republican
votes are wasted in District 1, right?
A. Yes.
Q. And that's contrary to common sense
and political science consensus, isn't it?
A. No. I think the people that are in
that district, their votes don't contribute
to a -- the way here the wasted votes -- the
definition of wasted votes is votes that don't
contribute to a victory.
Q. Right.
A. And Republican votes in this seat
don't contribute to a Republican victory, and so
therefore they're wasted.
Q. But on page 6 you said that the votes
that were wasted were the voters of the packed
party, the 75 percent.
Would you say that a 75 percent
Democratic district wastes more Republican votes
than Democratic votes?

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A. A 75 percent district -- Sorry, I want
to think about it.
Well, the math of it is in a 75/25
district, here the losing party wastes more votes
than the winning party.
Q. That's the math of the efficiency gap.
A. Yes.
Q. What I'm asking you is: Does the math
of the efficiency gap comport with common sense?
Would any political scientist say that a 75
percent packed Democratic district doesn't waste
any Democratic votes; it in fact wastes
Republican votes, in relative terms?
A. I don't think there -- I don't have a
view on what political scientists would say to
that. I don't think -- I think political
scientists would focus -- I mean, I think the
reality is political scientists would focus on
the statewide number of wasted votes.
Q. We're going to get to that. But the
way you get to the statewide is by adding up each
individual district?
A. Roughly speaking, yes.
Q. So if I asked you whether a 75 percent

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Democratic district wastes more Democratic votes
than Republican votes, what would your answer be?
A. Yeah, the 75/25 district here wastes
more Republican votes. But I think that's an
arbitrary feature of, you know, of the precise
vote share that you picked here. But sure.
Q. Wholly apart from the efficiency gap,
you would never offer the opinion that a packed
75 percent Democratic district doesn't waste
Democratic votes relative to Republican votes,
right?
A. At -- I don't think I thought about
it, to be honest, in those terms.
Q. Please think about it.
MR. YEAGER: Could you read the
question back, please, sir?
(The record was read back by the
reporter as follows:
"Question: Wholly apart from the
efficiency gap, you would never offer the
opinion that a packed 75 percent Democratic
district doesn't waste Democratic votes
relative to Republican votes, right?")
THE WITNESS: I think in general, a

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packed district wastes more of the party
that's being packed votes. And I think that
if instead of 75/25 you had had a -- you had
drawn a hypothetical that was 80/20, I
think -- you know, so for instance, in
Michigan, two of the seats that are most
packed are 84 percent Democratic and
86 percent Democratic. So those seats have
more wasted Democratic votes than wasted
Republican votes.
BY MR. CARVIN:
Q. Right.
A. But I think, you know -- like I said,
I haven't thought about it in quite these terms.
But I do think this is the quirk of thinking
about things district by district, is -- you
know, there's no metric, and the efficiency gap
included, that is going to be perfect at trying
to characterize individual districts and -- you
know, for every imaginable vote share, the
relative advantaging of each party.
Q. Does a packed 75 percent district
waste Democratic votes relative to Republican?
MR. YEAGER: Asked and answered.

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1   C. WARSHAW
2   THE WITNESS: The efficiency gap says
3   that if it's roughly equal or it wastes
4   slightly more Republican votes. I think in
5   general packed votes waste more of the party
6   that's being packed voters.
7   BY MR. CARVIN:
8   Q.   And that's just as true at 75 percent
9   as it is at 70 percent, right?
10   A.   I don't think -- yeah, I don't think I
11 would try to argue there's a big difference
12 theoretically between 70/30 and 75/25 districts
13 or 80/20 districts.
14   Q.   In fact, a 75 percent Democratic
15 district wastes more Democratic votes than a 70
16 percent Democratic district, right?
17   A.   Correct. As you pack more, it's going
18 to waste more of the party's voters that are
19 packed. So the efficiency gap, if there's a
20 90/10 district, that would show that the party
21 that wins 90 percent of the vote is wasting, you
22 know, 39 percent or so of its -- of the vote.
23   Q.   So under the illustrative example you
24 propose, the efficiency gap produces a result
25 contrary to reality, which is it suggests no

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1   C. WARSHAW
2   wasted votes when in fact Democrats have wasted
3   votes at 75 percent, correct?
4   MR. YEAGER: Objection; misstates the
5   evidence.
6   You may answer.
7   THE WITNESS: The illustrative example
8   that I provided I think accurately
9   represents that at the statewide level
10 across these three -- and this is obviously
11 a very stylized three-district system where
12 Democrats win a bare majority of the vote
13 but only win a third of the seats. I think
14 it illustrates the partisan bias in this
15 plan through the negative 20 percent
16 efficiency gap.
17 BY MR. CARVIN:
18   Q.   Right. But with respect to District
19 1, it produces a result that is contrary to your
20 view of which party's votes are wasted, right?
21   MR. YEAGER: Asked and answered.
22   You may answer.
23   THE WITNESS: I think in general, in a
24 packed district, the party being packed is
25 disadvantaged.

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1   C. WARSHAW
2   BY MR. CARVIN:
3   Q.   And yet in this illustrative example,
4   it shows that the Democrats didn't waste any
5   votes. So in that district it produces a result
6   contrary to your general understanding?
7   MR. YEAGER: Objection; misstates the
8   evidence.
9   THE WITNESS: I mean, I think here
10 it's not dispositive either way. I mean,
11 this suggests that each party is wasting
12 roughly 25 voters.
13 BY MR. CARVIN:
14   Q.   Oh, then maybe I misunderstood your
15 prior answer.
16   A.   Right.
17   Q.   You think in a 75 percent Democratic
18 district and a 25 percent Republican district,
19 Republicans have wasted just as many votes as
20 Democrats? Is that your testimony?
21   A.   No. I think I -- as I said -- as I
22 stated a couple of times, that's what the
23 efficiency gap says. I don't have a precise view
24 about the magnitude.
25   This is where I said earlier, that I

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1   C. WARSHAW
2   think all of these metrics are simplifications of
3   reality. And at the statewide level, the
4   efficiency gap characterizes a legislative map
5   that is a partisan bias fairly well -- or very
6   well. But none of these are perfect, and I think
7   the goal of the efficiency gap is not to, you
8   know, precisely characterize which districts are
9   packed.
10   Instead, the goal is to make sure that
11 the metric of gerrymandering at the statewide
12 level comports with what McGhee and
13 Stephanopoulos call the efficiency principle.
14   Q.   Right.
15   A.   Which is that if you win -- you
16 shouldn't win more seats in the legislature
17 without winning more votes. And if you win more
18 seats in the legislature without winning more
19 votes, then you should have a metric that
20 reflects that. And the efficiency gap does.
21   Q.   You think the efficiency gap
22 corresponds to a rough equivalence between
23 statewide vote and statewide seat share?
24   A.   No, I do not. It's not a proportional
25 metric.

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1           C. WARSHAW
2       Q.   Okay.  Or even a rough equivalence
3  metric?
4       A.   No.  The mathematical, you know,
5  equation in equation two suggests that having an
6  efficiency gap of zero, you should get -- the
7  seat margin should increase at twice the rate of
8  the vote margin, which is in consort with the
9  historical evidence in the United States as well
10 as the math of the wasted vote equation.  But I
11 think at a broader level it reflects the
12 historical elections of the United States.  I
13 would not characterize that as proportional
14 representation.
15      Q.   And one of the imperfections in the
16 efficiency gap is the fact that it would
17 characterize a 75 percent Democratic district as
18 not wasting Democratic votes, correct?
19          MR. YEAGER:  Objection; asked and
20      answered.  Misstates the record.
21          You may answer.
22          THE WITNESS:  I don't have an answer
23      to that beyond what I stated previously.  I
24      think the efficiency gap implies in this
25      particular case that there would be
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1           C. WARSHAW
2  infinitesimally, you know, .1 or something
3  more wasted Republican votes there than
4  wasted Democratic votes.
5          I don't have -- personally, I don't
6  have a view of exactly what the threshold is
7  for a packed district.  Probably I would say
8  75/25 would be above that threshold.  So it
9  seems that this is a little idiosyncratic as
10 to the efficiency gap in this case.  But the
11 goal of the efficiency gap is to capture
12 gerrymandering at a statewide level; it's
13 not to give a precise characterization of
14 individual districts that are packed or
15 cracked.
16 BY MR. CARVIN:
17      Q.   All right.  Now, in a 51 percent
18 Republican and 49 percent Democratic district,
19 the Democrats have wasted 49 percent of the
20 votes, right?
21      A.   Yes.
22      Q.   And the Republicans have wasted
23 1 percent of the votes?
24      A.   Right.
25      Q.   So the efficiency gap in a 51/49
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1           C. WARSHAW
2  district is 48, right?
3       A.   Yes.
4       Q.   Okay.  And the efficiency gap in a
5  75 --
6       A.   Well, the difference in wasted votes,
7  to be more precise.  That's not the efficiency
8  gap, but the difference in wasted votes would be
9  48.
10      Q.   And that's an extraordinarily high
11 amount of wasted votes in a district, right?
12      A.   Correct.  Well, it's an
13 extraordinarily high differential in the wasted
14 votes.
15      Q.   And so a 51/49 gets a worse efficiency
16 gap or wasted votes measure than a 75/25
17 district.  Is that right?
18      A.   Well, it certainly suggests that when
19 one party would be much more disadvantaged --
20 there's much more of a differential in the wasted
21 votes than in a 75/25.
22      Q.   Okay.  So let's go back to your
23 example.  The efficiency gap in this plan right
24 now is 20 percent pro-Republican?
25      A.   In this illustrative plan in Table 1,
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1           C. WARSHAW
2  yes.
3       Q.   What I would like you to do is change
4  the Republican vote shares from 60/40 to 51
5  Republican, 49 Democrat for Districts 2 and 3.
6  Okay?  And just before we calculate the
7  efficiency gap, a 51 Republican, 49 Democratic
8  district is better for Democrats than a 60
9  percent Republican, 40 percent Democratic
10 district, right?
11      A.   Well, it leads to a more competitive
12 district.  But in the end the outcome here is the
13 same, that there's -- if anything now, Democrats
14 have achieved more of the statewide vote without
15 achieving any more seats.  So they would be --
16      Q.   I'm just asking you generally.
17 Obviously, Democrats would prefer in all
18 circumstances a 51 percent Republican district to
19 a 49 percent Democratic district over a
20 60 percent Republican district to a 40 percent
21 Democratic district, right?
22          MR. YEAGER:  Objection; incomplete
23      hypothetical.
24          You may answer.
25          THE WITNESS:  I mean, I think that if
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1
2   they knew it was going to be 51/49, then
3   they would have no strong preference. But I
4   think that if you thought that 51/49 might
5   give you a better chance of crossing
6   50 percent, then sure, they would prefer
7   that if they thought there's variation
8   across election cycles, things like that.
9   BY MR. CARVIN:
10   Q.   And a 51/49 district will always give
11   you a better chance of crossing the 50 percent
12   threshold than a 60/40 district, right?
13   A.   I would say in that extreme -- kind of
14   extreme example, yes. I mean, if it was 55/45 I
15   wouldn't necessarily say that.
16   Q.   So can you do what I asked you to do?
17   Calculate the efficiency gap if you changed 60
18   Republican to 51 Republican, and 60 Republican to
19   51 Republican, and change 40 Democrat to 49
20   Democrat in both of those districts.
21   I'll give you this.
22   MR. YEAGER: Don't write on the
23   exhibit.
24   THE WITNESS: Just kidding.
25   MR. YEAGER: Is it okay if I give the

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1
2   witness a piece of paper?
3   MR. CARVIN: Sure.
4   THE WITNESS: So it's 51 votes in each
5   district for the Republicans now?
6   BY MR. CARVIN:
7   Q.   Yes. And 49 for the Democrats.
8   A.   Sure.
9   Q.   Calculate the efficiency gap for the
10   entire, all three districts.
11   A.   This is testing me without a
12   calculator.
13   If my math is right, I think it's more
14   around negative 32 percent.
15   Q.   That's right. So it's gone from
16   20 percent to negative 33 percent, correct? The
17   efficiency gap has increased in a pro-Republican
18   biased way, right?
19   A.   Yes.
20   Q.   As the districts become more
21   competitive and more accessible to Democratic
22   victories, the efficiency gap does not decrease.
23   It increases, correct?
24   MR. YEAGER: Objection; incomplete
25   hypothetical.

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1
2   You may answer.
3   THE WITNESS: As I said before, I
4   think the --
5   BY MR. CARVIN:
6   Q.   Just answer it and then please --
7   MR. YEAGER: Excuse me. I instruct
8   the witness that you may answer the question
9   as you wish in order to truthfully testify.
10   You don't have to take directions from
11   counsel on how to give a truthful answer.
12   Please answer the question. You may
13   hear it back if you would like to have it
14   put to you again.
15   MR. CARVIN: Why don't you read it
16   back to him.
17   (The record was read back by the
18   reporter as follows:
19   "Question: As the districts become
20   more competitive and more accessible to
21   Democratic victories, the efficiency gap
22   does not decrease. It increases, correct?")
23   THE WITNESS: In this hypothetical
24   example, that's true. And I think that in
25   general, as I said before, there's no

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1
2   necessary relationship or clear empirical
3   relationship between the competitiveness of
4   elections and the efficiency gap. But
5   surely we could draw hypothetical examples
6   where more competitive elections also
7   correspond to an efficiency gap that's more
8   penalized if it's -- that disfavors the
9   party that gains more competitive elections.
10   And as I said before, I think those
11   are two different metrics for
12   gerrymandering. In this case, if the
13   Democrats received -- you know, 173 divided
14   by 300 is 58 percent of the statewide vote,
15   and they only received a third of the seats,
16   then I think that would be -- there would be
17   a strong partisan bias in those results
18   against the Democrats.
19   BY MR. CARVIN:
20   Q.   But you would know that without
21   calculating the efficiency, correct? The
22   percentage of statewide vote needed to capture
23   the majority of the seats. That's not what the
24   efficiency gap measures, right?
25   A.   Well, there's a mathematical

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1
2 correspondence. If you assume equal turnout
3 across districts, then the number of wasted votes
4 exactly equals the equation -- the math in
5 equation two in my report.
6   Q.   Right. But what I'm trying to figure
7 out is in my hypothetical where there is a 51
8 Republican -- two 51 Republican districts as
9 opposed to two 60 percent districts, that
10 gerrymander would be less durable than the 60/40
11 districts, right?
12   A.   Yes.
13   Q.   Okay.
14   A.   Yes.
15   Q.   Now I'm going to ask you to do one
16 other thing. I want --
17   A.   I would just expand upon that. I
18 think neither in my report -- I mean, I haven't
19 analyzed this, but I don't think in my report
20 I've ever stated that there's a necessary
21 correspondence between the magnitude of the
22 efficiency gap and its durability.
23   Q.   And in fact --
24   A.   There could be -- I haven't analyzed
25 this, but I take it there could be tradeoffs that

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1
2 a party could make.
3   Q.   Right. In fact, there is no
4 connection between the magnitude of the
5 efficiency gap and the durability of the
6 gerrymander, correct?
7   A.   There is not a necessary theoretical
8 correspondence. Empirically we know that
9 efficiency gaps are relatively consistent over
10 time, particularly in the modern era, as I show
11 in my report. But at a hypothetical level, or
12 even theoretical level, there could be tradeoffs
13 that a party would make. They would sacrifice --
14 you know, as in the example here, they might --
15 they might not want to risk cracked districts
16 that are 51/49. They might go for 60/40 or 56/44
17 as we see in other states.
18   Q.   All right. Well, let's figure out the
19 durability. I'm going to give you another
20 hypothetical. Okay?
21   Now I want District 3 in your thing to
22 be 51 Democratic, 49 Republican. Keep District 2
23 as 51 Republican and 49 Democratic and keep
24 District 1 as it is. What would be the
25 efficiency gap in that plan?

