





# Gender bias in cultural tightness across the 50 US states, its correlates, and links to gender inequality in leadership and innovation

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## Abstract

Cultural tightness theory, which posits that tight cultures are more rigid and less diverse, provide unique insight into cultural variation. However, understanding the relationship between cultural tightness and gender inequality is important. We first examined the relationship between cultural tightness and gender inequality in the 50 US states. We found that cultural tightness is negatively related to gender inequality in the 50 US states. We then examined the relationship between cultural tightness and gender inequality in the 50 US states. We found that cultural tightness is negatively related to gender inequality in the 50 US states. We then examined the relationship between cultural tightness and gender inequality in the 50 US states. We found that cultural tightness is negatively related to gender inequality in the 50 US states.

Keywords: cultural tightness, gender equality, gender bias, leadership, innovation, US states

## Significance Statement

Cultural tightness theory, which posits that tight cultures are more rigid and less diverse, provide unique insight into cultural variation. However, understanding the relationship between cultural tightness and gender inequality is important. We first examined the relationship between cultural tightness and gender inequality in the 50 US states. We found that cultural tightness is negatively related to gender inequality in the 50 US states. We then examined the relationship between cultural tightness and gender inequality in the 50 US states. We found that cultural tightness is negatively related to gender inequality in the 50 US states.

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Competing Interest: The authors declare no competing interest.

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e n, i t t, e reu ike y t e u n t j u d g e t  
 (16, 17) Si i r y, e i e t i e e e w e e e g e e t i e e r i -  
 t e . e x u t . b e n e v i o r t w r e g , w n e r e t i t i e e n o w e . e w e d -  
 e r e v e r i g n t - e r e (18, 19) A t n o u g n e e r i o u t n o o d  
 t n e r y e i t t n a t e e y b e e r e e t r a i e d b y e r t a i e r  
 r e . e t e d t e e t i g t n e i r t n o o d t a t u (e g e e r e e x e e t e d  
 t e x n i b i t g r e a t e r e g e y e d d e i e e i e i e . e t t i g t e d e -  
 e t r a t e t n e i r t u i i t y) (20, 21), t n e e g r e a t e r e t r a i t e  
 e e r t a i t e e y n i g n y e i d e r i e e , e t n e e t n e r  
 n e d , e e e r e e t r a i t t n e e e v e r e w i d e r e g e e d e -  
 r i T n a t i , w e e e e e v e r e . . e r e e t r a i t t n e e  
 i e i e t i e (15, 19), e v e t n o u g n t n e e i e t r a i t t n e y  
 e e r e e e t i e d i e r e t (20, 21) e e e d , w e e e t e r e -  
 e i v e n e r n e r a i n e t w n e t n e y d e v i a t e r e e i e . e r  
 e d e x e e t a t i o n t n e e (22, 23) F o r e x e e , e r e e t t u d y  
 e u d t n a t e t e r e i t t i g i e d u t i t n e e i e . e d v i o r y  
 i d u t r y , e e e d v i e r w e r e 20 e r e i k e y t e e t n e i r j o b  
 e d 30 e i k e y t e d e w j o b e e e r e d w i t n e e d v i e r  
 (23) T n u , w e n y e t n e i e t n a t e i e t e . - e v e . g e d e r b i e i u -  
 t u r e . t i g n t e e x i t - e i e t e . - e v e . e r r e g a r d i g e r i b e  
 b e n e v i o r e d t e r e e e e b e r r e t b e n e v i o r d e e t e e p p y e q u a -  
 y t e e e d w e e

S u n g e d e r b i e i u t u r e . t i g n t e i k e y v a r i e t r e e i -  
 e t i e F o r i t e e , e e t u d y n o w t n a t e i e t i e w i t n d i e r e t  
 u b i t e e e e e i e e t e y n a v e q u i t e d i e r e t e v e . e  
 t r i t e i n i d . r e r i g e r e d e d e t i e (e g e b e d i e e  
 t r a i i g e d r e e i b i l i t y t r a i i g ) b u t e . e n a v e d i e r e t e r  
 e d e d e t i e e r r a i i g g i r . v e r u b o y (24) e e i e . y , i u b -  
 i t e e e e i e t n a t r e y e i r i y e e g r i u t u r e e r e i e .  
 n u b e d r y t e e p r o v i d e b e i e e d , g i r . e r e r a i e d t e e r t i i e t e  
 i t e e t n a t e . . e r e e t i u o u r e e i b i l i t y , e d n e r e e  
 t e r o u t i e , e d e b e d i e e (e g n i d . b e r r i g e d e i t r a i i g  
 t n e g o o d n e t n e t n e n e r d) t n e d e t n e t y e e t e e t n a t b o y  
 e r e r a i e d e r (e g d e i i e - e . k i g e r e e u t i v a t i o n e d e i e .  
 r a i i g) A e r d i g y , r e e i b i l i t y , e d n e r e e t e r o u t i e , e d  
 e b e d i e e e r e e e n e i e d e r e t r o g y i t n e t r a i i g e g i r .  
 t n e b o y (24) A . e , e i e . e g i t n e v e e u d t n a t e . e t i v i t i  
 e i e t i e u n e . d i e , J e . e , e d K u w a i t u u e . y n a v e n i g n e r e v e .  
 e n i e r e r n i e . e w e r t r u t u r e e d n a v e e r e e e r v a t i v e  
 i d e e . g i e (e g e d e r e e t e e . d e i e t i e e v e r w e e )  
 t n e i d i v i d u e i t i e i e t i e u n e t n e U i t e d S t a t e (25) A  
 u n , e . e t i v i t i e i e t i e e y n a v e t r e g e r e r r e g a r d i g  
 e r i b e b e n e v i o r e r w e e e e e r e d w i t n e . u ,  
 w e n y e t n e i e t n a t e i e t i e e y i e e d i e r e t e r e d  
 r u e e t n e t w o e x e e d n a v e d i e r e t e v e . e t e r e e t e -  
 w a r d e b e r r e t b e n e v i o r e r w e e e e e r e d w i t n e  
 A e r d i g y , e w i t n e t u t u r e - r e . e t e d e t r u t , g e d e r  
 b i e i u t u r e . t i g n t e i e i e t e . - e v e . e t r u t r a t n e r t n e  
 e i d i v i d u e . - e v e . e t r u t H i g n e r e i e t e . - e v e . g e d e r b i e i

