

Adaptive multi-agent simulation for urban systems

Yi Ren^a, Xiaojie Yu^{a,*}, Bing Chen^b, Tongyue Bai^c, Wei,
Daniel Wallace^d

^a &
^b
^c
^d &

ARTICLE INFO

Agent-based
Population
Simulation
Location

ABSTRACT

This paper presents a novel multi-agent simulation framework for urban systems. The framework is designed to simulate the interactions between different agents (e.g., individuals, vehicles, buildings) in a complex urban environment. The simulation is based on a multi-agent system (MAS) and is implemented using a distributed computing architecture. The framework is able to simulate the dynamics of urban systems at a fine scale, allowing for the study of a wide range of urban phenomena. The framework is also able to simulate the impact of different urban policies and interventions. The framework is evaluated using a series of experiments, which show that it is able to simulate urban systems accurately and efficiently. The framework is a valuable tool for urban planning and policy analysis.

1. Introduction

Urban systems are complex and dynamic, and their simulation is a challenging task. Multi-agent simulation (MAS) is a powerful tool for simulating urban systems, as it allows for the representation of individual agents and their interactions. However, existing MAS frameworks for urban systems often suffer from limitations, such as low scalability and high computational cost. This paper presents a novel MAS framework for urban systems, which is designed to overcome these limitations. The framework is based on a distributed computing architecture, which allows for the simulation of large-scale urban systems. The framework is also able to simulate the impact of different urban policies and interventions. The framework is evaluated using a series of experiments, which show that it is able to simulate urban systems accurately and efficiently. The framework is a valuable tool for urban planning and policy analysis.

* Corresponding author.

cathy.liu@xtcib.edu

<https://doi.org/10.1016/j.compenvurbsys.2024.102095>

Received 2023 December 24; accepted 2024 March 24.

Available online 19 March 2024

0198-9715/© 2024 Elsevier Ltd. All rights reserved.

intermediate in the hierarchy of sets, they are not a priori a better choice for a more general outflow rate.

Ultimate vgl. Lautabdruf ramer v. s. r. d. i. e. q. u. n. m. o. d. e. l. s. i. s. a. g. g. t. e. g. t. m. a. d. e. (t. s. f. e. m. z. i. i. l. w. a. t. d. u. ,
t' y. s. t. r. a. d. e. n. h. a. s. y. n. t. h. e. g. a. i. t. s. h. r. e. e. y. a. s. a. u. r. f. e. s. s. w. t. e. l. y. 2 0 1 8 t. h. e. s. e. d. e. f. l. o. s. c. u. n. d. i. v. i. d. i. m. a. t. e. y. r. a. v. e. l. t. h. e. y. s. .
u. t. i. l. i. z. e. d. 1 5 0 2 4 0 m. e. r. i. c. o. c. o. m. m. u. n. i. s. t. r. y. v. e. o. y. r. n. - d. e. p. t. h. u. s. d. e. i. s. a. g. g. r. e. a. g. t. a. t. r. e. a. l. t. y. z. e. r. a. l. v. e. h. a. v. e. c. a. p. t. e. r. s. o. n.
s. i. g. h. t. s. o. m. m. u. p. i. a. n. t. g. t. a. m. d. e. m. o. g. r. a. p. h. i. c. s. u. d. e. l. i. n. t. e. h. o. u. s. e. (t. o. l. y. d. w. i. l. l. i. z. a. m. s. s. h. a. s. r. a. i. s. h. i. w. a. l. z. e. o. r. 1). 7.
g. r. a. t. t. h. e. n. n. u. a. v. l. e. r. d. e. g. e. t. l. y. a. f. f. a. c. t. d. t. f. a. r. o. n. a. l. t. r. a. t. i. s. a. p. p. r. o. a. c. h. d. w. a. s. e. t. a. u. r. d. e. e. r. s. t. o. a. i. n. d. i. c. t. i. o. n. f. s. u. e. n. c. i. n. g.
P. e. M. S. o. r. r. e. a. l. - t. t. r. i. a. n. e. h. a. l. y. t. h. i. c. s. o. m. p. a. r. i. s. a. o. n. b. s. t. e. r. v. e. a. d. i. n. d. i. v. i. s. d. h. u. a. b. l. i. n. e. d. e. s. t. i. n. a. n. t. d. i. o. n. e. t. r. a. f. e. l. a. c. h.
d. a. t. h. e. l. y. p. a. s. l. i. d. a. i. t. e. a. m. e. v. a. r. k. u. r. l. a. a. s. y. w. e. g. o. n. d. u. a. t. e. t. r. i. t. h. e. c. e. n. t. r. a. n. s. f. e. r. m. a. c. b. e. s. e. t. i. d. y. a. l. a. n. t. e. n. e. d. i. t. s.
m. o. d. e. l. - t. o. c. o. m. p. a. d. e. r. i. s. t. d. i. h. e. m. m. o. d. e. l. y. z. h. o. w. e. i. l. i. u. , d. i. s. a. g. m. e. g. a. m. i. t. g. h. e. a. c. t. o. e. m. p. u. t. a. t. i. o. n. b. a. d. m. d. c. y. w. e. r.
W. a. l. l. a. o. d. r. u. c. f. 2 0 2 0 f. 3 0 c. u. s. i. c. a. g. o. m. m. u. n. i. t. y. i. n. g. i. e. g. o. c. o. s. (t. s. a. s. e. r. i. l. 2 0, 1). A. S. a. h. a. i. d. i. h. o. h. a. m. m. a. (2 0 1 0). t.
t. h. i. g. h. l. i. t. i. n. g. h. i. t. f. e. a. n. d. s. e. r. e. n. g. e. t. h. e. s. t. e. r. a. d. i. t. r. a. f. a. c. t. i. n. e. s. d. e. e. a. l. i. s. t. o. r. e. t. a. h. e. h. a. v. e. a. o. p. a. l. e. s. i. s. t. i. v. i.
a. s. s. i. g. n. m. e. n. t. s. d. u. a. B. M. a. p. p. r. o. a. c. h. . c. h. a. r. a. c. t. e. r. i. s. s. a. t. g. i. g. o. n. e. d. e. w. t. h. e. s. t. e. r. e. a. m. l. i. c. o. i. m. p. p. u. t. a.

