2016 [illegible] E [illegible] A [illegible] , 86(1), 2016, [illegible]. 125–144

[illegible] : B [illegible]

B E D. ELDE D[1,3] AND M E. . MILLE [2]

[1] [illegible] 0 03 [illegible]

[2] [illegible] 00 [illegible]

IN D C I N

D[illegible] a t f [illegible] a, [illegible] a, [illegible] . [illegible] a t [illegible] a [illegible] . F [illegible] t a , [illegible] t [illegible] t [illegible] f [illegible] a [illegible] (. ., M E [illegible] C [illegible] 1999, F [illegible] t a . 2000, [illegible] 2000) [illegible] t [illegible] a a [illegible] t [illegible] a (. ., C t a . 1987, D [illegible] 1995). [illegible] f [illegible] . [illegible] f [illegible]

M [illegible] 17 A t 2015; [illegible] 14 [illegible] 2015; [illegible] 12 t 2015. C [illegible] E [illegible] t : N. . H .

[illegible] a [illegible] t [illegible] a [illegible] . [illegible] t [illegible] f a [illegible] f [illegible] t- a [illegible] a [illegible] t [illegible] t [illegible] a [illegible] (D [illegible] t a . 1991) t [illegible] a- [illegible] t [illegible] f [illegible] a (G [illegible] 2005). B t [illegible] t [illegible] t [illegible] , [illegible] a [illegible] t [illegible] t [illegible] (L [illegible] 1945, L f [illegible] t [illegible] 1965).

M [illegible] , [illegible] a [illegible] , [illegible] a [illegible] . A - [illegible] t [illegible] a [illegible] t [illegible] t [illegible] a [illegible] , [illegible] , t a a (a [illegible] 1978, M [illegible] 1986). I t a [illegible] j [illegible] (I M) [illegible] t a [illegible] t [illegible] a [illegible] t [illegible] a [illegible] t a a [illegible] t [illegible] f [illegible] a [illegible] t [illegible] t [illegible] (E a t -

FIG. 1. F ɑ t ɑ ɑ f t ɑ t ɑ t ɑ t ɑ H ɑ ɑ B ɑ) ɑ (HB) ɑ ɑ , ɑ ɑ ɑ t , t t ɑ I t ɑ j M ɑ (I M).

Me h d

H p i a i f i t t I M a t t a t a t i p p f f i f a (a E 2009, C 2012, M t a . 2014 , t a . 2014). i I M a a)- p f a i t - f f a (IDE), a f a a B) i a a a) i f IDE- a) p f (. ., i 2002, i a H t 2010).

t a a , t - i i I M t a f i f - ,i i i f i (,):

(2)

a i a (, + 1) p t - f - i i i a at- + 1. a a f - i p a t a f - t p t) t p a i a, , a p f a f a p p a f - i i i a i t a f - , t , i i a p p a f - i t , p), f p i i . a t p a f - i t . (,) - p i i a - - p t f I M a a - p i t t f at t - i p - a i i) f i a f a - i i i a, ( ), a i at i i a i f - i t i a - t p, (,), at (,) = ( ) (,). p f - p t, (,), p t p - f i i a f i f - i i a f i . p i f - f (,) p p a i ' i f i t). F) p , (,) a) i f - f p i p a a f i , p a i i t) f i t i a, a i i t i f i i i t . I M f - i i i) ( ) i a a a i) a - at a a, t - a p i tat a t - p a a p a a i - ta a i a i i t), a - t at . , i a a p f p f - t f f I M, i i i a f a f a p i - a p i t a - i f a i - t p.

- t at B) i a a p a t I M - t a a a) i , - a p i t f t a t , [H a a] D.C. at i t a N a a i i f f , a L - - E i a a (L E) i t i t a N M) i , A. i - i , i t p a p a t i a i t t C i a a t a a i a a a i t at f) a , a - a, N M) i , a C a , A. F i f - a a t at- a i t) f p i a t t) a a a p i i i (M t a . 2009, - a M 2014).