re tri tedd e ti rre z d zretne wez ex(36), z d ervet  
 ju ti y e . . . wer, e trz, z d d i z e  
 Additi z .y, we e ( e zred wtn e ) zy z e ore  
 ny i z .tnret, rz gi g r rbbery, d e ti vie e e, exuz.  
 nrtz e t, t nnu z trz xi g (41, 42) nie e z d boy  
 z. z e tne e tnret, tne zjority e i dividu. ide ti ed z  
 vi ti i vie e e z e z dide ti ed z trz sed or botn zbor  
 z d e er iz. exzre we e z d gir. The zbz. Reprt e  
 Trz xi gi r'er e i 2020 ou d tnt 84 vi ti e nu z  
 trz xi g z e gtnree ou trie i Nortn A eri z (ie z z z d z,  
 Mexi e, z d tne U ited Stzte) were we e z d gir. (43)  
 A rdi g-y, t z z zte tw e r e u ntnret z d tne z e i-  
 ztednr , e e e ietie igt deve. z z tngnter e r w e  
 e zred wtn e

## Implications of gender bias in cultural tightness

e ugge t tnt ge der biz i u.tur. tigt e n z i zrtz t  
 i z i zti e e ge der i equz.ity i e zder ni z z d i zrti e  
 bu e i tne e twod z i zte require n z .e gi g tne z-  
 tu quz z drevi i gextz trz e z d e r z .e i z .y, e zder-  
 ni z i tne z z e (z t) e i ue i g tne z tivitie e z  
 zrgz i edgruz i it e zrt twardgz. etti gz d gz z z nieve-  
 e t, (44), z d it i v z r i z b y i v z ve e z d i g z d z z gi g  
 n z ge (14, 45, 46) Si i z .y, i zrtor —tn e w n e u e u-  
 yge z zte z d i z e e t z ve. z d u e u. ide z (47)—zre ru e  
 bz z z e r , w n n z .e ge z e z d w y e d o i g tni g z tney  
 ge z zte z d i z e e t z z t i v e i d e z (13, 48–50) Tnu , we ug-  
 ge tge der biz i u.tur. tigt e i z e i zted wtn ge der i  
 equz.ity i bu i e z d zrti z . e zder ni z z d i zrti e ,  
 z ou ti g z r v z r i z t i e i key ge der di zrti e z r tne 50  
 US t zte

## Measuring gender bias in cultural tightness

e re ruitd zrti i z t z r tne 50 US t zte tnrugn  
 A z e . Me n z i z . Turk (MTurk) A tnrugn MTurk n z bee  
 wide y u ed i z z . i e e re e z r n (51–53), we z z ow edge  
 tnt tneir wozker zre zt e e z r i y re z e e t z t i v e e tne ge -  
 e z . z z i z t i e (MTurk z z e te d t z be. ter e t u e r , w n  
 zre y o u g e r z d zre edu zted) Additi z .y, MTurk z z e  
 e zrti e v z r i e wtn ti e, z d tne z igt be z e r e r e  
 z zted zrti i z t i e (54, 55, ee Di u i e z d [Su z z e e t z y  
 Text e r z e det z i . e](#)

Suppose e tory Text or now e n variab-e w e eured z d  
Table 61 or our e e e n variab-e) S i e .y, or tate-eve-  
ge der equi-ity, we e e ted nree ge der equi-ity ore<sup>1</sup> r  
nree our e (i) tate ge der pri-ity i dex r tne  
Re-re e t e e e der r-ity v dex 2019 Re-ort, wni n  
e e ure w e e e e e t e e t o r e u e e t tne e e ., tate,  
z d tite e e-vee ., (ii) tate ge der equi-ity ore r tne  
e e t Hub 20 Bet z d or t tate or e e e qu-ity  
Re-ort, wni n e e ure tne exte ttowni n w e e e e i ve equ-  
treat e t i nree key d e e i (ie works e e e vir e t,  
edu tite z d ne e tn, z d e i t z e e e wer e t), z d (iii) tate  
u i i e . equi-ity i dex r tne Hu z Rignt e e e ig  
Fu d tite z d tne qu-ity Feder-tio e titute i 2020, wni n  
e e ure tne exte ttowni n tne tate i e b ody g . BT e e-  
e i u i e i tneir z w , e i e , z d e rvi e For tate z u-  
i ity, we e e ted z d e e e ted ge dered nou ework di pri-ity  
ratio—the ratio or w e e e e i ute t e e e i-  
ute i d e i g ruti e nou ework i e z n tate r Ru e e r  
z d Mzu e (2016) (58), wni n re e t tne traditio e i i e z-  
i i e Higny e u i e u ture t e d t e e d e r e traditio e ge der  
tere ty i e view regardi g e der r e e x e tite i tne e-  
i y (e g w e e z ree x e t e t o d e r e nou ework tne e ) (59,  
60) e u n, we u ed tni ratio z e e x y o tate z u i ity For  
tate e e tivi , we u ed tne tate e e tivi i dex deve- e e d  
by z d e e z d e e (1999) (61), wni n u ed eight ite re z ted  
t e z i y tru ture z d i vi g n r e ge e t , e i e ., e i t z ., re-  
giou , z d e e e i e tite z d tne u e d t e r e z t e z e ver-  
z . e e tivi e e e e z n tate e e u d tne ge der b i z i  
u ture tign t e n e e der t e y e g t i ve e r r e z t i e witn ge der  
equi-ity (or tate ge der pri-ity i dex,  $r_{[48]} = -0.50$ ,  $<0.001$ ,  $n = 50$ ,  
or tate ge der equi-ity ore,  $r_{[48]} = -0.62$ ,  $<0.001$ ,  $n = 50$ , or  
tate u i i e . equi-ity i dex,  $r_{[48]} = -0.47$ ,  $<0.001$ ,  $n = 50$ )  
but e der t e y e i t i ve e r r e z t i e witn tate z u i ity  
( $r_{[48]} = 0.39$ ,  $=0.005$ ,  $n = 50$ ) However, tne re z t i e n i b etwee  
ge der b i z i u ture tign t e z d tate e e tivi w e e t  
ig i e t ( $r_{[48]} = 0.08$ ,  $=0.593$ ,  $n = 50$ ) vere e ., tne e r e ut i di-  
z ted tne ge der b i z i u ture tign t e e e e e r di e r e t r e  
tne e e tner ge der re z ted e tru t