2. Literature review

[illegible]

Tog en eas y t e t h p o p i d a c t i o n m a y s s t a f r a m c o n c e n t r a t e d a n g a c t i v i t i a i n d e s i v i e d u a g l i s e s e e d p u l a t s i a m p o l f i e h e o t p a o p u l a t t o i n f i t h e i s t r i h r o u g h t h e a n d h e r a w e d e s s b i y t a e a s o t i v T i h t i i s s . b u t i o f n h e n t p o p u l a t i o n c o m p u n i t a r h i b i t t e r R t o v a p p r o a c k h n o w l t e h d a g r e a s v a d e r i d e n d a n d m e a r t o p o r t i f o i n t a t (i l n P g f h) i a h s i v g e n i s g h d i n d i v i i d n t a d s p a r t i d i n p a a r t i e o u s i v l i i t w i e e r s k e d u c a s h o p p a i n d y , s a m p l o e h a t h e s u l w e i n g h p o e p d u l a n a t i o n p e e d f n e d e i s S i o n e f t h r o s t e c e r a s e s e i s b e d o A E M D A P , m a r g i d n i a l t r i b u t a i n t a i o s u t s i r (b u e e s z m e r m a n s d e v e l o p e d h e a t l i . r 2 0 0 8 e s i e n g e d o f f c o t h i d e a l l a s - H o f m a 2 0 0 7 u a n - H e G r a a r s i f a r g e e a s t i l a 2 0 1 8 c F a d W b r t r e g i i o t h e S A o , f f e a r i n g i o n a l a p s p r e o t a c f h c R i c M u l a 2 0 1 3) B u i u p t o t n a i s p r o l a r t f a s e e n v o l t v e d a c t i m v o i d t e y l S i n n g i . I t a h r e A S H m a d e l r a f o t y e d o r e d a l . b e t a e i h g o n u s e w e i l g h i t h o t i m d i v a l d i a u s e a b l d i r 2 0 0 8 a t e o t s h e n i q t u e a n s p o d y r a a t m i o f n s G r e a t e r t r i b (b e e s y e a l l a 2 0 1) F u r t h e r i m o p e r a t e t h e d s h T o r o a n t o a n a t h a e s l e i r d - g e m o e d r a l t s u o m r e a t t l y a M o n C a e r s o m u l a t e i v e n r , h i g d d n g a r k M o d e l i s a y e t h e o r e f o r t o n a t n s p o m o t d a e t l i f a u n g t h e a n s b i t o p w a r d s b e e a n d a p t e s a m p l e e r s a m o t t t r i b r a s e q u e s t t a t e i n n o v a t a s o e r s c a l n o b i p h e d e t h a a s e n m o t i c e a b l i d e p e n d a m n t (F a r o b q e r I l h u i r r t e u , b F a t b e 2 0 1 3) i n e c e i n t e r S a t t u d i l e e v e r l a g g a n t a r o m o b i p h e r a e n s d S a a f f e t e K t h e a l r i , c r o p 2 0 1) S a a e h a l (2 0 1 8) v o i a d e P S e v i a c r e e s e t h e n e d a t a c t y i p v a i t t y e (v u e s 12.0.1; 9 t h o r o a n p a r o i s b e e s e t i n g a b a s e n e l i n a p b a s e d m Q l e a r I H b o r d N a g e 2 0 2 1 .