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1
2   A.   So in this scenario there would
3 be a -- well, the efficiency gap would be
4 essentially zero.
5   Q.   Essentially zero?
6   A.   Yeah. And the reason for that, the
7 reason we can see that intuitively is that in
8 this scenario the Democrats would get two-thirds
9 of the seats and something close to -- not
10 two-thirds of the vote but 59 percent of the vote
11 or something like that. 58 or 59 percent of the
12 vote.
13   Q.   Right. But the efficiency gap goes
14 from about 33 percent to 0 percent when Democrats
15 increase their vote share by 2 percent in
16 District 3, right?
17   A.   Sure. I mean, as I said earlier, I
18 think that's a weakness of the efficiency gap, is
19 that when there's a small number of seats, it's
20 subject to big changes when there's, you know,
21 small changes in election results. That's why in
22 my analysis I don't use any states with only
23 three congressional districts.
24   Q.   It's also true that the efficiency gap
25 does change quite substantially if the party that

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1
2 had been winning 49 percent of the vote in a
3 subsequent election wins 51 percent of the vote,
4 correct?
5   MR. YEAGER: Objection; incomplete
6 hypothetical.
7   You may answer.
8   THE WITNESS: It depends on the number
9 of seats, but certainly it's going to
10 change. In a state house with many seats,
11 that wouldn't affect the efficiency gap very
12 much. In a congressional plan with, you
13 know, three seats, obviously it affects it
14 quite a bit. And with 14 seats it will
15 affect it somewhat but not nearly as much as
16 with three seats.
17 BY MR. CARVIN:
18   Q.   Well, if two competitive districts
19 went Democratic in 2018, they would win seven of
20 14 seats. You wouldn't consider that a
21 disproportion between seats and votes in
22 Michigan, would you?
23   A.   No, you might. Because if Democrats
24 were to win two competitive districts this year,
25 it's probably because they increased their

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C. WARSHAW

1
2 statewide vote share. If they were to win 57
3 percent of the statewide vote but only half of
4 the seats.
5   Q.   What if they won 52 percent of the
6 statewide vote and half the seats?
7   A.   I think that -- well, it's certainly
8 possible. It's not likely.
9   Q.   But if it did happen, you wouldn't
10 view that as --
11   A.   But I think --
12   MR. YEAGER: Wait. Let him ask a
13   question.
14 BY MR. CARVIN:
15   Q.   -- an unfair gerrymandering?
16   MR. YEAGER: Objection; incomplete
17   hypothetical.
18   You may answer.
19   THE WITNESS: If Democrats were to win
20   52 percent of the statewide vote and half
21   the seats, then that would be a negative
22   efficiency gap of roughly 4 percent. So
23   that would not be evidence on its own of an
24   indicator of a gerrymander.
25 BY MR. CARVIN:

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1
2   Q.   Okay. So switches in competitive
3 districts can have a large effect on the
4 efficiency gap, not as extreme as this three-seat
5 example, but obviously they can have an effect on
6 it, right?
7   A.   They can. That's why in my report I
8 didn't rely on just the efficiency gap but I
9 relied on both looking at, say, presidential vote
10 with the efficiency gap, looking at the
11 mean-median difference and declination, both of
12 which are arguably less subject to variation due
13 to this 50 percent.
14   Q.   Well, we'll come back to that.
15   A.   Certainly the mean-median I think is
16 substantially less subject to this kind of
17 variation.
18   Q.   Okay. But in all events, with respect
19 to the efficiency gap, this is what we were
20 talking about before about the volatility of the
21 efficiency gap and what Stephanopoulos and McGhee
22 agreed was the instability was attributable to
23 the fact that changes in the outcomes in
24 competitive districts can have a profound effect
25 on the overall efficiency gap. Correct?

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1
2   A.   I would disagree with the "profound"
3 part of that statement. But certainly it can
4 have an effect in a three-district election.
5 Then it can have a profound effect.
6   Q.   If you can turn back to the Stanford
7 Law Review article by Stephanopoulos and McGhee,
8 which I believe is Exhibit 2.
9   A.   The 2018 article. Sure.
10   Q.   Do you have that in front of you? If
11 you could turn to page 1512. Under "B.
12 Distinctness," they're discussing their criterion
13 for proper measures and they state, do they not:
14 "Our second criterion is that a gerrymandering
15 metric should capture efficiency and only
16 efficiency. It should not try to gauge other
17 electoral values, nor should it be (in part or in
18 full) a function of those values. Here the
19 values we have in mind are goals that
20 redistricting plans may be able to promote or
21 impede: electoral competitiveness (or how
22 close races tend to be), proportional
23 representation (or whether parties' vote shares
24 equal their seat shares)," and then it goes on.
25   Then it says: "We consider a metric

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1
2 to be flawed to the extent it reflects these
3 values in addition to, or instead of,
4 efficiency."
5   Correct, that's what it says?
6   A.   Yes.
7   Q.   So they deliberately avoid factoring
8 in electoral competitiveness of their seats into
9 the efficiency gap, right?
10   A.   That's correct.
11   Q.   And they deliberately avoid figuring
12 out whether parties' vote shares are equal to
13 their seat shares as part of the efficiency gap?
14   A.   Correct.
15   Q.   If you turn to page 1513, it says at
16 the bottom, the third paragraph: "In the
17 academy, scholars appear to be split as to
18 whether a measure should incorporate values other
19 than efficiency," such as competitiveness and
20 equivalence between seats and votes.
21   Do you agree that the academy appears
22 to be split on this question?
23   A.   I think the scholars they quote are
24 split. I don't know that the people that -- I
25 guess I'm not sure the split is as large as they

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1
2   imply it is. I think they're -- they're trying
3   to distinguish themselves from these scholars
4   that have criticized the efficiency gap. But I
5   think, you know, most political scientists would
6   say that a measure that purports to be about one
7   thing should be about that thing rather than
8   other things.
9   Q.   Right.
10   A.   So to the extent we're trying -- you
11   know, I would put it a little differently. I
12   would say to the extent we're trying to capture
13   partisan bias, which I would call partisan bias
14   rather than efficiency, but we're talking about
15   very similar things. So to the extent we're
16   trying to capture that, I think -- I agree that
17   we should capture that rather than other things.
18   I think most political scientists would agree
19   with that general -- the general concept.
20   Q.   But if someone analyzing a
21   redistricting plan was interested in how many
22   competitive seats it presents, it wouldn't look
23   at the efficiency gap?
24   A.   That's correct.
25   Q.   And if it was considered about the

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1
2   equivalence between a party's vote share and
3   their seat shares, it wouldn't look at the
4   efficiency gap for that reason either?
5   A.   That's correct.
6   Q.   If you would turn to page 1524.
7   They're now discussing Cover's objection to the
8   efficiency gap. They quote Cover as saying "A
9   plan may 'achieve' the ideal of equal wasted
10   votes at the expense of...seats-votes
11   proportionality."
12   I read that correctly, right?
13   A.   Yes.
14   Q.   And do you agree that a plan may
15   achieve the idea of equal wasted votes at the
16   expense of seats-votes proportionality?
17   A.   Yes.
18   Q.   And do you agree with Stephanopoulos
19   and McGhee that a partisan gerrymander measure
20   that is wholly indifferent to whether vote shares
21   are roughly equivalent to seat shares is a good
22   partisan gerrymander measure?
23   MR. YEAGER: I'm sorry. Could you
24   point out where you're reading?
25   BY MR. CARVIN:

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1
2   Q.   Go ahead.
3   MR. YEAGER: Objection.
4   THE WITNESS: Can you repeat it,
5   please?
6   BY MR. CARVIN:
7   Q.   Do you agree with Stephanopoulos and
8   McGhee that a partisan gerrymander measure that
9   is totally indifferent to whether vote shares are
10   roughly equivalent to seat shares is a proper
11   partisan gerrymander measure?
12   MR. YEAGER: I'm sorry. Can just tell
13   me where that is that you're reading from?
14   MR. CARVIN: I just read it.
15   MR. YEAGER: Well, I object. I would
16   like to know where in the report so I can
17   determine whether you're accurately
18   reflecting what the report says or not.
19   THE WITNESS: Well, in my view, I
20   think you are overstating it. I don't
21   think -- I think their view is that a
22   proportional representation doesn't
23   represent the empirical reality of American
24   elections, which I share. There has been a
25   wide body of political science that shows

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1
2   that there's not a proportional one-to-one
3   relationship between seats and votes in
4   single-member-district legislative
5   elections. If you wanted to have strict
6   proportionality, you know, probably you
7   would need to have a different system than
8   single-member elections with
9   first-past-the-post.
10   But the empirical reality of American
11   elections over the past 50 years and more is
12   that you tend to have about a two-to-one
13   relationship between the number of seats
14   that you get and the number of -- and the
15   number of seat margin and the vote margin.
16   BY MR. CARVIN:
17   Q.   Just to be clear, you're not
18   suggesting that -- you're suggesting that every
19   percentage over 50 that you get, you roughly get
20   a two percentage point increase in your seat
21   share, right?
22   A.   Exactly. It's a longstanding -- it's
23   a well-known fact of legislative elections that
24   there tends to be a winner's bonus.
25   Q.   So if you get 53 percent of the vote,

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1
2 you would roughly expect 59 percent of the seats,
3 right?
4   A.   No. You would expect 56 percent of
5 the seats with a two-to-one margin.
6   Q.   Fair point.
7   A.   Correct. There are legal points as
8 well that I don't have a view on, about whether
9 the Supreme Court favors or disfavors
10 proportional representation. That's outside my
11 purview of expertise.
12   Q.   Right. So we don't expect
13 proportional representation, but we do expect a
14 party that gets a majority of the votes to get a
15 majority of the seats under this well-documented
16 expectation, right?
17   A.   Correct.
18   Q.   So if a districting plan violates that
19 majoritarian principle, than it is suggestive of
20 a gerrymander?
21   A.   It's suggestive. Although if you had
22 a 50 -- you know, if you had 50.1 percent of the
23 statewide vote and 49 percent of the seats, then,
24 you know, obviously there could be idiosyncratic
25 factors that affect that.

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1
2   But clearly if you had, you know, as
3 in Michigan, 52, 53, 54 percent of the statewide
4 vote and you get five out of 14 seats, that's a
5 much larger discrepancy.
6   Q.   Right. And would that be measured
7 directly by the efficiency gap, that equivalence
8 between seats and votes?
9   A.   Yeah. Yes, the efficiency gap
10 captures that.
11   Q.   Okay. So is it at the expense of
12 seats-votes proportionality, the efficiency gap?
13 You can have equal wasted votes at the expense of
14 seats-votes proportionality or equivalent?
15   A.   The only place -- the only value where
16 you will have an exactly proportional seats and
17 votes in the efficiency gap and also a zero no
18 efficiency gap is at 50 percent, where they're
19 both 50 percent. Any other value, you will not
20 have a zero -- a no efficiency gap you will by
21 definition have a two-to-one relationship between
22 the vote margin and the seat margin.
23   Q.   So should we care about the
24 relationship between -- equivalence between seats
25 and votes in analyzing gerrymandering?

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1
2   A.   I think if you get -- I mean, I don't
3 have a view about whether we should have exact
4 proportional representation. As I said, as a
5 scholar of elections, I know that that's
6 unrealistic in single-member districts and you're
7 not going to have proportional representation.
8   Would exact proportional
9 representation be better from a normative sense?
10 I don't know. But in single-member districts,
11 that's not a reality. What is a reality is in
12 single-member districts over the past 50 years is
13 having about a two-to-one relationship between
14 the number of seats you get and the number of
15 votes that you get, or the margin of seats and
16 votes.
17   Q.   Should we be worried about departures
18 from that two-to-one relationship?
19   A.   I think that we shouldn't worry about
20 modest departures from it. Obviously there's
21 lots of things that could lead to modest
22 departures. But where you have large departures
23 such as that when you get a majority of the
24 statewide vote and a small minority of the seats,
25 or even, you know, you get close to a majority of

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1
2 the statewide vote and a very small minority of
3 the seats as in the Michigan state senate, then I
4 think that's problematic.
5   Q.   So you are not advocating proportional
6 representation, but you think it's problematic if
7 a party captures a majority of the vote and a
8 minority of the seats? Do I understand that
9 correctly?
10   A.   In general, yes. With the caveat
11 being that if it's a very small majority in a --
12 you know, a bare majority and a bare minority,
13 then I wouldn't find that problematic. But
14 certainly if it's a large majority of the vote
15 and a small minority of the seats, I think that
16 would be problematic.
17   MR. CARVIN: If we could mark this as
18 Exhibit 8.
19   (Exhibit 8 marked for identification
20 and attached hereto.)
21 BY MR. CARVIN:
22   Q.   I've handed you Exhibit 8. This is
23 the Krasno article. Have you seen this?
24   A.   I've seen this article. I haven't
25 read this article closely.