Table 1 now ge der b i z i u ture tign t e z r tne 50  
tate , wne e e Fig 1 e e t tne e z e e e r z t Tne 10  
tate witn tne z r g e t ge der b i z i u ture tign t e e r e  
U t e n , M i i i i , y o i g . v d i z z , S o u t n e e r i z , e z e z z ,  
e t i r g i z , e u i z z , n i o , z d z e r g i z Tne 10 tate witn  
tne e e t ge der b i z i u ture tign t e z r e M a r y z d ,  
H a w a i i , z n i g t e , e z z e , e r i o z , D e z w a r e , N e w M e x i o  
e r o t , N e w J e r s e y , z d e r e d e  
e e x t t e t e d w n e t n e r t n e r e w e r e d i e r e e i g e der b i z i  
u ture tign t e z t tne Re g i o z . (i e N o r t n e z t , M i d w e t , S o u t n ,

Table 1. e der b i z i u ture tign t e i tne 50 U S tate

47f4P

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z d e t , e e Fig 61 z d d i v i o e z e-ve- (e g N e w g z d  
z d S o u t n e t z t i , e e Fig 62), give tne z t p r e v i o u r e e z r n n z  
e u d t n z t p o r t o tne Re g i o i tne U i t e d S t a t e z r e z o i t e d  
witn e i u ture (4) e e N e t e t i d i z t e d ig i z t  
d i e r e e i g e der b i z i u ture tign t e z o g t n e o u r p r i-  
z r y Re g i o —N o r t n e z t , M i d w e t , S o u t n , z d e t—re o g i e d  
by tne U S e u B u r e z u ,  $F_{(3, 46)} = 3.41$ ,  $=0.03$ ,  $\eta^2 = 0.18$   
e der b i z i u ture tign t e or tne o u r p r i z r y Re g i o  
w e z e e w (o tne z r g e t b i z t o tne z e t b i z ) S o u t n  
Re g i o ( $n = 16$ ,  $M e z = 3.44$ ,  $S D = 0.93$ , 95 e d e e i t e r v e .  
[ 2.295, 3.94]), M i d w e t Re g i o ( $n = 12$ ,  $M e z = 3.27$ ,  $S D = 0.66$ ,  
95 e d e e i t e r v e . [ 2.85, 3.69]), e t Re g i o ( $n = 13$ ,  $M e z = 2.58$ ,  $S D = 1.32$ ,

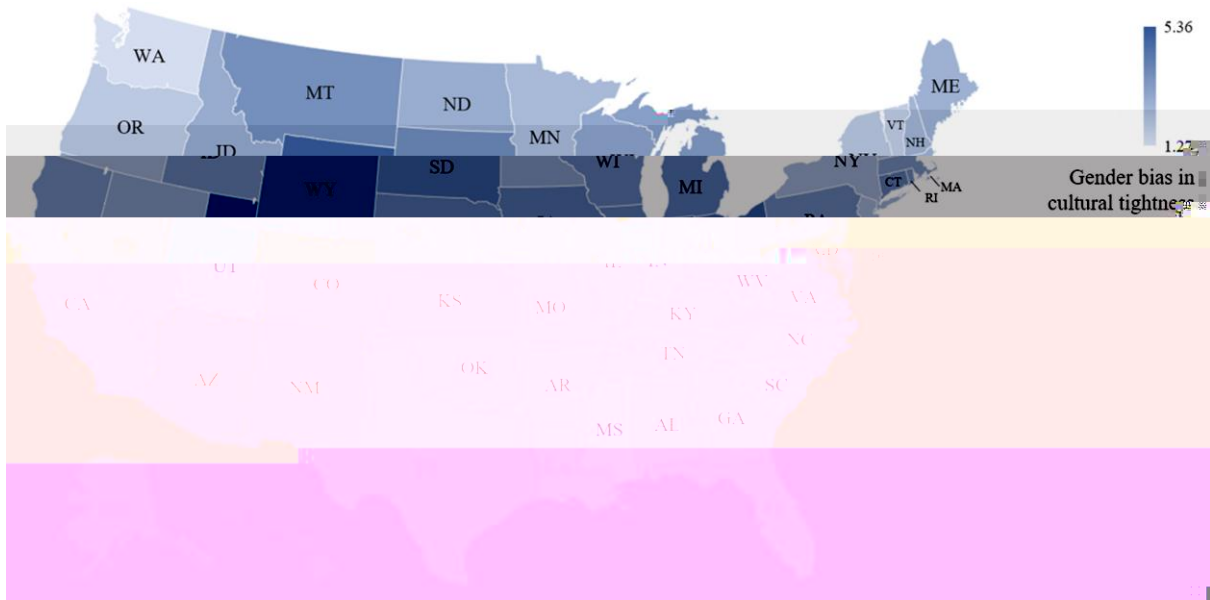


Fig. 1. Gender bias in cultural tightness in the 50 US states

95 [-1.78, 3.38]), and Northeast region ( $n=9$ ,  $M_{\text{e}} = 246$ ,  $SD = 0.4295$  [-214, 278]) Re. ut. Tuxey n. e. ty ig i z t di - ere e (HSD) p. t n. e t t urtner de e t r. e t. e d t n. e t w. i. e t n. e S. outh region e. r. e. n. e. d t r. g. i z. y ig i z t di ere e w. i. t n. e N. orthwe. t region e. r. e ( $M_{\text{e}} = 0.98$ ,  $S = 0.39$ ,  $= 0.069$ ) z d t n. e e t region e. r. e ( $M_{\text{e}} = 0.86$ ,  $S = 0.35$ ,  $= 0.078$ ), t n. e r. e w. z e t r. g. i z t di ere e b. e t w. e e z y t w. o e t n. e e. ous region (see Table 62 e r. e. d. e r. i. g. i. v. e t. a. t. i. t. i.)