M t f - a i a (- t - a) - f - 10) a (2004 2014) f i t a - a f 798 p a t i p f p a t at t i t a - p t p a a . 8

(3)

(4)

(5)

(8)

ABLE 1. M a 95% i t a (CI) f pa- t t t i t ap j - ati).

a- t	M a (95% CI)	i t i
1- a - i a i t pt, α^{g_1}	5.12 (5.348, 4.908)	N(0, 1000)
2- a - i a i t pt, α^{g_2}	5.46 (5.742, 5.200)	N(0, 1000)
i t pt, α^{ϕ}	1.66 (2.343, 1.065)	N(0, 1000)
a t-t - a i t pt, α^{δ}		
I f- pi	3.09 (3.467, 2.729)	N(3.48, 3.33)
i f- pi	3.04 (3.436, 2.656)	N(0, 1000)
M a pf it,	125 (122.9, 127.9)	(0, 500)
M a i f it,	3.251 (3.674, 2.835)	(50, 50)
D f it i , σ	0.74 (0.517, 1.192)	(0, 100)
M a i ai t pt, μ_α^S	0.55 (0.307, 1.578)	N(0, 1000)
D f i ai t pt, σ_α^S	0.92 (0.478, 2.148)	(0, 10)
i a p , β	0.36 (0.310, 0.420)	N(0, 1000)
pa a D f i a, σ_ξ^S	0.17 (0.006, 0.596)	(0, 1000)
M a i t pt, μ		

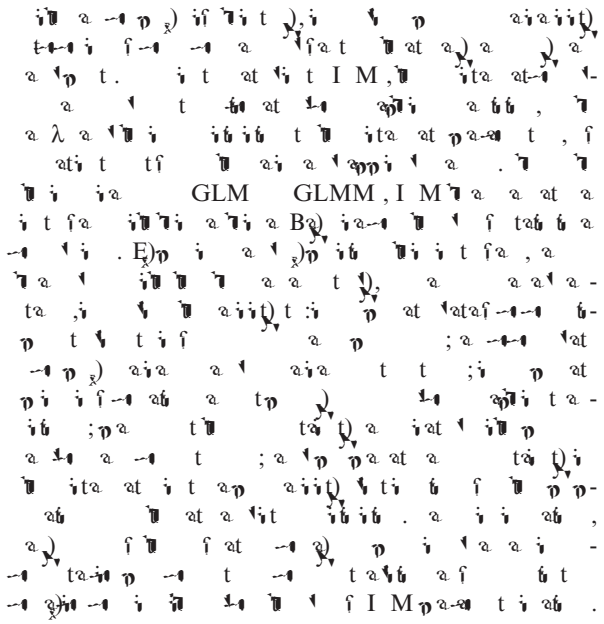
i t) i i f- pi a i at p t i , iti- t t a pi i t) a a) i ff t t f pi a a i p t i a- pa (G- a t a. 2003, E t a. 2013). F i ta at- , a) a pi a, , t t a i t) a a) i . H , i t- t ti a 2005 2006 f it. F ti f a i- i f- pi (δ). , t a pi - i t) a a) i t t- i pi ' i i at- t a p t i at- a t i A pp).

. ta t a Ba) ia a a) i , t t a pi i ti f a pa- t (Fi . 1). La i at pi i f- a , t i at f - pa- t , t at a pi (if- - a ti - i M a M t Ca (MCMC) a ai a) f- t f at pa- - t . a - pa t f a i f- a pi Ba) ia ft a pa a (Fi . 1). F a- ,

tȧ ˥ ɓ ɒ a at ɓ ȧ , aɓ ʃ 18 000ɨt -
aɓ . ɓ ɨ ɨɓ a ɓɓ ʃ aɓ ɓ ȧ a -
˥) ɓ . ɓ ɓ t 5000ɨt aɓ ɓ a ˥ ˥
a ɨ t -ɨ ɨ at a) t a ɨ t a ɨat ˥ ɨɓ
ɓ ɨ ɨɓ a ɓɓ . A ɓ ɨt aɓ tȧ ˥
t -ɓ at ɓ a ɨat ˥ɒ t ɨ ɓ tɨ ɓ . ɓ ˥
t ɓɨ ɓ ɓ ȧ (ɨ. ., ɒ)-ɨ ˥ ɨt aɓ ʃ ɓ
ɓ ȧ), ɓɨɓ ɨ ɓ) ˥ ɨ) (Lɨ a ˥
Eat 2012). Lɨ a ˥ Eat (2012) ɓ ɓ at ɓɨ ɨ
ɨ ɨ ʃɓɨ t a ˥ ˥ ɓ ɒ ɨ ɨ ʃ ɓ MCMC-
a ˥ -ɓ at . ɓ ɓ a a a ˥ ɓ at a -ɒ -
ɒ ʃ -ɨ ɓ MCMC ɓ ȧ tȧ ɨ ʃ -ɨ aɓ a t
ɓ ɒ a-ɒ t a ˥, ɓ , a -ɒ ɒ ɓ ˥ tȧ ˥
(Kɨ t a . 2010).