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1
2   Q.   I gave you the draft before, the
3 predecessor to this. You reference a forthcoming
4 Krasno article in your --
5   A.   I think that's the other article you
6 mentioned.
7   Q.   Yeah. I'm going to represent to you
8 that this is a refinement or continuation of
9 that.
10   A.   Okay.
11   Q.   In all events, I'm trying to speed
12 this up as much as I can.
13   If you turn to page 27, they're
14 talking about the Wisconsin redistricting.
15   A.   Uh-huh.
16   Q.   And I'm going to give one example that
17 they give. It's describing the efficiency gap,
18 and in the second sentence in the second full
19 paragraph it says: "For example, in a contrast
20 where the Democrat wins 50 votes and Republicans
21 winning 45, the disparity in wasted votes is
22 enormously favorable to the Democrats, one wasted
23 Democratic vote versus 49 wasted Republican
24 ones."
25   That's true, isn't it?

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1
2   A.   Yes.
3   Q.   And then as we've discussed
4 previously, if two Democratic voters change their
5 minds and support the Republicans, the disparity
6 is now equally favorable to the Republicans.
7 Correct?
8   A.   Yes.
9   Q.   Okay. And then if you could turn to
10 the top of page 28. It's discussing another
11 measure but in addition to the efficiency gap.
12 It says: "Both measures are susceptible to big
13 changes from small movements in the vote near 50
14 percent in a district, suggesting that any map
15 with a number of competitive districts will
16 produce unstable results under the efficiency
17 gap."
18   Do you agree with that statement?
19   A.   Can you read it back to me?
20   Q.   "Both measures are susceptible to big
21 changes from small movements in the vote near
22 50 percent in the district, suggesting that any
23 map with a number of competitive districts will
24 produce unstable results."
25   Do you agree with that?

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C. WARSHAW

1
2   A.   Again, I think it depends how many
3 districts there are. If there's three districts
4 and two of the three are competitive or one of
5 the three is very close, then results will bounce
6 around. As the number of districts increases,
7 unless the number of competitive districts
8 increase correspondingly, and even then if --
9 even if there's a larger number of competitive
10 districts, they're not all likely to kind of
11 swing around each election. You know, there's
12 still going to be a bias toward one party or the
13 other.
14   So in general, as there's more
15 districts, I would expect the efficiency gap to
16 be more stable.
17   Q.   But, say, if there's only 14 seats,
18 then it will be relatively unstable?
19   A.   I think clearly it will be less stable
20 with 14 districts than with 100 or 200 or a
21 thousand. But I would view 14 districts as
22 providing, you know, reasonable estimates that I
23 think are reliable.
24   Q.   All right. They're making the point
25 that in Wisconsin there was enough districts

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C. WARSHAW

1
2 close enough to the 50/50 tipping point that a
3 small shift in the vote moves a relatively large
4 number of districts to the other party's column.
5 Consequently, beyond capturing vote dilution,
6 it's clear that efficiency gap and the other
7 measure also pick up electoral performance
8 rendering them unreliable at detecting
9 gerrymanders.
10   Do you agree with that statement?
11   A.   No.
12   Q.   "Given these measurement properties,
13 we would not use either metric to argue for or
14 against a gerrymander."
15   Do you disagree with that statement?
16   A.   Yes.
17   Q.   "Other scholars have raised similar
18 doubts about the EG in particular," and then it
19 cites some other scholars.
20   Do you agree that scholars have raised
21 similar doubts about the efficiency gap for the
22 reason that I just articulated?
23   A.   Yes. I think -- I'll state two
24 things. One is that the Stephanopoulos and
25 McGhee 2018 article largely addresses the

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1   C. WARSHAW
2   concerns of those scholars. But at a more
3   general level, I view -- you know, the goal of a
4   gerrymander is to win seats.
5   Q.   Right.
6   A.   So I think having a measure that takes
7   account of actually winning seats, which at the
8   end of the day is what a gerrymander is trying to
9   do, is a feature, not a bug, of the efficiency
10 gap.
11   Q.   Right.
12   A.   I think to the extent that other
13 measures like the mean-median don't actually
14 directly incorporate information about the seats
15 the parties win, I think that's not ideal from a
16 theoretical point of view.
17   And I think the small variation -- the
18 noise in the efficiency gap due to the changes in
19 these competitive elections is a weakness, but I
20 think it is based on the idea that the efficiency
21 gap is actually incorporating the number of seats
22 that parties win. Which I think is an important
23 thing to incorporate into a measurement of
24 gerrymandering.
25   I'll also say that empirically in

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1   C. WARSHAW
2   general the -- I think it's important to remember
3   that the measure you use is relatively
4   unimportant. You know, scholars -- my assessment
5   of this literature -- and as you said earlier, I
6   will readily admit that I am not one who has
7   tried to promote a particular measure of
8   gerrymandering. You know, I think none of these
9   are perfect. But at the end of the day all these
10 measures of gerrymandering are extremely highly
11 correlated, particularly in states like Michigan
12 with competitive elections. And so in general
13 they give you very similar answers. You can pick
14 around the margin and find one metric in one case
15 gives you slightly different answers.
16   But, you know, in Michigan --
17 certainly in Michigan where I looked the most
18 closely, all of these metrics give you
19 substantively identical answers.
20   Q.   That's, of course, preordained, right?
21 If a party captures more seats with a minority of
22 the votes, the mean-median, the declination, and
23 the efficiency gap are going to give you very
24 similar scores if they're biased against the
25 party with a majority of the statewide votes.

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1   C. WARSHAW
2   Isn't that true?
3   A.   Yes.
4   Q.   So it hardly reinforces the robustness
5   of the efficiency gap. It just reflects the fact
6   that all these measures will condemn any plan
7   where a party receives less than 50 percent of
8   the statewide vote and receives more than
9   50 percent of the statewide seats, correct?
10   A.   Yes. But the magnitude of how much
11 they'll condemn it is going to vary across
12 metrics and across -- well, mostly importantly,
13 it will vary based on the disparity between the
14 number of seats and votes. And in a state like
15 Michigan where there's a large disparity between
16 the statewide votes and seats, then all of the
17 measures will find an extreme gerrymander.
18   Q.   Can you give me an example of where
19 there is a large efficiency gap and not a large
20 mean-median difference or a large declination
21 anywhere?
22   A.   Yes, I can. So in the -- I haven't
23 looked closely at why this is, but in the
24 one-party South, in the Democratic South in the
25 1970s and '80s, the efficiency gap -- and I

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1   C. WARSHAW
2   assume declination although I haven't looked at
3   this -- show that there are very large Democratic
4   gerrymanders. Which in fact they were. There's
5   lots of qualitative evidence on this. Cox and
6   Katz's I think 2002 book which I cite in my
7   report focuses on this at length. So we know
8   from a large body of evidence that there is
9   certainly an intent to gerrymander by Democrats
10 in the South in the 1970s and '80s, and it
11 appears to have had that effect. And the
12 efficiency gap captures that extremely well.
13   Q.   And the declination does as well?
14   A.   I believe the declination does as
15 well, whereas the mean-median does not capture
16 that.
17   Q.   So that's a deficiency in the
18 mean-median score? It doesn't capture what's a
19 well-acknowledged and obvious gerrymander.
20   A.   As I said earlier, I think none of
21 these metrics are perfect. But in general for --
22 and those are -- and that's partly because those
23 are uncompetitive elections.
24   So what Stephanopoulos and McGhee
25 point out is that in the case of an uncompetitive

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C. WARSHAW
1
2 election where one party gets 60 or 65 percent,
3 say, of the statewide vote, you know, then the
4 different metrics will diverge a little bit more.
5 But we don't observe that very much in the modern
6 U.S., and we certainly don't observe it in
7 Michigan.
8   Q.   Right. So in the modern era, when
9 there are competitive elections, there's
10 virtually never or very rarely any divergence
11 between efficiency gap, mean-median, and
12 declination, correct?
13   A.   I would agree with that.
14   Q.   Okay. Why don't we discuss the
15 mean-median. That was first proposed in a 2015
16 Election Law Journal by Best and McDonald?
17   A.   I believe that's true.
18   Q.   And the Election Law Journal, is that
19 a peer-reviewed journal?
20   A.   Generally speaking, it is. I think
21 they do publish occasionally doctrinal articles
22 that might not be peer-reviewed, but their social
23 science articles are peer-reviewed.
24   Q.   Okay. There's certainly no wide
25 scholarly acceptance of mean-median as the best

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C. WARSHAW
1
2 or proper measure of partisan gerrymanders,
3 correct?
4   A.   Correct.
5   Q.   And it's been subject to serious
6 criticism by respected political scientists?
7   A.   Correct.
8   Q.   Including Stephanopoulos and McGhee?
9   A.   Correct. I think I discuss some of
10 those criticisms in my report.
11   Q.   Yeah, why don't we turn to that. If
12 you could turn to page 9 of your report.
13   A.   Yes.
14   Q.   One problem with it is it is possible
15 for packing and cracking to occur without any
16 change in the mean-median difference, right?
17   A.   Correct. I think McGhee in his 2017
18 article shows this, demonstrates this empirically
19 with simulations.
20   Q.   And therefore a party could gain seats
21 in the legislature without the mean-median gap
22 changing, correct?
23   A.   Correct.
24   Q.   Another problem with it is it's
25 sensitive to the outcome in the median districts?

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1
2   A.   Correct.
3   Q.   And it lacks an obvious interpretation
4 in terms of the number of seats that a party
5 gains through gerrymandering, correct?
6   A.   Correct.
7   Q.   So I just want to understand how we
8 compute the mean-median difference. I think you
9 outline that on page 10 of your report.
10   A.   Yeah, I believe that's true.
11   Q.   And this is for Congress, so there's
12 14 seats, right?
13   A.   Correct.
14   Q.   And so the median is seven seats?
15   A.   It's between the seventh and eighth
16 seat.
17   Q.   Okay.
18   A.   That's why it's 46.1.
19   Q.   And just so I understand, in going
20 from top to bottom in Democratic vote share,
21 District 3 is the seventh district?
22   A.   I'm sorry, District 3 --
23   Q.   Bottom to top, if you want to look at
24 it that way.
25   A.   It's the eighth most

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C. WARSHAW
1
2 Democratic-performing district, right,
3 District 3.
4   Q.   Well, it depends how you measure it.
5 Eighth most --
6   A.   Democratic. It's the seventh --
7   Q.   It's the seventh from the bottom?
8   A.   Well, as I count up, there's seven
9 districts below it.
10   Q.   Okay. Then I may be misunderstanding
11 it. I thought you were splitting the difference
12 between 45.6 and 46.6.
13   A.   Correct, between the seventh and
14 eighth districts.
15   Q.   Right. So 3 would be the seventh at
16 45.6?
17   A.   Sure, okay. I understand what you're
18 saying now. Sure. Yes.
19   Q.   And 46.6 is the eighth?
20   A.   It's the eighth district from the top,
21 not from the bottom.
22   Q.   Oh, you're right. We do have
23 rhetorical confusion. You're saying eighth
24 district from the top on your chart. I meant
25 eighth district from the bottom of Democratic

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C. WARSHAW

1
2 vote share because you --
3   A.   Yes, fair.
4   Q.   You go from lowest to highest on your
5 chart?
6   A.   Yes. I think we're in agreement.
7   Q.   Okay. So what you do is find the
8 seventh and eighth districts in terms of
9 Democratic vote share and you split the
10 percentage difference between them and say that's
11 the median score?
12   A.   Yes.
13   Q.   Okay. And the mean is 53 percent. Is
14 that correct?
15   A.   Yes, I believe that's true.
16   Q.   And just so I understand it, that mean
17 is just averaging up the numbers above. It's not
18 necessarily the Democratic statewide vote share
19 in those districts, correct?
20   A.   Correct. I think that's the way it's
21 typically done in this literature.
22   Q.   Okay. And that means, to be specific,
23 you don't factor turnout differentials among the
24 districts?
25   A.   Correct. The mean-median metric does

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C. WARSHAW

1
2 not explicitly factor in -- it does not factor in
3 turnout as is typically done. I'm not sure
4 theoretically the reason for that, that it
5 necessarily needs to be that way. It seems to me
6 there's no reason you couldn't do it using a
7 statewide vote. But I think the way it's been
8 proposed, it's looking at the average across the
9 districts, which is what I tried to do here.
10   Q.   So every time the statewide average is
11 above 50 percent and the party has less than
12 50 percent of the vote, there's always going to
13 be a mean-median difference, right?
14   A.   Yes. There will always be a
15 mean-median difference that disadvantages the
16 party that doesn't get half the seats if they get
17 more than half the votes. I mean, there also
18 could be a mean-median difference, though, in
19 other values where they could get a majority of
20 the vote and the seats and still have a
21 mean-median difference that disadvantages them.
22 So it doesn't uniquely identify the situation,
23 this hypothetical that you've identified.
24   Q.   But it always identifies -- that will
25 always be condemned by the mean-median difference

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C. WARSHAW

1
2 by definition because the median has to be less
3 than 50 percent?
4   A.   I think that's true in a situation
5 with equal turnout.
6   Q.   And how about if a party got
7 53 percent of the statewide vote and won all ten
8 of the seats, so 53/47. 53 percent of the vote
9 would capture 100 percent of the seats but the
10 mean-median difference would be zero, correct?
11   A.   If they got -- if the median -- if all
12 of the seats were 53 percent and they had a mean
13 across them of 53 percent, then yes, I believe in
14 that case -- I haven't thought about this before
15 this conversation. But I believe in that case
16 that would be a mean-median of zero.
17   Q.   Okay. And this declination theory,
18 this was published this year by this fellow named
19 Warrington?
20   A.   Correct.
21   Q.   Has there been any scholarly
22 commentary on this?
23   A.   No. I think it's a new metric and
24 there's been -- to my knowledge, there's been no
25 explicit response or critique, although I'm not

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C. WARSHAW

1
2 100 percent sure of that.
3   Q.   So obviously there hasn't been wide
4 acceptance of this measure in the political
5 science community as a proper measure of partisan
6 bias or gerrymander?
7   A.   Just because it's so new. I don't
8 think there's a consensus either way.
9   Q.   Okay. Again, to the extent I can
10 understand this thing, it's you look at the
11 difference between the two vote lines or
12 something like that?
13   A.   Yeah, correct.
14   Q.   All right. My first question is: Do
15 you really expect the judges to understand this
16 thing?
17   But in any event, again, if you're
18 getting a minority of the vote and a majority of
19 the seats, this declination is going to be -- is
20 going to show a problem, right?
21   MR. YEAGER: Object to the prior
22   comment which is part of the question I
23   think. I'm sure the judges can understand
24   this perfectly well.
25   You can answer.