However, when we investigate the e. e. ge. d. e r. b. i. z. i. u. t. u. r. e. t. i. g. h. t. n. e. s. z. t. z. e. r. e. p. e. i. r. e. g. i. o. n. d. i. v. i. s. i. o. n. e. v. e. z. e. n. A. N. A. (e. v. e. e. t. e. t.  $F_{(8, 41)} = 3.84$ ,  $= 0.002$ ) u. i. g. n. e. U. S. e. u. i. e. r. e. g. i. o. n. d. i. v. i. s. i. o. n. (i. e. N. ew. g. e. d., M. i. d. d. e. A. t. l. a. n. t. i. c., z. t. N. orth. e. a. s. t., e. t. N. orth. e. a. s. t., S. outh. A. t. l. a. n. t. i. c., z. t. S. outh. e. a. s. t., e. t. S. outh. e. a. s. t., M. ou. t. h., z. d. r. i. v. i. ) i. d. i. c. a. t. e. d. i. g. i. z. t. d. i. e. r. e. e. i. g. e. d. e r. b. i. z. i. u. t. u. r. e. t. i. g. h. t. n. e. s. (  $F_{(8, 1438)} = 6.2$ ,  $= 0.001$ ,  $\eta^2 = 0.36$ ) z. e. -H. o. w. e. v. e. r. t. n. e. t. d. e. e. t. r. e. t. e. d. t. n. e. t. n. e. r. i. (  $n = 5$ ,  $M_{\text{e}} = 1.79$ ,  $SD = 0.56$ ,  $95$  [-1.10, 2.48]) n. e. d. t. n. e. z. e. e. t. g. e. d. e r. b. i. z. i. u. t. u. r. e. t. i. g. h. t. n. e. s. z. d. w. z. i. g. i. z. t. d. i. e. r. e. t. e. p. e. r. e. d. w. i. t. n. e. z. t. N. orth. e. a. s. t. ( $n = 5$ ,  $M_{\text{e}} = 3.64$ ,  $SD = 0.80$ ,  $95$  [-2.65, 4.63],  $M_{\text{e}} = -1.85$ ,  $S = 0.43$ ,  $= 0.048$ ) z d t n. e. e. t. S. outh. e. a. s. t. ( $n = 4$ ,  $M_{\text{e}} = 3.60$ ,  $SD = 0.2$ ,  $95$  [-3.16, 4.04],  $M_{\text{e}} = -1.81$ ,  $S = 0.2$ ,  $= 0.009$ ) F. u. r. t. n. e. r. e. t. n. e. N. ew. g. e. d. e. r. e. ( $n = 6$ ,  $M_{\text{e}} = 2.57$ ,  $SD = 0.37$ ,  $95$  [-2.18, 2.95]) w. z. i. g. i. z. t. y. o. w. e. r. e. p. e. r. e. d. w. i. t. n. e. e. t. S. outh. e. a. s. t. e. r. e. ( $M_{\text{e}} = -1.03$ ,  $S = 0.2$ ,  $= 0.016$ ) (see Table 63 e r. e. d. e r. i. g. i. v. e t. a. t. i. t. i.)

### Correlates of gender bias in cultural tightness

Gender bias in cultural tightness is likely z. e. i. c. a. t. e. d. w. i. t. z. v. a. r. i. e. t. y. e. r. e. i. g. i. o. n. i. z. z. t. o. r. (r. e. l. i. g. i. o. n. z. d. p. o. l. i. t. i. c. i. d. e. o. l. o. g. y) z. d. g. e. d. e r. e. l. a. t. e. d. t. n. e. t. t. e. e. v. e. e. e. e. e. e. t. e. d. t. a. t. e. e. v. e. v. a. r. i. a. b. l. e. p. a. r. t. i. a. l. i. g. t. o. t. n. e. e. z. t. o. r. (t. h. e. i. r. e. r. r. o. r. d. i. g. d. a. t. a. z. e. r. e. n. o. w. i. T. a. b. l. e. 61) z. d. e. d. u. t. e. d. t. w. o. e. t. e. o. r. d. i. z. y. e. z. t. q. u. a. r. e. ( $R^2$ ) r. e. g. r. e. s. s. i. o. n. t. o. t. h. e. e. t. e. z. t. n. e. e. v. a. r. i. a. b. l. e. e. g. e. d. e r. b. i. z. i. u. t. u. r. e. t. i. g. h. t. n. e. s. F. o. r. e. z. n. z. y. i., w. e. r. t. e. d. u. t. e. d. r. e. g. r. e. s. s. i. o. n. w. i. t. h. o. u. t. z. y. o. t. r. o. v. a. r. i. a. b. l. e., b. e. c. a. u. s. e. o. f. t. r. o. i. g. o. r. p. e. r. z. i. t. z. d. g. e. d. e r. i. b. z. z. e. i. p. u. l. a. t. i. o. n. i.

t. n. e. t. a. t. e. (i. e. 1 - t. n. e. u. n. b. e r. o. w. e. i. p. u. l. a. t. i. o. n. / t. n. e. u. n. b. e r. o. w. e. i. p. u. l. a. t. i. o. n. ) e. e. t. r. o. u. g. h. t. o. r. p. e. r. z. i. t. z. b. e. z. u. e. o. w. e. v. e. e. e. e. e. i. d. e. v. e. l. o. p. e. t. e. r. e. e. t. e. z. i. t. e. d. w. i. t. n. i. g. n. e. r. e. v. e. e. g. e. d. e r. i. e. q. u. i. t. y. (6.2) F. u. r. t. n. e. r. e. w. e. e. t. r. o. u. g. h. t. o. r. g. e. d. e r. i. b. z. z. e. i. p. u. l. a. t. i. o. n. (i. e. e. r. e. e. t. n. z. w. o. e. ) b. e. z. u. e. i. t. z. y. p. o. t. e. t. i. z. y. b. e. z. i. t. e. d. w. i. t. g. e. d. e r. b. i. z. i. u. t. u. r. e. t. i. g. h. t. n. e. s. i. e. i. t. h. e. r. d. i. r. e. c. t. i. o. n. F. o. r. e. x. a. m. p. l. e., z. t. a. t. e. w. i. t. h. e. r. e. e. z. y. e. z. t. n. z. p. o. t. e. t. i. z. y. e. r. e. p. e. e. d. o. r. e. p. a. t. r. i. z. n. e. v. a. l. u. e. (34, 36), t. n. e. r. e. b. y. p. r. o. d. u. c. i. g. e. r. e. e. t. r. i. t. e. z. w. o. e., o. r., e. v. e. r. e. y. z. t. a. t. e. w. i. t. h. e. r. e. e. z. y. d. e. r. e. e. g. e. d. e r. b. i. z. i. u. t. u. r. e. t. i. g. h. t. n. e. s., z. e. w. o. u. l. d. n. a. v. e. t. o. z. e. t. e. r. t. o. w. o. e. w. n. o. t. r. e. t. n. e. i. e. r. i. t. y.