proach which, like a randomised placebo, is not a treatment in itself. The
complexity of the intervention is not a problem, as the intervention is
believed to be effective (S. A. S. 2010, 1; S. A. S. 2010, 1). Additionally,
utilising a Bayesian network to model the data is a good idea. Many of the
and explicit interaction between the variables is not a problem, as the
but (S. A. S. 2010, 1). Recalling the importance of the intervention, the
application of the intervention is not a problem, as the intervention is
general (S. A. S. 2010, 1). The intervention is not a problem, as the
R. C. 2010, 20.

When the environment of a population in the area of the village is not suitable for the development of the population, the population will move to a new area. This is the process of population migration. The process of population migration is influenced by many factors, such as economic, social, and political factors. The process of population migration is also influenced by the environment of the new area. The process of population migration is a complex process that involves many factors.

The our d s e n a m o d e l a i p p g r d a a d s t a d i t t i o n t h e l s e r v i a m e d s h e r i e l a t i o n s s u b s i s t o r d r e p l e m i e n n t s c o r n e r o f t o n e a d i n g s c i e n t e y d o u p e s d i t a t i n t h e m a n d K n o x v T i e n r e e , W s e e e a n l (2 0 u s) a d w o - s m t e a t g h o o d i n t r a n s p o r t a n t i n t i m i n g s d e h v o s e e s e s t e p s i p a s s i g i n t h e a s g i e z n e t o s r k p l a a n o e u s b s c h o b a l s e d g e n e r a t r i d p r s t r i n b o u d e i h o n i a c n e d o u a t e s i g n e a c n h t t h e Q i e n s t u r s a c c f v o r d r r e s i d e m t w o r k p l l a c a t i o n s s t e p l v e d o f f a s p e o c t t r s a v e h a v i r o c n s t i m a h t e n g g e n e r a c t e c o u a n s i d e s t r i b b y t i a a n t p u b l i c - s c h n u m b e r t r i i p a r e g i t o n h e n a s l e l e o t f i r o a n v e u t e h s e . a s s i g n o h o n s e p a r a f d e a l o y o u a n y d a s e m i n i m u m m o d e p r e d i c t o n d e h o a c u m b e r t r i b e s t v e n e c t e d a t h a l g o r i t h m t e m p o i t s e a c g h r a d i e a c s c h o t o o l o r i a n d s e s t i n t a n t i p e n s c p d v a r t r i n e n o v a r l e d s c a p a c i t y .

OpenStreetMap data, generated by volunteers, is not as accurate as commercial data.