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C. WARSHAW
1
2   BY MR. CARVIN:
3   Q.   Absent your counsel's suck-up, if you
4   want to go ahead and answer the question.
5   A.   I haven't thought about it explicitly.
6   I believe that's true, but I'm not 100 percent
7   sure.
8   Q.   And if you could turn to page 12 of
9   your --
10   A.   Actually, I'm not 100 sure that's true
11   of declination, that there's a necessary
12   correspondence between a majority of the votes
13   and the minority along the lines you laid out.
14   My guess is it would pick it up. I would have to
15   think about it more. I'm not 100 percent sure
16   about that.
17   Q.   You don't know one way or the other?
18   A.   Yeah, I don't know.
19   Q.   Because it's not intuitively obvious
20   to me how you could ever not have this --
21   A.   I mean, I think in general the
22   declination is not picking up the number of seats
23   that each party holds. That's not -- that's why
24   I think it's not a necessary condition that it
25   would necessarily show a bias if you had a

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C. WARSHAW
1
2   minority of the votes and a majority of the
3   seats.
4   Q.   Okay. All right. Well, why don't you
5   think about that some more.
6   And then you describe candidly the
7   weakness in the declination approach at the top
8   of page 12. You say: "A weakness of the
9   declination approach vis-a-vis the efficiency gap
10   is that declination lacks a clear interpretation
11   in terms of the number of seats that a party
12   gains through gerrymandering."
13   Is that correct?
14   A.   Yes.
15   Q.   "It also is somewhat unstable when a
16   party holds a very small number of seats in the
17   legislature."
18   A.   Yes.
19   Q.   Why is that?
20   A.   Well, if you had a very small number
21   of seats, then the center of mass for each party
22   could change substantially election to election.
23   Q.   Okay. And would five be considered a
24   small number of seats?
25   A.   I don't have a -- I'm not sure that's

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C. WARSHAW
1
2   in his article, and I haven't analyzed that
3   myself, how unstable it is, the different values.
4   Q.   You say: "Some scholars have claimed
5   that it represents a better measure of intent in
6   the gerrymandering process than the efficiency
7   gap." Correct?
8   A.   Yes.
9   Q.   Can you explain why it would be a
10   better measure of intent?
11   A.   I think the argument is that what the
12   declination is trying to capture is whether the
13   50 percent line of winning a seat is privileged;
14   so in other words, the distribution of vote
15   shares look different above and below the
16   50 percent mark. And they argue that to the
17   extent they look different, as in Figure 1, that
18   would only happen through intentional
19   gerrymandering rather than through by accident.
20   You know, I'm --
21   Q.   Sorry, go ahead.
22   A.   I mean, I was careful in that
23   statement I think. I don't have a strong
24   personal view that it is necessarily capturing
25   intent better, but this is -- both Professor

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C. WARSHAW
1
2   Warrington and McGhee I think make that
3   assertion.
4   Q.   Well, let's assume you did have this
5   distribution that looked bad under declination.
6   Does declination tell you the cause of that? If,
7   for example, a state had a large concentration of
8   Democrats in certain areas and a large
9   concentration of Democrats in certain districts
10   because of the Voting Rights Act you would get
11   this gap even if a line drawer with no partisan
12   attempt through the lines, correct?
13   A.   I haven't personally analyzed -- I
14   haven't analyzed that. I couldn't say for sure.
15   I couldn't say.
16   Q.   Okay. Now, you did an analysis, a
17   historical analysis of the efficiency gap
18   throughout the last -- I think it was the last 40
19   or 50 years, correct, in various states?
20   A.   Yeah, roughly the last 45 years.
21   Q.   And did you do a similar analysis for
22   mean-median scores?
23   A.   I did.
24   Q.   Is there a graph showing that?
25   A.   No, there isn't. I think if I were to

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C. WARSHAW

1 do this again, maybe I would put it in. I wasn't
2 trying to hide the eight ball. I wanted to go
3 for succinctness in the report. What I note,
4 though, on page 19 is the percentage of time that
5 the absolute -- both the absolute mean-median --
6 you know, the absolute mean-median in Michigan is
7 larger than, you know, X percentage historically
8 and then how -- what percentage of the time it's
9 more pro-Republican than other plans.
10   Q.   You say that it's more extreme than
11 the mean-median difference at 78 percent of
12 previous elections, correct?
13   A.   Correct.
14   Q.   And these are the same elections that
15 you looked at relative to the efficiency gap?
16   A.   Correct.
17   Q.   In both congressional and state
18 legislative districts?
19   A.   Yes. I use the same data to calculate
20 all the metrics.
21   Q.   Okay. But you didn't either produce a
22 graph or identify the states that constitute
23 either the 78 percent or 22 percent?
24   A.   Well, I think I implied -- I think I
25

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C. WARSHAW

1 stated, and if I didn't, I certainly implied that
2 I had done it using the same data as for the
3 efficiency gap.
4   Q.   No, I get that.
5   A.   And if that's ambiguous, I apologize
6 for the ambiguity.
7   Q.   And the reason you didn't produce a
8 graph showing this was you ran out of time? Ran
9 out of space?
10   A.   No. I just wanted -- I wanted the
11 report to be succinct. There's no conceptual
12 reason I couldn't -- I didn't or couldn't. It
13 would show very similar -- I believe it would
14 show very similar patterns as what's in the
15 efficiency gap graph, but I can't say for sure.
16   Q.   Well, with the efficiency gap graph
17 you could tell the extent of the difference
18 because you created this bell curve and showed
19 where Michigan ranked.
20   A.   Right.
21   Q.   You don't represent that either
22 pictorially or verbally. You just say it's more
23 extreme than 78 percent of previous elections,
24 correct? But it could be more extreme by
25

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C. WARSHAW

1 0.1 percent of that 78 percent of previous
2 elections, right?
3   A.   I don't present any numbers, anything
4 in the report that would enable us to -- I'm
5 fairly confident that it is not only marginally
6 more larger. But I don't have the numbers in the
7 report to show that. It would be in my data that
8 I provided to the other side.
9   Q.   And I think you've answered this, and
10 I apologize. I just want to clarify the record.
11 This comparison for the mean-median difference
12 relates to the same elections as what you did for
13 the efficiency gap?
14   A.   Correct.
15   Q.   Okay. All right. And with respect to
16 prior Michigan redistrictings, do you compare the
17 mean-median difference in the 2011 redistricting
18 cycle to the mean-median difference in the 2001
19 Michigan cycle?
20   A.   I am not. That would be in the data
21 that I have, but I have not looked at that and I
22 said I don't present it in the report.
23   Q.   And --
24   A.   I think I should just state for the
25

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C. WARSHAW

1 record, it's not that I did so and intentionally
2 decided not to present it or something. I just
3 didn't look at that, didn't focus on that.
4   Q.   Okay. Now, for the efficiency gaps,
5 you looked at the results for 2014 and 2016 as
6 well as 2012, right?
7   A.   Correct.
8   Q.   On page 19 you just give us the mean
9 and median score for the 2012 elections.
10   A.   I believe that's true.
11   Q.   Is there anywhere in the report that
12 we can see the mean-median difference for 2014
13 and 2016?
14   A.   I don't believe so.
15   Q.   Okay. Now, you have previously opined
16 that the similar results for the efficiency gap
17 numbers between 2012 and 2016 suggested that this
18 was a durable gerrymander. You didn't do any
19 such analysis for the mean-median difference,
20 correct?
21   A.   Correct.
22   Q.   Now, for the house, did you give the
23 scores for the mean-median and declination?
24   A.   I don't know whether I gave -- it
25

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1   C. WARSHAW
2   would be on page -- Sorry, the state house or
3   Congress?
4   Q.   State house.
5   A.   My analysis there would be on page 36,
6   I believe.
7   Q.   Right. And I didn't see any --
8   A.   So --
9   Q.   Sorry. Go ahead.
10   A.   Correct. I don't think there's a
11   number. I didn't provide a number in the report,
12   and I don't have it in my head either. It's in
13   my data. I could have provided it, but I just --
14   again, I was trying to keep this part of the
15   analysis succinct and not get bogged down in the
16   details of all these different metrics.
17   Q.   Can you give me a rough estimate of
18   what the mean-median score was in 2012?
19   A.   I don't have that in my head for the
20   state house districts.
21   Q.   Okay. Same question for the
22   declination score. I don't believe you put that
23   forward in your report.
24   A.   I don't have it in my head. It's in
25   my data. I could find it or one could find it,

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1   C. WARSHAW
2   but it's not in my head.
3   Q.   Okay. Same question for declination.
4   I don't believe you did any analysis of the
5   declination score for the 2014 and 2016
6   elections. Is that correct?
7   A.   I did do the analysis. As I said,
8   it's in my data but it's not in -- I didn't put
9   it in the report.
10   Q.   And you didn't draw any conclusions
11   about whether the 2014 and 2016 declination and
12   mean-median scores were similar to the one that
13   you did report for 2012, correct?
14   A.   That's correct. Although the
15   declination in particular is extremely highly
16   correlated with the efficiency gap over the past
17   45 years. So given that the efficiency gap
18   estimate is durable, I would expect that the same
19   would be true of declination.
20   Q.   Okay. I'm going to ask you
21   essentially the same questions on declination
22   that I just asked you about mean-median.
23   THE WITNESS: Could we do a short
24   break?
25   MR. CARVIN: Sure. Don't worry about

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1   C. WARSHAW
2   it.
3   (Recess taken.)
4   BY MR. CARVIN:
5   Q.   So just to finish up, I think where we
6   left off, the same questions I think I just asked
7   you about the mean-median I'm going to ask you
8   about the declination.
9   There is no chart in here like that
10   for the efficiency gap showing past declination
11   scores in the nation for Congress or state
12   legislators, correct?
13   A.   That's correct. And I'll say the
14   reason for that is, again, I wanted the report to
15   be succinct and readable, but I also viewed these
16   measures as robust. And given the results --
17   really I wanted to show the results are similar,
18   especially for 2012, and that's what I focused
19   on.
20   Q.   And you say at the top of page 20 that
21   the declination scores are more extreme than
22   91 percent of previous elections, right?
23   A.   Correct.
24   Q.   Again, it's the same elections that
25   you referenced in the efficiency gap?

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1   C. WARSHAW
2   A.   Correct.
3   Q.   And you don't report, however, the
4   difference between 0.56 and these other
5   declination scores?
6   A.   Correct. No, I don't.
7   Q.   And you didn't look at the prior
8   declination scores for Michigan congressional or
9   Michigan state legislative plans?
10   A.   I didn't. It's all in the data that I
11   provided to your side, but I didn't reference it
12   in the report.
13   Q.   Okay. All right. Let's switch
14   topics. You go on in this report about the
15   effect of -- well, about roll call votes and the
16   efficiency gap and roll call voting in Congress.
17   If you could turn to page 24 of your
18   report.
19   A.   Uh-huh.
20   Q.   "To be clear, I do not argue that
21   gerrymandering causes more polarization in
22   Congress." That's what you say on page 24?
23   A.   That's correct.
24   Q.   So you're making no argument that
25   gerrymandering contributes to or causes

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1
2 polarization in Congress?
3   A.   That's correct.
4   Q.   It's pretty obvious, right, because
5 isn't the U.S. Senate just as polarized as the
6 House of Representatives?
7   A.   It's roughly the same. I don't know
8 that it's exactly the same. Yeah, they're very
9 similar, which is one of the pieces of evidence
10 people point to for the lack of a relationship
11 between gerrymandering and polarization.
12   Q.   And then on page 23 --
13   A.   23, so going backwards?
14   Q.   Yeah.
15   A.   Okay.
16   Q.   You say with respect to Michigan
17 specifically that "there has never been any
18 overlap in Congress between the ideology scores
19 of Democrats and Republicans from Michigan."
20 Right?
21   A.   Yes, I believe that's true.
22   Q.   "Republicans are always substantially
23 more conservative than Democrats from Michigan."
24   A.   Yes. That's in Figure 9A.
25   Q.   And then Figure-- well, let's look at

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1
2 Figure 8 first, polarization in the U.S. House.
3 Right?
4   A.   Uh-huh.
5   Q.   You say that there's been an increase
6 in partisan polarization in the U.S. House,
7 right?
8   A.   That's correct.
9   Q.   And that occurred -- a lot of that
10 occurred well in advance of 2011?
11   A.   Correct.
12   Q.   And during those years the efficiency
13 gap was not clearly favoring one party over
14 another, and it bounced around a lot, right?
15   A.   Well, as I stated, during the 1970s
16 and '80s the efficiency gap generally favored
17 Democrats actually on average. During the 1990s
18 there is really no national bias in either
19 direction.
20   Q.   Nonetheless, throughout that time the
21 partisan polarization increased even though there
22 was no favoritism in the efficiency gap?
23   A.   Correct. But again, I'm not making
24 any assertion that gerrymandering causes
25 polarization.