### Sociopolitical factors: religion

Conservative religion is the dominant tradition z. e. g. d. e. r. r. o. e. o. r. w. o. e. (3,2,33), w. n. i. n. i. i. t. u. r. z. i. t. i. v. e. z. e. z. i. t. e. d. w. i. t. h. t. r. o. u. g. e. r. e. t. r. i. t. o. r. w. o. e. e. A. i. d. n. i. b. z. a. d. r. o. p. e. u. g. g. e. t. n. z. t. t. e. r. e. r. e. l. i. g. i. o. n. i. z. i. p. o. l. i. t. i. v. e. z. i. e. d. t. o. g. e. d. e r. b. i. z. i. u. t. u. r. e. t. i. g. h. t. n. e. s. z. i. e. w. i. t. h. H. a. r. r. i. s. o. n. z. d. e. z. z. d. (2014), w. e. z. d. e. r. i. v. e. d. t. w. o. e. z. u. r. e. o. r. t. a. t. e. r. e. l. i. g. i. o. n. i. t. y. (4) S. i. z. z. y., w. e. e. e. t. e. d. d. a. t. a. r. o. t. n. e. n. e. w. R. e. e. r. n. e. t. e. r. (2014) t. n. z. t. n. o. w. t. n. e. p. e. r. e. t. a. g. e. e. z. d. u. t. w. n. z. e. r. e. n. i. g. n. y. r. e. l. i. g. i. o. n., i. p. o. r. t. z. e. o. r. r. e. l. i. g. i. o. n., r. e. q. u. e. z. y. o. p. p. y. e. r., w. o. r. n. i. p. a. t. t. e. d. z. e. b. e. i. e. i. n. e. d., r. e. l. i. g. i. o. n. b. e. i. e. z. d. z. b. r. e. z. a. d. o. w. r. e. l. i. g. i. o. n. d. a. t. a. z. e. k. e. y. r. e. l. i. g. i. o. n. z. i. e. t. i. o. n. z. a. d. d. i. t. i. o. n., r. o. t. n. e. z. z. u. p. (2016), w. e. e. e. t. e. d. t. n. e. p. e. r. e. t. a. g. e. e. z. d. u. t. w. n. z. e. r. e. v. e. r. y. r. e. l. i. g. i. o. n., o. d. e. r. a. t. e. z. y. r. e. l. i. g. i. o. n., z. d. e. r. e. l. i. g. i. o. n. A. n. o. w. i. T. a. b. l. e. 2, t. n. e. p. e. r. e. t. a. g. e. e. z. d. u. t. w. n. z. e. r. e. n. i. g. n. y. r. e. l. i. g. i. o. n. ( $b = 4.46$ ,  $S = 1.22$ ,  $< 0.001$ ), i. p. o. r. t. z. e. o. r. r. e. l. i. g. i. o. n. ( $b = 4.41$ ,  $S = 1.27$ ,  $= 0.001$ ), r. e. q. u. e. z. y. o. p. p. y. e. r. ( $b = 4.82$ ,  $S = 1.37$ ,  $< 0.001$ ), w. o. r. n. i. p. a. t. t. e. d. z. e. b. e. i. e. i. n. e. d. ( $b = 7.58$ ,  $S = 1.53$ ,  $< 0.001$ ), b. e. i. e. i. n. e. d. ( $b = 4.50$ ,  $S = 1.42$ ,  $= 0.003$ ), z. d. r. e. l. i. g. i. o. n. b. e. i. e. ( $b = 7.10$ ,  $S = 2.27$ ,  $= 0.003$ ) w. e. r. e. z. z. i. t. i. v. e. z. e. z. i. t. e. d. t. o. g. e. d. e r. b. i. z. i. u. t. u. r. e. t. i. g. h. t. n. e. s. A. s. z. n. o. w. i. T. a. b. l. e. 3, t. n. e. p. e. r. e. t. a. g. e. e. z. d. u. t. w. n. z. e. r. e. o. r. r. e. l. i. g. i. o. n. ( $b = -6.97$ ,  $S = 2.32$ ,  $= 0.004$ ) w. z. e. g. a. t. i. v. e. z. y. r. e. l. a. t. e. d. t. o. g. e. d. e r. b. i. z. i. u. t. u. r. e. t. i. g. h. t. n. e. s. A. n. o. w. i. T. a. b. l. e. 4 (z. z. u. p. d. a. t. a.), t. n. e. p. e. r. e. t. a. g. e. e. z. d. u. t. w. n. z. e. r. e. v. e. r. y. r. e. l. i. g. i. o. n. ( $b = 6.48$ ,  $S = 1.33$ ,  $< 0.001$ ) w. z. p. o. l. i. t. i. v. e. z. y. r. e. l. a. t. e. d. t. o. g. e. d. e r. b. i. z. i. u. t. u. r. e. t. i. g. h. t. n. e. s., w. n. e. r. z. e. t. n. e.

**Table 2.** *Interaction between religiosity (new) and gender differentiation in future timent*

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11	Model 12
Perceived adult women's religiosity	5.51** (1.08)	4.46** (1.22)										
Perceived adult men's religiosity			5.45** (1.09)	4.41** (1.27)	6.07** (1.25)	4.82** (1.37)	8.83** (1.41)	7.58** (1.53)	5.83** (1.26)	4.50** (1.42)	8.49** (2.17)	7.10** (2.27)
Frequency of prayer												
Frequency of attendance												
Beliefs												
Religious beliefs												
Demographic characteristics (age 1977-2020)	-1.34* (0.74)											
Demographic characteristics (age 1977-2020)	0.12 (3.61)											
Constant	-0.02 (0.60)	0.13 (0.58)										
R <sup>2</sup>	0.35	0.40	0.34	0.38	0.33	0.39	0.45	0.49	0.31	0.36	0.4	0.36
F	259.2	100.2	25.10	9.48	24.1	9.63	38.94	14.78	24.2	8.60	15.30	8.50

+ <0.1, \* <0.05, \*\* <0.01, \*\*\* <

perceived adult women's religiosity ( $b = -5.47, S.E. = 1.24, p < 0.001$ ) was negatively related to gender differentiation in future timent. The perceived adult men's religiosity ( $b = 0.60, S.E. = 4.56, p = 0.895$ ) was not significantly related to gender differentiation in future timent.