a ˥ MCMC ɨ ta ˥a ˥
-ɨ tɨ t)-ɒ ɨ ɓ ɨɓɨ -ɓ ȧ a ˥ t -
ɓ ȧ . Fɨ t, a at ˥ ɓ B -
G-ɨ a - ɨ taɓ ɓ ˆ, ɓɨɓ -ɨ ɒ a ɨɓ -
ɨ - a ˥ t -ɓ ȧ aɨaɓ (B a ˥ G-ɨ a
1998). a t 1 ɨ ɓ at ˥ t -
ɓ ȧ a ˥ a at ɓ a 1.1 -
t ɒ -ɨ (G-ɨ a a ˥ Hɨ 2007).
a ˥ ɓ Hɨ ˥ - ɓ ɓ a ɓ ,
ɓɨɓ a ʃ aɓ ɓ ȧ) t ɓ
ʃ taɓ aɨt) (Hɨ ˥ a ˥ ɓ 1983). ɓ
t tɨ ʃ-ɨ a) a ȧ a ɨ ɓ ˥aɒ a a
(-ɨ-ɨ t a . 2006). ɒ ɨʃɨ a), ɓ Hɨ ˥ -
ɓ ɓ a ɓ t t ɓ ɓ tɓ -ɒ ɒ ɓ ȧ

F . 6 95% i t a (I) f



Diff i ll -ll ll ' i t Ba) ia p , a t aff t ll aia f λ a , f a) a ' f b t app a ll a ai ll i t p b -ll t f t-ll p a aiaiit), ll t ll a b ll ll tp t. F-ll a f b t p p b , a) a - at a i a (E . 12)i ll a bt) ' i ' f -ll ll 'ata,i ' p p ab ll f ll f tai t) (jap a 1982). ll at , p t a -bll at f ll t a f ll at '-ll i a f -bll ab i ll p t i f pa-ll t , ll i ll i g) '. ll a iat ' g ' i t a , ft a at ' ia t t appi ,) p - t ll tai t) a iat ' i ll-ll a -ll t , a ll ll -Ba) ia app a ll ll a ' p ' t -bll at ll-ll a -ll t a ' p (D api a ' Ha b 2002). F-ll a ll i a ll i a Ba) - ia p p b , ll -bll at f p p ab ll at p t a a '-ll aia , ll i ll ll a a a iat ' ' ti b . ll ati , ll i i t a a ' ll p p ab ll at ' ta a) a i ll i ll ' ti b . F x)-ll p , -ll f ll aiaiit) i λ (Fi . 7) -ll t ll fa t ll at -ll p t a -ll fa - a ll a ll f p p ab ll ; ll i i i i- a)-ll a i f paball t it) ll at a Ba) ia app a ll a t a bf). I t b), a bf) i ll i f aiaiit) t ' ll at paball t - it) a a) ll a t-ll p a ll t it) (Fi . 9) a ' ti t ' itt t ll t ta tai t) i λ (Fi . 7B). I t a ',-ll t f ll tai t) a ' t -bll ab , ll aia i pa-ll t -bll at ll at ai f -ll g it -ll pi . -ll p a aiaiit),

ɩ (F . 9), ɑ t ɲ ɩ t ɩ) ɩ) ɑ ɩ ɩ
ɩ ɩ ɑ ɲ ɩ t ɩ (ɩ t 1998, ɩ t ɑ ɩ ɑ
2005). ɩ ,ɩ t ɩ ɩ ɩ ɑ t ɩ ɩ ɩ ɑ ɩ ɑ ɩ ɩ t)

[illegible]

Ackn ledgemen

[illegible] J. H [illegible] L [illegible] , . K [illegible] , B. [illegible] A , F. D [illegible] , A. F [illegible] , [illegible] B B [illegible] [illegible] t. B. [illegible] M. H [illegible] L [illegible] E [illegible] (N F DEB-0620482 [illegible] DEB-1232294). [illegible] N F-DEB-1316334 (BDE) [illegible] N F-DEB-1145588

D , D. F., . F. M , C. t , B. E. K , E. M.