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1
2   Q.   Right. And if you look at Figure 9,
3 the same thing. The polarization in Michigan has
4 increased from 1975 through the present, and at
5 least for most of that term Michigan's efficiency
6 gap prior to 2011 largely didn't favor one party
7 or another?
8   A.   That's correct.
9   Q.   So then you have this other point
10 which I guess is relatively obvious at the bottom
11 of page 25, which is: "Citizens are much more
12 likely to agree with the roll call votes of
13 same-party legislators than opposite-party
14 legislators on important policy issues." Right?
15   A.   They are. Although you skipped
16 over -- I want to back up. I think what's
17 important to be clear about is that, no,
18 gerrymandering does not cause polarization. But
19 the polarization that has happened for a number
20 of reasons in Congress exacerbates the effects of
21 gerrymandering on representation. And that's
22 really what this section of the report is about.
23   Q.   Right.
24   A.   So you had some questions about
25 whether, you know, I sort of tried to look at the

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1
2 relationship or lack thereof between
3 gerrymandering and polarization. But I think
4 that's -- you know, regardless of whether there
5 is or isn't such a relationship, I don't have
6 any -- I don't make any assertions about that in
7 the report. But I think what is clear is that
8 the growing polarization has magnified the
9 effects of polarization -- or has magnified the
10 effects of gerrymandering. I'm sorry.
11   Q.   Because now citizens really disagree
12 with opposite-party legislators?
13   A.   To a certain degree. But I think what
14 I showed in this section of the report is that
15 the ideological views of Democratic and
16 Republican elected officials in particular are
17 much more divergent than they were a generation
18 ago.
19   Q.   Right.
20   A.   So a generation ago it might not have
21 mattered very much whether you got a Republican
22 or Democratic legislator. Regardless that that
23 was true a generation ago, today there's just a
24 vast difference between electing a Democrat and a
25 Republican.

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1
2   Q.   Right.
3   A.   So if you bias the maps so that you
4   get more of one party or another compared to what
5   voters want, then that's going to really skew the
6   ideological distribution of the legislature and
7   the policies the legislature produces.
8   Q.   Right. And that's the point you're
9   making at the top of 26, right?
10   A.   Yes. I mean, page 26 looks directly,
11   sort of squarely at the congruence between the
12   views of voters and legislators.
13   Q.   And you say it's the voters in the
14   districts where their votes are wasted don't have
15   representatives with whom they agree?
16   A.   Correct. Well --
17   Q.   What you say, to be precise, is:
18   "People whose votes are artificially wasted due
19   to gerrymandering are deprived of having
20   legislatures that agree with their views."
21   Right?
22   A.   Where are you reading?
23   Q.   The top of 26.
24   A.   Yes.
25   Q.   Okay. But if they're artificially

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1
2   wasted through packing, then they do have
3   legislatures that agree with their views, right?
4   A.   Looking across the legislative plan,
5   they're more likely to have a legislator -- if
6   there's more wasted votes, then they are more
7   likely to have a legislator that disagrees with
8   them, is what Figure 10 shows.
9   Q.   A legislator that disagrees with them
10   from a different district? The legislator that
11   they're voting for is very likely to agree with
12   their views in a packed district, right?
13   A.   That is true.
14   Q.   Some other legislators that they don't
15   vote for might disagree them, but that's not
16   their representative. Right?
17   A.   Correct. I do think it's true
18   empirically that the majority, if not the vast
19   majority, of wasted votes are in cracked
20   districts. So to some extent this focus on
21   packed districts is a little bit sideways.
22   Q.   Okay. Are you excluding packed
23   districts from your analysis of people who have
24   their votes wasted?
25   A.   I'm not. I'm just saying on average

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1
2   in a state where one party or another is more
3   likely to have wasted votes, they're less likely
4   to have views that are congruent with their
5   legislator.
6   Q.   Well, in Michigan you claim there were
7   five Democratic packed districts in Congress,
8   right?
9   A.   I believe that's true.
10   Q.   Okay. And there was only two or three
11   cracked districts because under any seats-votes
12   analysis they would only be expected to get seven
13   or eight seats, right?
14   MR. YEAGER: Objection; misstates the
15   record.
16   You may answer.
17   THE WITNESS: I don't think I made a
18   characterization in my report of which
19   districts precisely were packed and cracked,
20   and I'm reluctant to do so now.
21   BY MR. CARVIN:
22   Q.   So we don't know which districts they
23   are, but whichever they are, there can only be
24   three cracked districts where there's five packed
25   districts, right? You're not expecting Democrats

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1
2   to get nine of the 14 seats, right?
3   A.   No, I'm not sure I would -- I'd have
4   to think about it more. But Districts 9 and 5,
5   I'm not sure I would assert that those are
6   packed.
7   Q.   9 and 5?
8   A.   Yeah. I would have to think about it
9   more, but I think I would want to look more at
10   the evidence. Just based on the numbers here,
11   I'm not sure I would assert that. I would want
12   to think about that more based on the totality of
13   the evidence. I just don't know either way.
14   Q.   Do you think those are safe Democratic
15   districts?
16   A.   I think they're not -- I think very
17   likely the Democrats would win a district that
18   looks like that.
19   Q.   Okay. But just to get back to my
20   point, Democratic voters in Democratic districts
21   do agree with their elected representative's
22   views?
23   A.   Correct.
24   Q.   And they're in a very good situation
25   because the chances of their elected

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1
2 representative being defeated are extraordinarily
3 small, right?
4   A.   I think that's true for their
5 individual legislator. But I think what people
6 care about is the ideological composition of the
7 legislature.
8   Q.   Right. What we're really talking
9 about is Democratic representation in the
10 legislature as a whole?
11   A.   I think that's the object that most
12 people care about. I mean, if you packed all of
13 the Democrats into one district -- I mean, if we
14 go down the hypothetical route, if you pack all
15 Democrats into one malapportioned district and
16 you say, well, now you're 100 percent likely to
17 get a very Democratic legislator because this is
18 a 100 percent Democratic district, surely that
19 wouldn't be an outcome they would prefer, having
20 just one legislator even if they were guaranteed
21 it would be a Democrat.
22   Q.   Even though Democrats in the packed
23 districts are benefited, Democrats in adjacent
24 districts and statewide are hurt by the packing,
25 correct?

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1
2   A.   Correct.
3   Q.   It's the Republicans in the packed
4 district who are deprived of their voice and
5 having a representative with whom they agree?
6   A.   They are advantaged at the statewide
7 level, the packed Republicans.
8   Q.   But disadvantaged with respect to
9 their own representative?
10   A.   You could argue that, yes. I would
11 have to think about that more. But I think in
12 general what people care about is the ideological
13 composition of the legislature.
14   Q.   Okay. But if we're looking at it from
15 the district-specific level, it's the Republicans
16 in the Democratic packed districts who have been
17 shut out of the process and don't have a voice
18 because their legislator is never going to agree
19 with them, right?
20   A.   So, too, the Democrats in cracked
21 districts are -- lack of voice and the Democrats
22 in the packed districts are disadvantaged in the
23 statewide translation of seats to votes.
24   Q.   Right.
25   A.   And the statewide ideological

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1
2 composition of the legislature and the policies
3 that the legislature passes.
4   Q.   If you call a cracked district a
5 48 percent Democratic district, those Democrats
6 at least have the ability to get together,
7 increase their vote share, and have a
8 representative who expresses their views; whereas
9 the Republicans in a packed district can never
10 band together enough to get a representative who
11 respects their views. Correct?
12   A.   I think it's unlikely that a
13 Republican legislator would be elected in a
14 district that is 75 percent or 80 percent
15 Democratic.
16   Q.   But it's not implausible that a
17 Democrat could get elected in a district that's
18 produced 48 percent Democratic vote in the past?
19   A.   Sure. I think it's certainly more
20 likely than the first scenario.
21   Q.   Particularly in an off-year election
22 following a presidential election where the
23 non-presidential party does quite well?
24   A.   Yes. I mean, as we talked about,
25 individual seats could certainly shift in a

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1
2 midterm year like in 2018. But if that were to
3 happen, the Democratic statewide vote share would
4 also go way up. So I think thinking about seat
5 shifting and absence of thinking about changes in
6 the statewide vote, you know, is misleading.
7   Q.   So we're looking at the representation
8 of the legislature as a whole, right? So in
9 Congress, this would mean representatives
10 scattered throughout the nation, right?
11   A.   I think that's the target people care
12 about the most. I think that in characterizing
13 the effects of the efficiency gap, I focused on
14 the median legislator in each state. But I think
15 ultimately what we care about is the ideological
16 composition of the chamber as a whole.
17   Q.   So if Democrats in Michigan lost two
18 seats because of a gerrymander but picked up two
19 seats in Massachusetts or California or Maryland,
20 then there would be no effect on the national
21 legislature as a whole?
22   A.   There might no effect on the national
23 ideological composition. I do think there are
24 reasons to think you want to have a legislator in
25 your state that could represent you. I don't

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1
2 think I would argue -- I don't think I would
3 assert that, like, if you're a Democrat in
4 Massachusetts having a Democrat from -- or a
5 legislator in general from Michigan or from some
6 other state or vice versa is the same thing.
7   Q.   You're going to have a lot more in
8 common with a Democrat from Michigan than you're
9 going to have with a Republican from
10 Massachusetts, right?
11   MR. YEAGER: Objection; vague and
12   ambiguous.
13   THE WITNESS: I'm not sure who -- Who
14   are we talking about here?
15 BY MR. CARVIN:
16   Q.   Well, I thought you told me that
17 there's such a wide ideological gulf between
18 Democrats and Republicans in this highly
19 polarized environment that Democrats will always
20 associate more with Democrats, even those from
21 other states, than they would with another-party
22 representative from their own state. Is that
23 correct?
24   A.   I think that's true. But I think what
25 I wouldn't say is that there's nothing lost by

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1
2 having, you know, nobody from your party or
3 whatnot that represents you from your own state.
4   Q.   What is the point of all this? I
5 mean, if two seats are unacceptably
6 gerrymandered, that would be true regardless of
7 whether that makes Congress or the Michigan
8 legislature more conservative, right?
9   A.   Yes. But I think the point of this
10 part of -- the point of this section of the
11 report is that, you know, election results are
12 not just about the party that represents you.
13 They're about the ideological positions or just
14 the policy positions -- maybe you should think
15 even more about policy positions that your
16 legislators take. And if the partisan
17 consequences of elections and a partisan
18 gerrymander had no policy consequences, then as a
19 political scientist I would say, you know, maybe
20 we shouldn't really care so much about it.
21   But the reality is that the
22 partisan -- the partisan outcome of elections and
23 disparities in the connection between votes and
24 seats has large and substantial consequences on
25 the political process. It affects the roll call

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1
2 positions that legislators take, and certainly in
3 state governments it affects the policies that
4 states produce.
5   Q.   I don't think anybody would disagree
6 that a Nancy Pelosi-led Congress is going to have
7 different roll call votes and policies than one
8 led by Paul Ryan or his successor.
9   But my question is why the federal
10 court in Michigan should care about that. You're
11 not suggesting that they should favor a Nancy
12 Pelosi-led Democratic Congress over a Paul
13 Ryan-led Republican Congress, right?
14   A.   No. I think my point is not that they
15 should -- certainly not that they should favor
16 one party over another.
17   Q.   Right.
18   A.   My point, though, is that, you know,
19 elsewhere in the report I state that the 2012
20 gerrymandering, what other people have estimated,
21 and I think what you could use my numbers to
22 estimate as well but I haven't done so, is that
23 the gerrymandering in 2012 cost Democrats
24 nationwide 16 or 17-ish seats in Congress. And
25 if that was the difference between a Paul

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1
2 Ryan-led Congress and a Nancy Pelosi-led
3 Congress, then certainly that had vast policy
4 consequences both for voters in Michigan and for
5 voters elsewhere in the country.
6   But even as we saw on the healthcare
7 bill that happened earlier this year, even if it
8 doesn't cost -- if gerrymandering doesn't affect
9 the partisan majority in Congress, if it just
10 affects the margin of each side and, as I said
11 earlier, the ideological composition of the
12 legislature, then it still has vast policy
13 consequences.
14   You know, if Republicans had had five
15 more seats in Congress -- or if Republicans had
16 had five less seats in Congress, then the House
17 wouldn't have passed the healthcare bill. I
18 can't remember the exact margin of the tax bill,
19 but a couple of seats would have affected that as
20 well.
21   Q.   You make the claim that The Brennan
22 Center, not exactly a nonpartisan group, claimed
23 16, 17 seats in Congress were affected by
24 gerrymanders in other states.
25   My question to you is: Why would the

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2 court in Michigan resolving this case care about
3 that? If there had been no gerrymanders outside
4 of Michigan, shouldn't they do exactly the same
5 thing with respect to the gerrymander in
6 Michigan?
7   MR. YEAGER: Objection; calls for a
8   legal conclusion.
9   You may answer.
10   THE WITNESS: Yeah, I don't have a
11   legal view, obviously, of how that should
12   affect the court. But I think the couple
13   seats in Michigan certainly affect the
14   partisan and ideological composition of
15   Congress. And as we've seen on these close
16   votes, a couple of seats matters.
17 BY MR. CARVIN:
18   Q.   Did it matter? Did the extra two
19 Michigan congressmen that you claim were
20 accomplished through gerrymander have any effect
21 on either which votes were put to a roll call in
22 Congress or the outcome of those roll call votes?
23   A.   I don't show in this report but I -- I
24 would have to look more specifically at that.
25 But based on my experience as a political

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2 scientist and studying other levels of
3 government, I think it would.
4   Q.   But you don't --
5   A.   I don't have quantitative evidence in
6 this report on that question specifically.
7   Q.   Or anywhere else. You can't give me
8 an example now?
9   A.   I can't now, no.
10   Q.   And again, let's assume it's true that
11 these congressmen made a difference in the
12 ideological makeup of Congress. You don't think
13 that the federal court should try and alter the
14 ideological composition of Congress, right?
15   MR. YEAGER: Calls for a legal
16   conclusion.
17   You may answer.
18   THE WITNESS: Yeah, I can't say what
19   courts should do. Again, I have no view and
20   no expertise on the appropriate legal
21   standard. But speaking as a social
22   scientist, I would come back to the point I
23   made earlier. You look at election results
24   and it's easy to think this is sort of like
25   baseball and, oh, we're just rooting for the

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2   Phillies or the Mets or the Nationals or
3   something else and it's all kind of fun and
4   games. But at the end of the day these
5   elections have real policy consequences, and
6   I think it's important to show that.
7 BY MR. CARVIN:
8   Q.   Do you think people are unaware of the
9 fact that elections have consequences and
10 majorities in state houses and federal
11 legislatures have consequences?
12   A.   I don't think the literature on -- I
13 think at a -- in a colloquial sense probably
14 people do have a sense of that, but I think it's
15 not something that's been well studied in the
16 literature, the precise policy consequences.
17   I think this is something that -- I'll
18 just say that some of my academic work has
19 focused on explicitly, and I do think that my
20 work and others has made big strides on this in
21 recent years, particularly looking at the policy
22 consequences in ways that we didn't know before.
23   But I think we can identify now with a
24 precision that we didn't have before that the
25 partisan majority in legislatures has very large