These ~~æ~~ ~~o~~ ~~c~~ ~~b~~ ~~o~~ ~~s~~ ~~n~~ ~~e~~ ~~s~~ ~~c~~ ~~a~~ ~~a~~ ~~s~~ ~~s~~ ~~i~~ ~~n~~ ~~g~~ ~~n~~ ~~e~~ ~~p~~ ~~u~~ ~~s~~ ~~s~~ ~~y~~ ~~i~~ ~~n~~ ~~d~~ ~~e~~ ~~s~~ ~~g~~ ~~i~~ ~~e~~ ~~s~~ ~~n~~ ~~e~~ ~~r~~ ~~i~~ ~~a~~ ~~n~~ ~~d~~ ~~t~~ ~~h~~ ~~e~~ ~~A~~ ~~B~~ ~~M~~ ~~p~~ ~~o~~ ~~p~~ ~~u~~ ~~l~~ ~~a~~ ~~t~~ ~~y~~ ~~i~~ ~~n~~ ~~d~~ ~~t~~ ~~h~~ ~~e~~ ~~s~~ ~~i~~ ~~e~~ ~~s~~ ~~i~~ ~~n~~ ~~d~~ ~~e~~ ~~t~~ ~~i~~ ~~c~~ ~~a~~ ~~t~~ ~~i~~ ~~o~~ ~~n~~ ~~,~~ ~~a~~ ~~n~~ ~~d~~ ~~t~~ ~~i~~ ~~p~~ ~~a~~ ~~i~~ ~~r~~ ~~e~~ ~~t~~ ~~t~~ ~~e~~ ~~o~~ ~~r~~ ~~d~~ ~~e~~ ~~i~~ ~~n~~ ~~g~~ ~~t~~ ~~a~~ ~~i~~ ~~t~~ ~~e~~ ~~m~~ ~~p~~ ~~r~~ ~~e~~ ~~v~~ ~~p~~ ~~a~~ ~~r~~ ~~a~~ ~~g~~ ~~r~~ ~~a~~ ~~p~~ ~~h~~ ~~o~~ ~~s~~ ~~c~~ ~~a~~ ~~s~~ ~~s~~ ~~i~~ ~~n~~ ~~g~~ ~~n~~ ~~a~~ ~~m~~ ~~e~~ ~~d~~ ~~t~~ ~~h~~ ~~e~~ ~~w~~ ~~e~~ ~~x~~ ~~t~~ ~~r~~ ~~a~~ ~~c~~ ~~t~~ ~~i~~ ~~o~~ ~~n~~ ~~.~~ ~~a~~ ~~n~~ ~~d~~ ~~t~~ ~~y~~ ~~p~~ ~~i~~ ~~c~~ ~~a~~ ~~r~~ ~~e~~ ~~l~~ ~~s~~ ~~y~~ ~~e~~ ~~t~~ ~~h~~ ~~e~~ ~~s~~ ~~e~~ ~~p~~ ~~i~~ ~~a~~ ~~c~~ ~~s~~ ~~s~~ ~~t~~ ~~a~~ ~~n~~ ~~d~~ ~~a~~ ~~s~~ ~~t~~ ~~o~~ ~~u~~ ~~n~~ ~~d~~ ~~e~~ ~~r~~ ~~s~~ ~~a~~ ~~r~~ ~~e~~ ~~c~~ ~~o~~ ~~m~~ ~~p~~ ~~r~~ ~~i~~ ~~s~~ ~~e~~ ~~n~~ ~~t~~ ~~h~~ ~~e~~ ~~s~~ ~~i~~ ~~e~~ ~~v~~ ~~i~~ ~~e~~ ~~r~~ ~~s~~ ~~p~~ ~~e~~ ~~r~~ ~~f~~ ~~o~~ ~~r~~ ~~m~~ ~~a~~ ~~t~~ ~~r~~ ~~i~~ ~~a~~ ~~t~~ ~~i~~ ~~v~~ ~~e~~ ~~s~~ ~~p~~ ~~e~~ ~~r~~ ~~r~~ ~~o~~ ~~a~~ ~~c~~ ~~h~~ ~~i~~ ~~d~~ ~~e~~ ~~s~~ ~~g~~ ~~o~~ ~~r~~ ~~i~~ ~~t~~ ~~a~~ ~~n~~ ~~d~~ ~~t~~ ~~h~~ ~~e~~ ~~s~~ ~~i~~ ~~e~~ ~~v~~ ~~i~~ ~~e~~ ~~r~~ ~~s~~ ~~p~~ ~~e~~ ~~r~~ ~~f~~ ~~o~~ ~~r~~ ~~m~~ ~~a~~ ~~t~~ ~~r~~ ~~i~~ ~~a~~ ~~t~~ ~~i~~ ~~v~~ ~~e~~ ~~s~~ ~~p~~ ~~e~~ ~~r~~ ~~r~~ ~~o~~ ~~a~~ ~~c~~ ~~h~~ ~~i~~ ~~d~~ ~~e~~ ~~s~~ ~~g~~ ~~o~~ ~~r~~ ~~i~~ ~~t~~ ~~a~~ ~~n~~ ~~d~~ ~~t~~ ~~h~~ ~~e~~ ~~s~~ ~~i~~ ~~e~~ ~~v~~ ~~i~~ ~~e~~ ~~r~~ ~~s~~ ~~p~~ ~~e~~ ~~r~~ ~~f~~ ~~o~~ ~~r~~ ~~m~~ ~~a~~ ~~t~~ ~~r~~ ~~i~~ ~~a~~ ~~t~~ ~~i~~ ~~v~~ ~~e~~ ~~s~~ ~~p~~ ~~e~~ ~~r~~ ~~r~~ ~~o~~ ~~a~~ ~~c~~ ~~h~~ ~~i~~ ~~d~~ ~~e~~ ~~s~~ ~~g~~ ~~o~~ ~~r~~ ~~i~~ ~~t~~ ~~a~~ ~~n~~ ~~d~~ ~~t~~ ~~h~~ ~~e~~ ~~s~~ ~~i~~ ~~e~~ ~~v~~ ~~i~~ ~~e~~ ~~r~~ ~~s~~ ~~p~~ ~~e~~ ~~r~~ ~~f~~ ~~o~~ ~~r~~ ~~m~~ ~~a~~ ~~t~~ ~~r~~ ~~i~~ ~~a~~ ~~t~~ ~~i~~ ~~v~~ ~~e~~ ~~s~~ ~~p~~ ~~e~~ ~~r~~ ~~r~~ ~~o~~ ~~a~~ ~~c~~ ~~h~~ ~~i~~ ~~d~~ ~~e~~ ~~s~~ ~~g~~ ~~o~~ ~~r~~ ~~i~~ ~~t~~ ~~a~~ ~~n~~ ~~d~~ ~~t~~ ~~h~~ ~~e~~ ~~s~~ ~~i~~ ~~e~~ ~~v~~ ~~i~~ ~~e~~ ~~r~~ ~~s~~ ~~p~~ ~~e~~ ~~r~~ ~~f~~ ~~o~~ ~~r~~ ~~m~~ ~~a~~ ~~t~~ ~~r~~ ~~i~~ ~~a~~ ~~t~~ ~~i~~ ~~v~~ ~~e~~ ~~s~~ ~~p~~ ~~e~~ ~~r~~ ~~r~~ ~~o~~ ~~a~~ ~~c~~ ~~h~~ ~~i~~ ~~d~~ ~~e~~ ~~s~~ ~~g~~ ~~o~~ ~~r~~ ~~i~~ ~~t~~ ~~a~~ ~~n~~ ~~d~~ ~~t~~ ~~h~~ ~~e~~ ~~s~~ ~~i~~ ~~e~~ ~~v~~ ~~i~~ ~~e~~ ~~r~~ ~~s~~ ~~p~~ ~~e~~ ~~r~~ ~~f~~ ~~o~~ ~~r~~ ~~m~~ ~~a~~ ~~t~~ ~~r~~ ~~i~~ ~~a~~ ~~t~~ ~~i~~ ~~v~~ ~~e~~ ~~s~~ ~~p~~ ~~e~~ ~~r~~ ~~r~~ ~~o~~ ~~a~~ ~~c~~ ~~h~~ ~~i~~ ~~d~~ ~~e~~ ~~s~~ ~~g~~ ~~o~~ ~~r~~ ~~i~~ ~~t~~ ~~a~~ ~~n~~ ~~d~~ ~~t~~ ~~h~~ ~~e~~ ~~s~~ ~~i~~ ~~e~~ ~~v~~ ~~i~~ ~~e~~ ~~r~~ ~~s~~ ~~p~~ ~~e~~ ~~r~~ ~~f~~ ~~o~~ ~~r~~ ~~m~~ ~~a~~ ~~t~~ ~~r~~ ~~i~~ ~~a~~ ~~t~~ ~~i~~ ~~v~~ ~~e~~ ~~s~~ ~~p~~ ~~e~~ ~~r~~ ~~r~~ ~~o~~ ~~a~~ ~~c~~ ~~h~~ ~~i~~ ~~d~~ ~~e~~ ~~s~~ ~~g~~ ~~o~~ ~~r~~ ~~i~~ ~~t~~ ~~a~~ ~~n~~ ~~d~~ ~~t~~ ~~h~~ ~~e~~ ~~s~~ ~~i~~ ~~e~~ ~~v~~ ~~i~~ ~~e~~ ~~r~~ ~~s~~ ~~p~~ ~~e~~ ~~r~~ ~~f~~ ~~o~~ ~~r~~ ~~m~~ ~~a~~ ~~t~~ ~~r~~ ~~i~~ ~~a~~ ~~t~~ ~~i~~ ~~v~~ ~~e~~ ~~s~~ ~~p~~ ~~e~~ ~~r~~ ~~r~~ ~~o~~ ~~a~~ ~~c~~ ~~h~~ ~~i~~ ~~d~~ ~~e~~ ~~s~~ ~~g~~ ~~o~~ ~~r~~ ~~i~~ ~~t~~ ~~a~~ ~~n~~ ~~d~~ ~~t~~ ~~h~~ ~~e~~ ~~s~~ ~~i~~ ~~e~~ ~~v~~ ~~i~~ ~~e~~ ~~r~~ ~~s~~ ~~p~~ ~~e~~ ~~r~~ ~~f~~ ~~o~~ ~~r~~ ~~m~~ ~~a~~ ~~t~~ ~~r~~ ~~i~~ ~~a~~ ~~t~~ ~~i~~ ~~v~~ ~~e~~ ~~s~~ ~~p~~ ~~e~~ ~~r~~ ~~r~~ ~~o~~ ~~a~~ ~~c~~ ~~h~~ ~~i~~ ~~d~~ ~~e~~ ~~s~~ ~~g~~ ~~o~~ ~~r~~ ~~i~~ ~~t~~ ~~a~~ ~~n~~ ~~d~~ ~~t~~ ~~h~~ ~~e~~ ~~s~~ ~~i~~ ~~e~~ ~~v~~ ~~i~~ ~~e~~ ~~r~~ ~~s~~ ~~p~~ ~~e~~ ~~r~~ ~~f~~ ~~o~~ ~~r~~ ~~m~~ ~~a~~ ~~t~~ ~~r~~ ~~i~~ ~~a~~ ~~t~~ ~~i~~ ~~v~~ ~~e~~ ~~s~~ ~~p~~ ~~e~~ ~~r~~ ~~r~~ ~~o~~ ~~a~~ ~~c~~ ~~h~~ ~~i~~ ~~d~~ ~~e~~ ~~s</~~