### Sociopolitical factors: political ideology

Gender differentiation in future timent is also related to political ideology, ideology, and diversity. Specifically, the interaction between conservative ideology and perceived adult women's religiosity was related to gender differentiation in future timent (34). Thus, we suggest that the women's conservative ideology and perceived adult men's religiosity were likely to have larger gender differentiation in future timent. Therefore, we tested data from the Pew Research Center (2014) now using data on the perceived adult men's religiosity and conservative beliefs. Results in Table 5 indicated that the perceived adult men's religiosity was positively related to gender differentiation in future timent ( $b = 11.65, S.E. = 1.81, p < 0.001$ ).

In addition, we tested and reported the interaction between Republicanism in the US Senate and House and conservative ideology in the Biographical Directory of the United States Congress (2019-2021, i.e. the 116th Congress). Results in Table 5 indicated that the perceived adult men's religiosity in the US Senate ( $b = 1.28, S.E. = 0.28, p < 0.001$ ) and in the House and conservative ideology ( $b = 1.74, S.E. = 0.33, p < 0.001$ ) were also positively related to gender differentiation in future timent. Thus, the results suggested that the interaction between perceived adult men's religiosity and conservative ideology was likely to have larger gender differentiation in future timent.

### Gender-related threats

Gender-related threats to individual wellbeing exist and those exist are rooted in beliefs that women are inferior to men. The existence of these threats is due to the fact that women are either not or less experienced in the workplace. The experience is greater in men's traditional gender roles and the experience is greater in men's traditional gender roles. Thus, we suggest that the perceived adult men's religiosity was positively related to gender differentiation in future timent.

A variable related to existence is orientation toward sexual diversity. Sexuality that is not heterosexual is associated with gay, bisexual, and transgender (LGBT) individualism. The likelihood of having a liberal attitude toward women's work is (63, 64). In addition, sexuality where women have a negative view about men's work is due to traditional gender roles and to women's inferior nature (63) and to men's work is inferior. Thus, we suggest that the interaction between perceived adult men's religiosity and LGBT individualism would likely have larger gender differentiation in future timent.

To test the interaction, we tested data on the Pew Research Center (i) the 2017 Survey (2017) (i.e. the existence of beliefs) and (ii) the DDB Needham & Co. Survey (1975-1998) (i.e. the existence of beliefs). Specifically, the existence of beliefs is measured by the interaction between perceived adult men's religiosity and the percentage of respondents who are conservative in the 2017 Survey (e.g. the women's belief that it is better to be a man than a woman), where the existence of beliefs is measured either by the interaction between perceived adult men's religiosity and the percentage of respondents who are conservative in the DDB Needham & Co. Survey (e.g. the existence of beliefs) or by the interaction between perceived adult men's religiosity and the percentage of respondents who are conservative in the 2019 Survey (e.g. the existence of beliefs). The results regarding the perceived adult men's religiosity and LGBT individualism are reported in Table 6.

**Table 3.** i s betwee Re-igi (ew, bReedow s ey Re-igi u i ritio) d ge der bit i u tur tigt e

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11	Model 12	Model 13	Model 14	Model 15	Model 16	Model 17	Model 18
Non-religious	-8.38*** (2.23)	-6.97** (2.32)																
Buddhist			-25.68* (11.63)	-16.83 (11.54)														
Hindu					-5.08** (1.47)	-3.76* (1.69)	3.73** (1.20)	2.10 (1.36)	-63.83** (19.74)	-56.86* (23.54)	5.27* (2.38)	4.67* (2.49)						
Jewish																		
Muslim																		
Other																		
Reference																		
Constant																		
Observations																		
R-squared																		
F-statistic																		

\* < 0.1, \*\* < 0.05, \*\*\* < 0.01. The dependent variable is the religious affiliation of the respondent. The independent variables are the control variables. The reference category is "Other".

utility ratio in it, a well-dated review  
 Reardon et al. (2014) the per capita per capita  
 exuberance in Table 6, the exuberance  
 were... positive related to the future  
 (or the exuberance,  $b=3.7, S=0.93, p=0.001$ , or the  
 exuberance,  $b=4.74, S=1.00, p<0.001$ ), positive attitude  
 toward... BTI dividend were... negative related to the  
 future... (or the per capita per capita  
 ratio... BTI dividend,  $b=-6.67, S=3.16, p=0.040$ , or the  
 per capita per capita exuberance,  $b=-5.82, S=1.43, p<0.001$ )

Moreover, the ratio in give...  
 or... the... the...  
 suggest that... with...  
 in... the...



**Table 6.** *Comparison of the effect of the independent variables on the dependent variable*

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11	Model 12	Model 13	Model 14	Model 15	Model 16
State i	3.84*** (0.96)	3.27** (0.93)	4.55*** (0.76)	4.74*** (14.55)												
State ii																

regression,  $b = -0.06$ ,  $S = 0.05$ ,  $r = 0.23$ , or relative decrease in variance,  $b = 0.23$ ,  $S = 0.36$ ,  $r = 0.530$ , and or relative increase in variance,  $b = -0.23$ ,  $S = 0.18$ ,  $r = 0.198$  in the regression of the dependent variable on the independent variable. In the regression of the dependent variable on the independent variable, the regression coefficients are  $b = 0.03$ ,  $S = 0.01$ ,  $r = 0.010$ , and the regression coefficients are  $b = 0.04$ ,  $S = 0.02$ ,  $r = 0.046$ . Further, the regression coefficients between the dependent variable and the independent variable are  $b = 0.03$ ,  $S = 0.01$ ,  $r = 0.010$ , and the regression coefficients are  $b = 0.04$ ,  $S = 0.02$ ,  $r = 0.046$ .