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2 effects on policy. And to the extent that
3 gerrymandering affects the partisan control of
4 the legislature, my work has shown that there's
5 large and growing policy consequences.
6   Q.   Again, I'll ask you one last time. Do
7 you think the federal judiciary should take a
8 position on the policy consequences of partisan
9 control or just analyze the fairness of the
10 electoral system without regard to what policy
11 positions are advocated by the competing parties?
12   MR. YEAGER: Objection; calls for a
13   legal conclusion. Asked and answered.
14   You may answer.
15   THE WITNESS: Again, I can't say what
16   I think the legal standard should be as a
17   nonexpert on the law in this matter. But
18   speaking as a social scientist and -- you
19   know, my academic work focuses largely on
20   the consequences of public opinion,
21   elections and various electoral institutions
22   for democratic performance in the United
23   States. And speaking as a social scientist,
24   I can say that if elections -- if elections
25   had no policy consequences, then as a

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1   C. WARSHAW
2   political scientist I would not be very
3   concerned about them, or I would study other
4   things. Maybe I would try to understand
5   whether they had no policy consequences.
6   That might be a reason for study. But I
7   wouldn't -- you know, I would focus my work
8   in different ways, and I think others should
9   as well. But we know that elections, and
10   the partisan consequences of elections, have
11   large and growing consequences.
12   So I think what that means is that
13   gerrymandering has large implications for
14   our democracy. And that's said not because
15   I necessarily think one side or the other,
16   you know, the courts should try to favor. I
17   certainly don't think anyone should favor
18   one side versus the other. But regardless
19   of who is doing the gerrymandering, I think
20   it has pernicious effects on our democracy.
21   BY MR. CARVIN:
22   Q.   Are you aware of any Democratic
23   redistricting plans that have a large
24   anti-Republican efficiency gap?
25   A.   I know the plan in Maryland has been

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1   C. WARSHAW
2   challenged and I certainly -- I haven't analyzed
3   that explicitly here although -- Well, if you go
4   back to my chart on page 16, certainly the 2016
5   efficiency gap in Maryland is quite large. It
6   was smaller in 2012.
7   But if you look at a state like
8   Massachusetts, it's not nearly as large as the
9   efficiency gap in Michigan. But a state like
10   Massachusetts sure looks like it has a large
11   partisan bias in favor of Democrats in the
12   legislature. And speaking as a social scientist,
13   I think that's a bad thing.
14   Q.   Does The Brennan Center identify any
15   efficiency gaps, pro-Democratic efficiency gaps
16   in its studies?
17   A.   I think they certainly present graphs
18   where you could identify it. I don't remember if
19   the text -- how much the text focuses on it. But
20   certainly McGhee and Stephanopoulos talk about
21   pro-Democratic germanders as well.
22   Q.   Are you sure about that? In the
23   University of Chicago Law Review, in Congress
24   they identify pro-Republican efficiency gaps --
25   A.   Pro-Democratic.

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1   C. WARSHAW
2   Q.   -- as too large? Pro-Democratic
3   efficiency gaps as too large for --
4   A.   I'm not 100 percent sure of that, but
5   I would suspect that they do. I would assume
6   that they do.
7   Q.   Okay.
8   A.   But I guess the only caveat I would
9   say is that what these numbers show is that in
10   the modern era the efficiency gaps in favor of
11   Democrats are smaller so they are a little bit
12   harder to show. There's nothing that looks
13   anything like Michigan on the Democratic side.
14   Q.   So if there are large pro-Democratic
15   efficiency gaps, then that will balance out the
16   pro-Republican efficiency gaps in Michigan with
17   respect to congressional representation, right?
18   A.   No. The graph -- For instance, on
19   page 18 it illustrates this well. There are far
20   more and larger pro-Republican efficiency gaps in
21   recent elections than pro-Democratic efficiency
22   gaps.
23   Q.   So it's --
24   A.   I think --
25   MR. YEAGER: Objection.

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2   Excuse me. Counsel, you keep
3   interrupting him; you keep making faces at
4   him; you keep rolling our eyes at him. I
5   would appreciate it -- You want to engage
6   him, I understand, but I would appreciate it
7   if you would just let him answer the
8   question, please.
9   Now finish your answer, Mr. Witness.
10   THE WITNESS: Certainly in the wake of
11   the 2011 plans coming into place, there have
12   been far larger and more numerous Republican
13   gerrymanders, and I think that's largely
14   because there are many more states where you
15   had unified Republican control of state
16   government in 2011.
17   You know, I don't think Democrats are
18   saints with this either, and probably if
19   there had been 30 states with unified
20   Democratic control of state government you
21   would have Democratic gerrymanders.
22   But the fact is that after the -- in
23   the recent elections there have been far
24   more and larger Republican gerrymanders than
25   Democratic ones.

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1   C. WARSHAW
2 BY MR. CARVIN:
3   Q.   But again, you don't think the court
4 should take into account whether it's a
5 pro-Republican or pro-Democratic gerrymander?
6 They should be neutral on that intensely partisan
7 question?
8   MR. YEAGER: Objection; calls for a
9   legal conclusion.
10   You may answer.
11   THE WITNESS: Again, I don't have a --
12   I couldn't say what I think a legal standard
13   should be. But I think speaking as a social
14   scientist, I think both Democratic and
15   Republican gerrymanders have the same
16   pernicious consequences for our democracy.
17 BY MR. CARVIN:
18   Q.   And the pernicious consequence is that
19 fewer voters will be in a district with a
20 same-party legislator than if one party had not
21 gotten more seats than votes, right? That's the
22 pernicious consequence?
23   A.   That the ideological composition of
24 the legislature and the policies the legislature
25 produces will be biased in favor of one party or

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1   C. WARSHAW
2 another, which breaks the --
3   Q.   Let's try again. What if it only
4 affected the partisan composition of the
5 legislature? Would that be of concern?
6   A.   I think if we randomly assign party
7 labels and party didn't really mean anything
8 aside from whether you rooted for the Phillies or
9 the Nationals, then as a social scientist --
10 again, I don't know what the legal standard would
11 be, but as a social scientist I probably wouldn't
12 be concerned about it. But what matters for me
13 is that the partisan labels are not just rooting
14 for the Nationals or the Phillies. They reflect
15 serious ideological disagreements and policy
16 disagreements, and whether we elect more
17 Democrats or more Republicans has large and
18 consequential policy consequences for the state
19 of Michigan as well as for our country.
20   Q.   So it's the change in the ideological
21 partisan composition that should be of concern to
22 the court, not the fact that the parties have
23 different ideologies?
24   MR. YEAGER: Objection; calls for a
25   legal conclusion.

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1   C. WARSHAW
2   You may answer.
3   THE WITNESS: Well, it's the
4   combination of the partisan bias in
5   elections with the large and substantial
6   consequences of that partisan bias. I mean,
7   obviously the partisan bias is the first
8   step in this representational chain.
9   But I think that what's important for
10   me, again not speaking as a lawyer because I
11   don't know what the legal standard should
12   be, but as a political scientist, you know,
13   what matters about gerrymandering and what's
14   interesting about gerrymandering is not the
15   partisan bias in and of itself but it is
16   this first step in this representational
17   chain that really matters.
18 BY MR. CARVIN:
19   Q.   Right. So you're telling the court
20 that there are ideological differences between
21 Democrats and Republicans, right? That's the
22 first thing you're contributing? But you're not
23 suggesting the court should pay any attention to
24 the fact that there's ideological differences
25 between Democrats and Republicans in resolving

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1   C. WARSHAW
2 this gerrymandering case, right?
3   A.   I'm not making any legal assessment
4 whatsoever of what -- I'm speaking in this report
5 as a political scientist on what are the -- both
6 how does the -- I mean, the crux of my report is
7 how does Michigan compare to other states in its
8 own efficiency gaps and other gerrymandering
9 metrics over the past 45 years, and then how does
10 it -- and then what are the consequences of the
11 gerrymandering that we observe in Michigan on the
12 political process.
13   Q.   Okay. Let's go to page 24. "The
14 right column shows" -- I'm reading from the last
15 sentence -- "that in the most recent Congresses,
16 a 10 percent pro-Republican shift in the
17 efficiency gap is associated with a 0.9 shift to
18 the right in DW-Nominate scores."
19   A.   Uh-huh.
20   Q.   Should the court be concerned about
21 the fact that there is a 0.9 shift to the right
22 in the DW-Nominate scores or should it be
23 concerned with the 10 percent Republican shift
24 regardless of whether it affects the ideology of
25 the representatives?

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C. WARSHAW

1
2   A.   Again, I don't have a legal opinion.
3 I think that's going to be a complicated
4 assessment. Speaking as a political scientist, I
5 think that the partisan consequences of a
6 gerrymander are consequential because of the
7 ideological bias it introduces into the
8 legislature and the consequent effect on the roll
9 call votes that are taken by the legislature and
10 the policies the government produces.
11   Q.   So you say in the most recent
12 Congresses. What Congresses are those?
13   A.   I don't know the Congress numbers off
14 the top of my head but the --
15   Q.   What years?
16   A.   The 2013 through '16, I believe is
17 what I analyze here.
18   Q.   You mean the ones that were elected in
19 2012 through 2016?
20   A.   Correct. That's the idea.
21   Q.   And you did this study yourself?
22   A.   Correct.
23   Q.   And you say a 10 percent
24 pro-Republican shift in the efficiency gap?
25   A.   Correct.

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C. WARSHAW

1
2   Q.   Is that a 10 percent pro-Republican
3 shift in all states?
4   A.   That is the effect of a 10 percent
5 shift in any state on average on the -- on the
6 average ideological voting pattern or roll call
7 voting pattern of legislators from that state, is
8 what the regression here is telling us.
9   Q.   Okay. So it would just be these five
10 states that you've identified elsewhere?
11   A.   Five states? Sorry?
12   Q.   That have more than a 10 percent
13 pro-Republican shift.
14   A.   No, this is looking at all states over
15 the past 45 years, or all states with more than
16 six congressional districts.
17   Q.   Then I'm not really following you.
18 You say that in the most recent Congresses, which
19 is 2012 through 2016, not the last 45.
20   A.   Oh, correct. That's based on the
21 regression coefficient in the bottom right of the
22 regression table. It's the .0093. But the
23 regression here includes all elections. I just
24 vary -- I allow the effect of the efficiency gap
25 to vary over time. But the regression model here

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C. WARSHAW

1
2 includes all congressional elections in states
3 with more than six congressional districts from
4 1972 to 2016.
5   Q.   So you're telling me that --
6   A.   And the point of this table is that
7 the efficiency gap, changes in the efficiency gap
8 within a state, have consequential effects on the
9 ideological -- the roll call positions that
10 legislators take and the effects are growing over
11 time.
12   Q.   All right.
13   A.   That's the bottom line from this
14 table.
15   Q.   If there is a 10 percent
16 pro-Republican shift in any election between 2012
17 and 2016, that will lead to a 0.9 shift to the
18 right in representatives from that state,
19 Republican legislators?
20   A.   0.09 I believe I said.
21   Q.   In Republicans from that state?
22   A.   Correct.
23   Q.   And when are you measuring the 10
24 percent pro-Republican shift? Between 2010 and
25 2012?

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C. WARSHAW

1
2   A.   Correct. This is isolating it within
3 time period.
4   Q.   So what about -- Maybe I don't
5 understand this chart, which I definitely don't.
6 You're saying the efficiency gap -- the first
7 thing you have is 0.073. What does that
8 represent?
9   A.   That's the average relationship
10 between the efficiency gap and the voting
11 patterns of members of Congress for the past 45
12 years. So on average it shows that a 10 percent
13 pro-Republican shift in the efficiency gap would
14 correspond with a DW-Nominate score of
15 .7 units -- or .07 units to the right. I'm
16 sorry, .07.
17   Q.   You have the 1970s, and the 10 percent
18 pro-Republican shift is between the 1970 and the
19 1972 elections because that's when they
20 redistricted? What's the shift?
21   A.   The shift here is just looking at
22 variation in the efficiency gap. It's not just
23 isolating the redistricting years. You could do
24 this differently and I suspect the results would
25 be the same. But it's not just isolating the

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C. WARSHAW

1
2 redistricting years. It's averaging across all
3 years.
4   Q.   So you're saying a 10 percent
5 pro-Republican shift, meaning that in the 1970s
6 the pro-Republican bias was 10 percent more than
7 the 1960s?
8   A.   No. This is not making any
9 characterization of the average value of the
10 efficiency gap. What it's describing is the link
11 between the efficiency gap and the roll call
12 voting in Congress.
13   Q.   Yeah. But I'm trying to figure out
14 what the word "shift" means. You say a
15 10 percent pro-Republican shift in the efficiency
16 gap. A shift from what to what?
17   A.   It's averaging across all values of
18 the efficiency gap. To make it simple, what it's
19 suggesting is that the efficiency gap went from
20 zero to a 10 percent pro-Republican efficiency
21 gap.
22   Q.   Right.
23   A.   Then the average Nominate score, which
24 is a summary measure of the roll call behavior of
25 legislators, would shift on average .07 to the

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C. WARSHAW

1
2 right.
3   Q.   And the zero would be in what year for
4 the 1970s? Where do I start?
5   A.   Oh, that's -- the left-hand column
6 here is averaging across 1972 to 2016.
7   Q.   Are you telling me that you're not
8 analyzing it for decades?
9   A.   The right-hand column breaks the
10 analysis down by decades and looks at how that
11 relationship varies by decade.
12   Q.   And it's 0.068 in the '70s?
13   A.   Correct.
14   Q.   And there was a 10 percent
15 pro-Republican shift from what year to when?
16   A.   So between 1972 and I think it must
17 have been 1980, although I don't know -- even
18 though I said 1970s, my guess is I did that
19 redistricting cycle. That would imply that a
20 10 percent change in the efficiency gap, or a ten
21 percentage point change in the efficiency gap
22 would correspond to about a .068 change in
23 Nominate scores.
24   Q.   A change in what efficiency gap?
25   A.   It doesn't matter. It's assuming a

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C. WARSHAW

1
2 linear effect. So it's assuming it's a --
3   Q.   From when?
4   A.   I'm sorry, what?
5   Q.   You say there's 10 percent more
6 Republican efficiency gap in 1972 and 1980.
7   MR. YEAGER: Objection; misstates the
8   testimony.
9 BY MR. CARVIN:
10   Q.   Is that not right?
11   A.   No. There's nothing in this table
12 about the levels of the efficiency gap. This
13 table is about the relationship between
14 variability in the efficiency gap.
15   Q.   Variability?
16   A.   Or variation in the efficiency gap, I
17 should say, and variation in the roll call voting
18 patterns of members of Congress.
19   Q.   Okay. I'll try it one last time.
20 When you say a 10 percent pro-Republican shift in
21 the efficiency gap, a shift from what to what and
22 when to when?
23   A.   It could be over any period of time or
24 it could be -- and it could between any two
25 absolute values of the efficiency gap. So this

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1
2 regression model is assuming that there is a
3 linear effect of changes in the efficiency gap,
4 which means that a change from negative
5 30 percent to negative 20 percent is the same as
6 a change from, like, 5 to 15 percent.
7   Q.   I got all that. Where would you get
8 the negative 30 percent?
9   A.   If there was a value -- assuming there
10 was an efficiency gap in the data that was
11 negative 30 percent, that may be outside the
12 range of the data. So that may be -- that
13 particular example may not be totally reflecting
14 the data. But this is all based on the data. I
15 mean, this regression analysis is based on an
16 empirical OLS, an ordinary least squares
17 regression model, of the effect of variation in
18 the efficiency gap on variation in the roll call
19 voting behavior of members of Congress.
20   Q.   Okay. And in the 2000s, this
21 10 percent pro-Republican shift led to 0.073
22 shift in the DW-Nominate scores?
23   MR. YEAGER: Objection; misstates the
24   testimony and misstates the chart and the
25   answer.

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1
2   THE WITNESS: Well, I think in this
3   case it's a -- a 10 percent change in the
4   efficiency gap during the 2000s would lead
5   to a .073 change in Nominate scores, is what
6   this chart is saying.
7   BY MR. CARVIN:
8   Q.   And now it's gone up to .0093 change?
9   A.   Right.
10   Q.   In the -- is it .00?
11   A.   Well, the .00 is for a 1 percent
12   change. If you just multiply that by 10, you get
13   a 10 percent change. That's what I meant by
14   linear effect. It assumes that the effect of a
15   10 percent change is just ten times the effect of
16   a 1 percent change.
17   Q.   Okay. And that's the difference
18   between the ideologies of Senator Cornyn and
19   Lindsey Graham?
20   A.   I believe that's what I stated in the
21   report, yes, sir.
22   Q.   And you say that Cornyn is more
23   conservative than Graham?
24   A.   You know, I'm not going to -- I
25   haven't read every roll call vote he's ever

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C. WARSHAW

1
2   taken. That's not my personal assessment.
3   That's based on both the nonpartisan National
4   Journal. But more relevantly -- and I think
5   538.com. But also more relevantly, based on
6   their DW-Nominate scores which, as I said, are a
7   summary of the ideological -- their ideological
8   positioning based on all of the roll call votes
9   over their entire congressional career.
10   Q.   So we don't factor in Graham's
11   conservative views on foreign policy, then?
12   A.   No. This is not looking at different
13   dimensions. But in general, congressional voting
14   behavior is extremely one-dimensional in the
15   modern Congress. So the vast majority of the
16   time a one-dimensional estimate of their ideology
17   would accurately predict their roll call
18   positions. Surely there's going to be some
19   idiosyncratic roll call positions, perhaps on
20   foreign policy, where Graham is, you know, to the
21   right of Cornyn. But on the vast majority of
22   roll call votes where there's a difference in
23   their positions, Cornyn is going to be to the
24   right of Graham.
25   Q.   Okay. If you would turn to page 28.

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1
2   A.   Sure.
3   Q.   "Citizens are about 25 percent less
4   likely to believe that their representatives will
5   do what is right in states with a large" -- and I
6   think this was a typographical error.
7   A.   Correct.
8   Q.   You meant to say "absolute efficiency
9   gap than in states with no efficiency gap." Is
10   that correct?
11   A.   That's correct. I think I stated that
12   in my rebuttal report, that that was a
13   typographical error.
14   Q.   Okay. And this is based on the
15   question: Do you trust your representative to do
16   the right thing?
17   A.   Correct. I also think, by the way, my
18   rebuttal report provided a supplemental graph
19   that showed all states as well as the confidence
20   intervals around them.
21   Q.   Right. I'm going to come back to
22   that.
23   And this is based on -- the question
24   was: Do you trust your district's representative
25   in Congress to do what is right?

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C. WARSHAW

1
2   A.   Correct.
3   Q.   So they were only being asked about
4   their own representative?
5   A.   Correct.
6   Q.   And obviously if it was Democrats
7   being asked of a Republican representative, then
8   he probably won't answer yes. Right?
9   A.   Probably not.
10   Q.   Given the stark ideological
11   composition.
12   A.   It's true. Given only that 20 -- I
13   think in Michigan only 23 percent said they
14   trusted their representatives. It's clearly not
15   just opposite-party people that are saying they
16   don't trust their representatives.
17   Q.   And the survey was conducted through
18   the Internet by YouGov of Redwood City,
19   California?
20   A.   Yeah. YouGov is a widely used survey
21   firm. They conduct a large number of both
22   academic and commercial surveys. It uses the
23   Internet but it's, I think, widely viewed as one
24   of the most reputable survey firms.
25   Q.   How do they conduct the surveys? How

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2 do they contact people over the Internet?
3   A.   I believe they do it via a combination
4 of e-mail and text messages. They have what's
5 called a panel of respondents where people have
6 opted into their surveys, have essentially
7 volunteered to do surveys. They survey a large
8 number of people that match characteristics of
9 the population. And then after conducting the
10 survey they further weight the respondents to
11 make sure they're representative of the
12 population.
13   Q.   So they weight the results?
14   A.   Yes. All surveys weight their
15 results. There's no academic or government
16 survey that doesn't weight its results, including
17 the government products like the Current
18 Population Survey and the American Community
19 Survey. All surveys weight their results.
20   Q.   But this one doesn't reach out for
21 people? They have to preselect? They have to
22 volunteer to be contacted?
23   A.   Correct. It's an opt-in panel. So in
24 a world where everybody responded to surveys,
25 what's called a probability sample would be a

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2 better sampling technique. But in a world where
3 response rates are in the single digits for phone
4 surveys, I think there's a growing consensus that
5 Internet surveys are just as high quality as
6 phone surveys and yield very representative
7 results.
8   Q.   That's not your area of expertise?
9   A.   No, it is my area of expertise.
10   Q.   Oh. So what is --
11   A.   I do a lot of work with surveys and
12 survey design.
13   Q.   Okay. And you looked at this survey
14 design --
15   A.   I have.
16   Q.   -- and you looked at the weighting?
17   A.   I have. I've used the Cooperative
18 Congressional Election Study extensively in my
19 academic work.
20   Q.   And you noted how they weighted it,
21 the YouGov people?
22   A.   I do understand how they weight it,
23 yes.
24   Q.   And who is YouGov?
25   A.   As I said, YouGov is a commercial

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2 company that does both academic and commercial
3 surveys over the Internet.
4   Q.   And who paid them?
5   A.   In this case, the Cooperative
6 Congressional Election Study was funded by a
7 cooperative, which is the name of academic
8 organizations and colleges and universities. I
9 think around 50 or 60 colleges and universities
10 funded it. It also had a -- I believe it had a
11 grant from the National Science Foundation as
12 well that partially funded it.
13   Q.   In your initial report you didn't
14 provide any margins of errors on your estimates,
15 right?
16   A.   I didn't. Because to be frank, the
17 estimate -- the sample size here is enormous.
18 It's 55,000 or so people across the country. So
19 I think in Michigan there's a sample of 2,000
20 people. Which even when you incorporate the
21 design effect that inflates weights due to the
22 survey weighting, or inflates the standard errors
23 essentially, you still have a margin of error of
24 only three points. So it's a very small margin
25 of error on the estimates in Michigan.

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2   Q.   Okay. If you could turn to your
3 rebuttal report, which I think is Exhibit 6.
4   A.   But I think as I said in my rebuttal
5 report, I think, you know, that doesn't change my
6 results. But I think it's certainly reasonable
7 to include the confidence intervals, and it would
8 have been, you know, reasonable to include that.
9   Q.   Do you have that in front of you?
10   A.   My rebuttal report?
11   Q.   Yeah. It's Exhibit 6.
12   A.   I can find it. Sure. Looking at
13 page 9 and 10.
14   Q.   And you claim that in Michigan there's
15 a 3 percent margin of error?
16   A.   I think that's correct. That's what I
17 stated here.
18   Q.   If you could look at this chart which
19 you've now provided to us.
20   A.   Yes.
21   Q.   What's the upper bound of the
22 confidence interval around Michigan?
23   A.   I don't know. I can't tell based on
24 the printed version of the chart.
25   Q.   You said the margin of error was about

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C. WARSHAW

1
2   3 percent and you said your initial estimate was
3   23 percent Michigan?
4   A.   Sure. So you can just add the two,
5   and it would be about 26 percent would be the
6   upper bound.
7   Q.   That doesn't seem to correlate to this
8   chart. Where is the upper bound of the
9   confidence interval?
10   A.   I think about 26 -- Again, it's hard
11   to tell based on the chart, but the lower part of
12   the confidence level is around 20 percent, so
13   that's right.
14   MR. YEAGER: Counsel, I have the
15   electronic version if you would like me to
16   show it to him. It will be a better copy.
17   MR. CARVIN: I don't know. This is
18   what I got.
19   MR. YEAGER: This is not what we sent
20   you. He's asking about the resolution.
21   It's up to you. I'm just offering.
22   THE WITNESS: It's hard to tell based
23   on the printed copy, but I will assert that
24   I believe it's true that the chart
25   represents the confidence interval that I

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C. WARSHAW

1
2   cite in the text.
3   BY MR. CARVIN:
4   Q.   I'm happy with that. So it could be
5   26 percent in Michigan and nationwide it's
6   30 percent?
7   A.   Yes. But the confidence interval is
8   not saying it's equally likely that it would take
9   any value within that confidence interval.
10   Q.   But you can't state to a reasonable
11   degree of professional certainty that it's not
12   26 percent, right?
13   A.   It's more likely that it's 23 percent
14   than 26 percent.
15   Q.   That's true. But you can't state to a
16   reasonable degree of professional certainty that
17   it's not 26 percent, correct?
18   A.   There's a 95 percent chance that the
19   true value is between 20 and 26 percent.
20   Q.   That's exactly right.
21   And so there is a 4 percent difference
22   between Michigan and the rest of the country.
23   What's the confidence interval on the 30 percent?
24   A.   I didn't show that here, but it would
25   be very, very small. Probably a percentage

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C. WARSHAW

1
2   point.
3   Q.   If it was two percentage points, then
4   you couldn't rule out the possibility that it's
5   28 percent nationwide, right?
6   A.   That would be true. Although I'm
7   almost certain that it's less than 2 percent;
8   that it would be closer to 1 percent than 2
9   percent.
10   Q.   So you don't know if the confidence
11   intervals overlap between Michigan and the
12   nationwide average?
13   A.   No. With a reasonable degree of
14   professional certainty I would be -- I'm
15   comfortable saying that confidence intervals do
16   not overlap between Michigan and the national
17   average.
18   Q.   And you didn't do the margin of error
19   for the national average?
20   A.   I didn't because again it's going to
21   be very, very small. The survey sample here is
22   56,000 people. So it will be a very small
23   sampling error on the national level.
24   Q.   Why do you only list about, at most,
25   20 states here?

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C. WARSHAW

1
2   A.   Because as in elsewhere in my report,
3   I focus on the states with an efficiency gap --
4   or sorry, with more than six congressional
5   districts because those are the ones where I
6   think the efficiency gap can be estimated more
7   reliably. So I take the exact same approach here
8   that I take elsewhere in the report in terms of
9   the states that I analyzed.
10   Q.   But you did all the state
11   legislatures, right?
12   A.   Correct. Because all state
13   legislatures have more than six seats.
14   Q.   Right. But you didn't look at the
15   efficiency gap of state legislatures and that
16   correlation to this 30 percent about whether you
17   trust your representatives, right?
18   A.   That's true. This question was
19   focused on congressional representatives. It was
20   not referencing state representatives.
21   And, you know, I would say as a
22   political scientist, it's not clear to me
23   that people are -- I do think people are very
24   aware of what Congress is doing, at least at a
25   general level, and certainly the partisanship of

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C. WARSHAW

1
2 their member of Congress. I think at the state
3 legislative people are probably less aware of the
4 details of what's happening.
5   Q.   Right.
6   A.   So I don't know that I would
7 necessarily want to do this analysis at the state
8 legislative level. I would have to think about
9 that more.
10   Q.   Where is New York on this map?
11   A.   I don't know. It should be there,
12 though. It probably looks like -- I see an N.
13 It looks like a V, but that must be a Y, on the
14 left.
15   Q.   So that's not Nevada?
16   A.   I don't think so, because Nevada only
17 has I think -- it doesn't have seven
18 congressional seats in Nevada, I don't believe.
19   Q.   So you didn't do this analysis
20 relative to efficiency gaps in state
21 legislatures --
22   A.   I did not.
23   Q.   -- and its alleged correlation between
24 trusting your representative?
25   A.   I didn't. Because, again, the

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C. WARSHAW

1
2 question asked about trust in your
3 representative, which referred to the U.S. House.
4 It wasn't asking about the state legislature.
5 You know, if I had had data on the state
6 legislature, I could have looked at that. But I
7 think probably there's going to be a smaller
8 relationship just because people in general are
9 not as aware of what their state governments are
10 doing as they are of Congress.
11   Q.   And then on page 40 of your report --
12   MR. YEAGER: 40?
13   MR. CARVIN: Yeah.
14   THE WITNESS: Sure.
15 BY MR. CARVIN:
16   Q.   These estimates referenced in that
17 table indicate that state years in which the
18 efficiency gap was more pro-Republican than
19 average for that state also tended to have more
20 conservative roll call voting behavior in the
21 state house?
22   A.   Yes.
23   Q.   What's a state year?
24   A.   Oh, just Michigan, you know, in 2013.
25 That's it. A state year is Michigan in -- So I

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C. WARSHAW

1
2 measured -- the data here varies across --
3 includes both cross-sectional and temporal
4 variation.
5   Q.   What's a non-state year?
6   A.   Well, I think what it's trying to make
7 clear is that I'm not averaging across time. I'm
8 not pooling, like, 1972 and 2016 within Michigan.
9 I'm not saying that's all one row in my -- in a
10 regression.
11   Q.   So you're looking at the efficiency
12 gap in Michigan in 2013?
13   A.   Correct.
14   Q.   How can there be an efficiency gap in
15 2013 when there were no elections in 2013?
16   A.   I'm looking at the preceding year.
17 Sorry. So for policy here, I lagged the
18 efficiency gap. So it's looking at the effect of
19 the efficiency gap in 2012 on the ideological
20 composition of the legislature and the policies
21 that it produces the following year.
22   Q.   All right. So you would compare the
23 efficiency gap in 2012 to the roll call votes in
24 2013?
25   A.   Correct.