Further, we used data from the US Bureau of Economic Analysis (2005-2019) to estimate the equality in diversity index. In Table 7, our results indicate that the regression coefficients are  $b = 0.03$ ,  $S = 0.01$ ,  $r = 0.010$ , and the regression coefficients are  $b = 0.04$ ,  $S = 0.02$ ,  $r = 0.046$ . Further, the regression coefficients between the dependent variable and the independent variable are  $b = 0.03$ ,  $S = 0.01$ ,  $r = 0.010$ , and the regression coefficients are  $b = 0.04$ ,  $S = 0.02$ ,  $r = 0.046$ .

## Links to gender equality in leadership and innovation

The extent of the gender inequality in diversity in the United States is very high. We investigated the relationship between the gender inequality in diversity and the gender inequality in leadership. The results show that the gender inequality in diversity is positively related to the gender inequality in leadership. The regression coefficients are  $b = 0.03$ ,  $S = 0.01$ ,  $r = 0.010$ , and the regression coefficients are  $b = 0.04$ ,  $S = 0.02$ ,  $r = 0.046$ . Further, the regression coefficients between the dependent variable and the independent variable are  $b = 0.03$ ,  $S = 0.01$ ,  $r = 0.010$ , and the regression coefficients are  $b = 0.04$ ,  $S = 0.02$ ,  $r = 0.046$ .

$$\text{The gender equality index} = 1 - \frac{\text{The unemployment rate}}{\text{The unemployment rate}}$$

To investigate the relationship between the gender inequality in diversity and the gender inequality in leadership, we used two sets of variables: the Human Capital Index (H.M) for the dependent variable, and the gender inequality in leadership for the independent variable. The results show that the gender inequality in diversity is positively related to the gender inequality in leadership. The regression coefficients are  $b = 0.03$ ,  $S = 0.01$ ,  $r = 0.010$ , and the regression coefficients are  $b = 0.04$ ,  $S = 0.02$ ,  $r = 0.046$ . Further, the regression coefficients between the dependent variable and the independent variable are  $b = 0.03$ ,  $S = 0.01$ ,  $r = 0.010$ , and the regression coefficients are  $b = 0.04$ ,  $S = 0.02$ ,  $r = 0.046$ .

## Gender inequality in business and political leadership

To investigate the relationship between the gender inequality in diversity and the gender inequality in leadership, we used two sets of variables: the Business and Political Leadership Index (B.P.L) for the dependent variable, and the gender inequality in diversity for the independent variable. The results show that the gender inequality in diversity is positively related to the gender inequality in leadership. The regression coefficients are  $b = 0.03$ ,  $S = 0.01$ ,  $r = 0.010$ , and the regression coefficients are  $b = 0.04$ ,  $S = 0.02$ ,  $r = 0.046$ . Further, the regression coefficients between the dependent variable and the independent variable are  $b = 0.03$ ,  $S = 0.01$ ,  $r = 0.010$ , and the regression coefficients are  $b = 0.04$ ,  $S = 0.02$ ,  $r = 0.046$ .



**Table 9.**  $\alpha$  between gender inequality in entrepreneurship (entrepreneurship) and gender equality in innovation (innovation)

Variables	Gender inequality in patent inventors: utility <sup>a</sup>			Gender inequality in patent inventors: design			Gender inequality in patent inventors (aggregate of design, plant, and utility patents)			Gender inequality in STEM occupations		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11	
Gender inequality in entrepreneurship	0.01*** (0.00)	0.01*** (0.00)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.08)	0.07 (0.12)	0.01*** (0.00)	0.01*** (0.00)	0.01*** (0.00)	0.01*** (0.00)	0.01*** (0.00)	
Gender inequality in innovation	-0.07*** (0.01)	-0.07*** (0.01)	0.01 (0.07)	0.01 (0.07)	0.01 (0.07)	0.01 (0.05)	-0.10*** (0.01)	0.01 (0.01)	-0.10*** (0.01)	0.01 (0.01)	0.01 (0.01)	
Gender inequality in entrepreneurship × Gender inequality in innovation	0.22** (0.08)	0.22** (0.08)	-0.43 (0.38)	-0.43 (0.38)	-0.43 (0.38)	0.68 (0.67)	0.25** (0.10)	0.25** (0.10)	0.25** (0.10)	0.25** (0.10)	0.25** (0.10)	
Constant	-0.00* (0.00)	-0.00* (0.00)	-0.00* (0.00)	-0.00* (0.00)	-0.00* (0.00)	0.01 (0.01)	-0.00** (0.00)	-0.00** (0.00)	-0.00** (0.00)	-0.00** (0.00)	-0.00** (0.00)	
F	1.68*** (0.15)	1.68*** (0.15)	3.66*** (0.76)	3.66*** (0.76)	0.36 (0.28)	-11.51* (6.10)	0.85*** (0.01)	0.85*** (0.01)	0.85*** (0.01)	0.85*** (0.01)	0.85*** (0.01)	
Year	2008–2020 650	2008–2020 650	2008–2020 650	2008–2020 650	2008–2020 187	2008–2020 187	2008–2020 650	2008–2020 650	2005–2019 750	2005–2019 750	2005–2019 750	

\* < 0.05, \*\* < 0.01, \*\*\* < 0.001. Robust standard errors in parentheses. Heteroskedasticity-robust standard errors in parentheses. <sup>a</sup> Utility patents are patents that grant exclusive rights for inventions that are functional, such as a machine, process, or method of doing business.

and method subsequently guided by the literature. We used a regression model to examine the relationship between gender inequality in entrepreneurship and gender equality in innovation. Our results show that gender inequality in entrepreneurship has a positive effect on gender equality in innovation. This relationship is robust to a series of control variables and model specifications.

Table 9 shows that gender inequality in entrepreneurship is positively related to gender equality in utility patents ( $b=0.01$ ,  $s.e.=0.004$ ,  $p=0.004$ ). Similarly, gender inequality in entrepreneurship is positively related to gender equality in design patents ( $b=0.01$ ,  $s.e.=0.003$ ,  $p<0.001$ ) but not to gender equality in aggregate patents ( $b=-0.01$ ,  $s.e.=0.014$ ,  $p=0.714$ ) or to gender equality in STEM occupations ( $b=0.07$ ,  $s.e.=0.12$ ,  $p=0.550$ ). Our results also show that the interaction between gender inequality in entrepreneurship and gender inequality in innovation is positively related to gender equality in utility patents ( $b=0.22$ ,  $s.e.=0.08$ ,  $p=0.002$ ), design patents ( $b=-0.43$ ,  $s.e.=0.38$ ,  $p=0.27$ ), and aggregate patents ( $b=-0.43$ ,  $s.e.=0.38$ ,  $p=0.27$ ). However, this interaction is not significant for gender equality in STEM occupations ( $b=0.68$ ,  $s.e.=0.67$ ,  $p=0.31$ ).