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C. WARSHAW

1
2   Q.   And you would compare -- What would
3 you do with 2014?
4   A.   I can't remember precisely what I did.
5 I think that's probably not in the analysis for
6 the reason that you suggested, that there's no
7 efficiency gap to be calculated in 2013.
8   Q.   Well, wouldn't it be the same
9 legislators?
10   A.   It would. So I probably could have
11 done that and I wouldn't expect materially
12 different results. But I don't think that's what
13 I did. I think I did it the way you suggested
14 initially, or you implicitly suggested, which is
15 I only used the efficiency gap in years where
16 there had been elections. But I could
17 double-check that. It would be in my replication
18 code.
19   Q.   Okay. And you say that the median
20 ideology of the Michigan state house which had a
21 12 percent pro-Republican efficiency gap in 2012
22 would shift nearly half a standard deviation to
23 the left if it adopted a districting plan with no
24 efficiency advantage to either party?
25   A.   Correct. I believe that's what I say

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1 C. WARSHAW
2 here.
3 Q. What does that mean in the real world?
4 What's half a standard deviation to the left in
5 terms of policy?
6 A. Well, I think here I'm focused on the
7 roll call voting behavior, so it's not policy.
8 But I think I do link it to policy in the next
9 section where --
10 Q. All right. Well, let's do this one
11 first, though.
12 A. Half a standard deviation is quite
13 consequential. I mean, I think I show in
14 Figure 17 --
15 Q. Yeah.
16 A. In Figure 17, it shows that the
17 difference between Democrats and Republicans in
18 Michigan is about two standard deviations.
19 Q. What does that mean?
20 A. It's summarizing the roll call voting
21 behavior. So two standard deviations --
22 Q. Does it mean taxes are going up? Pot
23 is being legalized? Same-sex marriage?
24 MR. YEAGER: Wait. Whoa, whoa.
25 MR. CARVIN: I'm just trying to

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2 explain what my question is.
3 BY MR. CARVIN:
4 Q. How do I know what a standard
5 deviation in ideology means in the real world?
6 MR. YEAGER: Objection. Which one of
7 those questions do you want him to answer?
8 You had a speech, then you had some
9 questions, and then you had another
10 question. It's compound. It's
11 argumentative. If you want to tell him
12 which question to answer, that's fine.
13 Otherwise I object.
14 BY MR. CARVIN:
15 Q. Can you put some meat on the bones of
16 what two standard deviations means in the real
17 world so that I and the court can understand what
18 you're talking about?
19 A. Well, I don't have an analogous graph
20 in the report for state legislatures. But for
21 Congress, where I think the substantive meaning
22 is similar, we can analogize it in Figure 7,
23 which shows that in recent years in Congress
24 Republicans are about 60 percent more likely at
25 any given vote to vote in a conservative

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2 direction than Democrats. There's a
3 60 percentage point difference between the
4 conservative voting behavior of Democrats and
5 Republicans. Which means roughly that, like, a
6 Republican might vote in a conservative
7 direction -- actually, I think it's more like
8 65 percent.
9 So a Republican might vote in a
10 conservative direction, you know, 85 percent of
11 the time and a Democrat would only vote in a
12 conservative direction 20 percent of the time.
13 So I think that's one more intuitive
14 way of putting it, which is why I like the Fowler
15 and Hall approach. It's a little bit more
16 understandable than the Nominate scores or the
17 Shor-McCarty scores that I use for state
18 legislators.
19 But anyway, I think that's very
20 similar for state legislatures. I will assert
21 that two standard deviations for state
22 legislatures means something similar to here,
23 which is that Republican state legislators are
24 about 60 percentage points or so more likely to
25 cast a conservative vote than Democrats.

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2 Q. And this is true in every state?
3 A. That's true on average across states.
4 To the extent there's differences across states
5 it's going to be more so in Michigan because, as,
6 I show in Figure 17, Michigan in fact is more
7 polarized than the average state legislature. So
8 the consequences in Michigan, to the extent they
9 vary from the national average, are likely to be
10 even larger.
11 Q. But I'm talking about the connection
12 between the pro-Republican shift and the
13 efficiency gap. What if it was Massachusetts and
14 there was a pro-Republican shift but the
15 legislature still remained firmly in Democratic
16 hands? Do you think there would be a change in
17 the median ideology of the roll call votes?
18 A. Yes, I do think there would be a
19 change in the ideological composition of the
20 legislature. And I also think there would be a
21 change in the policies that government passes,
22 although I do think that the change -- the policy
23 effects are larger when it affects the partisan
24 control of the legislature.
25 So if there's no chance that it would

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1
2   change the partisan control of the legislature,
3   then the policy consequences will be smaller than
4   in a situation where it changed the partisan
5   control. And I show that in my 2017 Election Law
6   Journal article.
7   Q.   But you're saying even if control of
8   the legislature doesn't change hands, Democrats
9   will be more conservative and Republicans will be
10   more liberal?
11   A.   No, I'm not asserting that it's going
12   to change within party composition.
13   Q.   The roll call votes will become more
14   conservative in a liberal state and more liberal
15   in a conservative state depending on the
16   efficiency gap?
17   A.   Yes. Because what that means is if
18   you have a more, say, pro-Democratic efficiency
19   gap, that implies you're electing more Democrats.
20   Q.   Right.
21   A.   And the consequence of electing more
22   Democrats is having a more liberal legislature
23   which then leads to more liberal policies.
24   Q.   So what you're telling us is the more
25   Democratic the legislature is the more liberal

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1
2   they're going to be, and the more Republican the
3   legislature is the more conservative they're
4   going to be. And you reduced that to standard
5   deviations?
6   A.   That's exactly right.
7   Q.   All right. Then you say, page 39, the
8   fourth sentence in the first paragraph: "But the
9   magnitude of changes in the position of the
10   median voter is not clear a priori. That depends
11   on whether additional members of the majority
12   party tend to be moderate (because they are
13   winning closer districts) or typical for their
14   party (when parties are polarized)."
15   So you do think that people tend to be
16   more moderate when their districts are closer?
17   A.   I think that's possible theoretically,
18   although empirically there's no evidence for
19   that.
20   Q.   So why did you say "because they are
21   winning closer districts"?
22   MR. YEAGER: Objection. Completely
23   and inaccurately summarizes the document.
24   You may answer.
25   THE WITNESS: What I'm stating here is

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1
2   that we don't know a priori. So I think
3   theoretically there's reasons to think, as
4   perhaps you're suggesting that, you know,
5   the median voter theorem certainly suggests
6   that in a competitive district you should
7   moderate your position in order to win
8   elections.
9   But in fact the empirical evidence
10   suggests that that's generally not the case,
11   particularly in the modern era, that
12   legislators don't actually take much more
13   moderate positions in moderate districts
14   than they do in very extreme districts.
15   BY MR. CARVIN:
16   Q.   You had said, I think in the beginning
17   of your report, that while there was a slight
18   Republican lean in the 2001 redistricting, it was
19   not nearly as extreme as this efficiency gap
20   after 2011?
21   A.   Can you repeat back the question to
22   me?
23   Q.   At the beginning of your report you
24   were comparing the --
25   A.   Where are you quoting from in my

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1
2   report?
3   Q.   I'm not. I can go get it for you.
4   A.   I don't know that I state that.
5   MR. YEAGER: Let him ask a question.
6   MR. CARVIN: I just thought I would
7   try and save some time.
8   BY MR. CARVIN:
9   Q.   Is it not your opinion that the
10   efficiency gap in 2001 in Michigan was not that
11   extreme while it was extreme after 2011?
12   A.   I don't know that I formed a precise
13   opinion about the 2000 -- the magnitude of the
14   partisan bias in 2002. I haven't looked at all
15   the different metrics, for instance, for 2002.
16   But certainly the chart in Figure 5 and
17   perhaps -- both Figure 5 and Figure 15 suggest
18   that the partisan bias in 2012 is much larger
19   than in 2002.
20   Q.   Go to page 17.
21   A.   Great.
22   Q.   You say: "From about 2002 through
23   2010 Republicans had a modest advantage in the
24   efficiency gap. However, the 2011 redistricting
25   plan led to a large Republican advantage in

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1
2 Michigan congressional elections." Correct?
3   A.   Yes.
4   Q.   And then what were you saying,
5 Figure 9 has the similar analysis for the state?
6   A.   Figure 15 on page 34.
7   Q.   What was your conclusion about the
8 2000 efficiency gap?
9   A.   Again, I don't state a conclusion
10 about that in my report. But just eyeballing
11 these numbers, certainly I don't think the
12 efficiency gap on its own indicates any kind of a
13 large partisan bias in the elections.
14   Q.   And you did an article analyzing
15 Michigan policy initiatives in 2011 and 2012,
16 right? In your article you discussed that issue
17 specifically?
18   A.   Correct. I looked at -- Policy
19 initiative is not exactly right. I looked at the
20 policies that the Michigan state government
21 passed.
22   Q.   And you pointed out that they had a
23 large spending cut, higher taxes on pensions, and
24 lower taxes on corporations. All those are
25 conservative positions?

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1
2   A.   I believe that's true. I would have
3 to look at the article to reference them for
4 sure.
5   Q.   And that they banned benefits for
6 same-sex partners of government employees, gay
7 government employees?
8   A.   Again, I don't have the article in
9 front of me. I would want to look at the article
10 to see.
11   Q.   And it became a right-to-work state in
12 2011 and 2012?
13   A.   That sounds right. I couldn't say for
14 sure. I would want to look at the article.
15   Q.   I'm happy to show you the article.
16 But didn't all those changes happen prior to the
17 2012 redistricting and the people who were
18 elected under that extreme pro-Republican bias,
19 or do you recall?
20   A.   I would want to look at the article.
21 I don't remember what I said precisely in the
22 article.
23   MR. CARVIN: Could you mark that,
24   please.
25   (Exhibit 9 marked for identification

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1
2   and attached hereto.)
3   THE WITNESS: Yes. So I'm looking at
4   page 467. We did talk about those being
5   implemented in 2011 and '12.
6 BY MR. CARVIN:
7   Q.   Has there been anything comparably
8 conservative post the large increase in the
9 efficiency gap in the years following 2012?
10   A.   I couldn't say for sure. I just don't
11 remember. I would have to have my data in front
12 of me. It's been a while since I've looked at
13 it.
14   Q.   But it is true that the most
15 conservative things happened in a legislature
16 where the efficiency gap was not that different
17 from the norm?
18   A.   I'm sorry. Repeat that.
19   Q.   It happened under the 2001
20 redistricting, which we agreed was not nearly as
21 extreme as the pro-Republican efficiency gap in
22 2012 and not that different from the norm?
23   A.   Yes. In this case, the efficiency gap
24 was pro-Republican but it was not as extreme as
25 we've seen after the 2011 went into place.

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1
2   Q.   So you haven't asked or followed up on
3 the question on whether the Michigan legislature
4 has pursued more conservative policies after this
5 dramatic shift in the pro-Republican efficiency
6 gap since 2012 than they did prior to 2012?
7   A.   I have not. I think that would be a
8 reasonable question to examine, but I have not
9 looked at it.
10   Q.   And you have no reason to believe that
11 they've enacted policies as conservative as were
12 enacted in 2011 and 2012?
13   A.   I have no opinion either way. I just
14 don't know.
15   MR. CARVIN: I don't have any
16   additional questions.
17   MR. YEAGER: Let's take a break, and
18   then we'll come back and tell you whether
19   there's more or not.
20   (Recess taken.)
21   MR. YEAGER: We're done.
22   (Deposition adjourned at 3:37 p.m.)
23
24
25

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 1              C. WARSHAW
 2       ACKNOWLEDGMENT OF DEPONENT
 3
 4     I, CHRISTOPHER WARSHAW, Ph.D., have read or
 5  have had the foregoing testimony read to me and
 6  hereby certify that it is a true and correct
 7  transcription of my testimony with the exception
 8  of any attached corrections or changes.
 9
10
11  _____
12  CHRISTOPHER WARSHAW, Ph.D.
13  [ ] No corrections
14  [ ] Correction sheet(s) enclosed
15
16     SUBSCRIBED AND SWORN TO BEFORE ME, the
17  undersigned authority, by the witness,
18  CHRISTOPHER WARSHAW, Ph.D., on this the _____ day
19  of _____, _____.
20
21
22
23
24
25
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 1              C. WARSHAW
 2          C E R T I F I C A T E
 3
 4  DISTRICT OF COLUMBIA
 5     I, JOHN L. HARMONSON, a Notary Public
 6  within and for the District of Columbia, do
 7  hereby certify:
 8     That CHRISTOPHER WARSHAW, the witness
 9  whose deposition is hereinbefore set forth, was
10  duly sworn or affirmed by me and that such
11  deposition is a true record of the testimony
12  given by such witness.
13     That if the foregoing pertains to a
14  federal case, before completion of the
15  proceedings, review and signature of the
16  transcript [X] was [ ] was not requested.
17     I further certify that I am not related
18  to any of the parties to this action by blood or
19  marriage; and that I am in no way interested in
20  the outcome of this matter.
21     IN WITNESS WHEREOF, I have hereunto set
22  my hand this 15th day of August, 2018.
23
24     _____
25       JOHN L. HARMONSON, RPR
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