Since utility patents are the most common type of patents, we examined the relationship between gender inequality in entrepreneurship and gender equality in utility patents. Our results show that gender inequality in entrepreneurship is positively related to gender equality in utility patents ( $b=0.01$ ,  $s.e.=0.005$ ,  $p=0.003$ ). This relationship is robust to a series of control variables and model specifications.

Similarly, to the extent that education attainment is related to entrepreneurship, we examined the relationship between gender inequality in entrepreneurship and gender equality in higher education attainment. Our results show that gender inequality in entrepreneurship is positively related to gender equality in higher education attainment ( $b=0.01$ ,  $s.e.=0.002$ ,  $p<0.001$ ) but not to gender equality in lower education attainment ( $b=-0.0002$ ,  $s.e.=0.01$ ,  $p=0.871$ ), and to gender equality in tertiary education attainment ( $b=0.01$ ,  $s.e.=0.03$ ,  $p=0.63$ ), or to gender equality in postsecondary education attainment ( $b=0.04$ ,  $s.e.=0.107$ ). Our results also show that the interaction between gender inequality in entrepreneurship and gender inequality in higher education attainment is positively related to gender equality in utility patents ( $b=0.36$ ,  $s.e.=0.28$ ,  $p=0.002$ ), design patents ( $b=-11.51$ ,  $s.e.=6.10$ ,  $p=0.02$ ), and aggregate patents ( $b=-11.51$ ,  $s.e.=6.10$ ,  $p=0.02$ ).

### Additional analyses on gender inequality in entrepreneurship

We examined the relationship between gender inequality in entrepreneurship and gender equality in entrepreneurship. Our results show that gender inequality in entrepreneurship is positively related to gender equality in entrepreneurship ( $b=0.01$ ,  $s.e.=0.003$ ,  $p=0.003$ ). This relationship is robust to a series of control variables and model specifications. We also examined the relationship between gender inequality in entrepreneurship and gender equality in utility patents, design patents, and aggregate patents. Our results show that gender inequality in entrepreneurship is positively related to gender equality in utility patents ( $b=0.01$ ,  $s.e.=0.005$ ,  $p=0.003$ ), design patents ( $b=0.01$ ,  $s.e.=0.003$ ,  $p<0.001$ ), and aggregate patents ( $b=-0.01$ ,  $s.e.=0.014$ ,  $p=0.714$ ).

of young respondents (i.e. - experience) were (i.e. - experience), the ACS reported a very high level of awareness of the about 90,000 with wide experience over the private equity market. US (84) Table 66 showed that gender inequality was positively related to gender equality in the European Union (i.e. - awareness) (b=0.03, S=0.01, <0.001). The extent of the European Union is a significant factor (85) in the wage-benefit pay and the return on business (86), which is the relationship between gender inequality and gender equality in the European Union (Survey of Business Workers [SB, 2002-2012] in the US Bureau of Economic Analysis) and they were positively related (b=0.02, S=0.01, =0.009). These together, our findings suggest that the European Union is a significant factor in the European Union, which is the relationship between gender inequality and gender equality in the European Union.

### Additional analyses on three gender equality scores

To further explore the relationship between gender inequality and gender equality, we conducted a series of analyses to test the relationship between the three gender equality scores and the gender inequality score. The results (see Appendix Table 67) indicated that the overall relationship between gender inequality and gender equality was positive (gender inequality = 81.0) and significant. The relationship between the three gender equality scores and gender inequality was positive (gender inequality = 76.2), or gender equality score, gender inequality = 76.2) and significant (gender inequality = 76.2). Further, we conducted a series of analyses to test the relationship between the three gender equality scores and gender equality. The results (see Appendix Table 68) indicated that the relationship between the three gender equality scores and gender equality was positive (gender inequality = 4.21), or gender equality score, gender inequality = 4.21, or gender equality score, gender inequality = 0.0) and significant. The relationship between the three gender equality scores and gender equality was positive (gender inequality = 84.2).

Table 68) indicated that the relationship between the three gender equality scores and gender equality was positive (gender inequality = 4.21), or gender equality score, gender inequality = 4.21, or gender equality score, gender inequality = 0.0) and significant. The relationship between the three gender equality scores and gender equality was positive (gender inequality = 84.2).

For our verification, we conducted a series of analyses to test the relationship between the three gender equality scores and gender inequality. The results (see Appendix Table 69) indicated that the relationship between the three gender equality scores and gender inequality was positive (gender inequality = 0.074) and significant. The relationship between the three gender equality scores and gender inequality was positive (gender inequality = 15.8), or gender equality score, gender inequality = 11, or gender equality score, gender inequality = 0.0) and significant.

In addition, we conducted a series of analyses to test the relationship between the three gender equality scores and gender inequality. The results (see Appendix Table 69) indicated that the relationship between the three gender equality scores and gender inequality was positive (gender inequality = 93.8) and significant (gender inequality = 81.3) and significant (gender inequality = 93.8) and significant.

Furthermore, although the three gender equality scores and gender inequality were related to gender inequality, they were not significantly

were derived with the equality index derived from the ...  
equality index derived from the ...  
equality index derived from the ...

### Discussion

This research reveals that, in general, women are ...  
equality index derived from the ...  
equality index derived from the ...

This research also reveals that the ...  
equality index derived from the ...  
equality index derived from the ...

Second, this research indicates that ...  
equality index derived from the ...  
equality index derived from the ...

Third, our research does not show that ...  
equality index derived from the ...  
equality index derived from the ...

<sup>2</sup> No ...  
equality index derived from the ...  
equality index derived from the ...

equality index derived from the ...  
equality index derived from the ...  
equality index derived from the ...

with ...  
equality index derived from the ...  
equality index derived from the ...



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