synt hpeispiesITihnpesi.pewo b d dle asplaynr omh è n i t i a l a synt hpeotpiucl ai tsioimply f d e d t a v è e d o f h e
st a g e a w n p d u a t p a r o c e s s i n g a l u t p u t t r a d e m a n d a c t p a p u l a t i s i m p l i e f e a d u r s t h e m o g r a p h i n t c e s r e s t
m o d e l l i n g v e s u r c i h n t e g r a a n t d i o g n o r e u s t w i n t g h a i n a r u e s e d o r e a l h e y n t h p o p i d a n t i e r t a f e a d e l v e r y
u n i f f e r d a m e v a s e k a i e x i s t i i n g r a t u r e . h o u s e l a n d e p e r s i o n h h o u s e l i s i n d e l u d r t h i s

A few studies have attempted to address this problem. [Adigal \(2015\)](#) researched the effect of the 2015-2020 SEAs on the employment of people with disabilities. The study found that the employment of people with disabilities has increased significantly since the implementation of the SEAs. [PUMSA \(2015\)](#) also found that the employment of people with disabilities has increased significantly since the implementation of the SEAs. [PUMSA \(2015\)](#) also found that the employment of people with disabilities has increased significantly since the implementation of the SEAs.

[illegible]

Orchestralhaybortijda d e h a m d d e t l h . m s o d e s b u g h t o
o v e r c o t m l e i m i t a t h e n i s n r t a d i t r i o p a n d e s b y s
i n c o r p e r l a m i e m g b o r t t h r i p - d r a e s e t i v i t f y r - a l m e s e f o a c t i v i e t a y w i e u s n e d s t o c h r a e s t a i n c p p r i o n g e d o u r e
w o r m s l . T o t a m d t o i r t i n t e g o a d t e i t o a n b e b a d v i r - e - p a l e s a n p l i e a t i n i g v l i a f n y s o t n h 2 0 1 N 7 H T S h e H T S a t h e r s
r e s e n t a d r i o m s i v i t y m e d a v e s t h e s i m p l a c d t y n f o r m a n d o m e s t r i a d y u l s c i t i z e n t 5 0 s t a d e s h e
c o m p u t a d f i b n a d h c y p - r o a d e s h w e a e s r i g n i f c a n s t o r c o l u m t h i s a b e h a v i o r n e s i t d i e b p s l l
l i m i t a m i t o s d e p e n d e n d a s a o u r c h a e s t r e o p u b t r a n s p o r t o t h e s o a d l e s t i n a n t i o n p l s r p d f s e e s e r a l l
l i a l v a i l w a b i l e b , s t i r i t s p s i c a b b i r l o i a t a p p l i c a t i o n h . w a d y m i n i s t r o a 2 3 N H T S a l i o n c l u d e s a d l e e d
T h e p r i m a n g l l e n t h e s e l i d n c l a u d a e o k i n t e g r a n o g r a p h i f o r m a t i r e s p o n d e o o s p a a s l a m g a b l e s
b e t w e e n t h e o n i p s o n a m d t h e a i s r o c t a d e s m i d t a e d a l i s a t e d a v e n d o r e t h s s u d e s , p e c i f i c a t h l u y s e h o l d s
a p p l i c a b i l i t y f a r r e a t a s c a r o f b y n p r e h e n s a n e e g o o t n h 2 0 1 N 7 H T S l u t h 2 0 1 N 7 H T - S c a l i f a d d - h i a
e f f o h e a c o m p h e a n s t p r o c f e r s o n y n t l t e n o i d e l a i n r d g O n w h i c h u p p l e m e n t 2 0 1 N 7 H T S i t a h d d i t h o a s e h o l d
v a l i d a t h p a p e r l t s e g a e a n d o n t r i b u s e u m m a r i z e a d p (F e s t h r i a g l h w a d y m i n i s t r o a 2 3 N H T S a t a c a n s o i f t s
a s f o l l o w s : f v m a i p a r t s , a n d — a m o n g

1. The study tried to comprehend a new way of thinking about the format of a card chart to see how it can be used in a variety of environments. The study was conducted in a laboratory setting and involved a group of 10 participants. The participants were given a series of tasks to perform, and their performance was recorded. The results of the study showed that the new format of the card chart was more effective than the traditional format. The new format was found to be more intuitive and easier to use, and it was also found to be more accurate. The study concluded that the new format of the card chart is a promising way to improve the way that data is presented and used.

[illegible][illegible]

3 .Data

This study is I Siadise County, if a case study

demonstrated the methodology for generating a birth population
mills and units see second paragraph for details
for main text and for details of the defense of the urban
(community) in the first section of the defense of the urban
the major network of the network is extracted from the
processes of the survey and the semi-structured interviews



Fig. Road network of San Diego County, California, based on OpenStreetMap data.

F i n a n c e K e y a r i a b l e s	
Household	Household ID
Location	Household location (e.g., home, office, school, etc.)
Person	Household member ID
Trip	Household member ID / Trip origin / destination / purpose / length / time / duration

By employing this technique, a significant gap represented these pool of literature in the U.S. that has seen health care jobs in the tri-butual proportion of the cumulative demand manual, as in the proportion of the health care jobs, a lead to the in-gone in the health care industry in the health care industry. The repeated demand for the health care industry in the health care industry.

(a)			
	= 0	> 0	Total
≤ 2	?	?	100
> 2	?	?	100
Total	50	150	200

(b)			
	= 0	> 0	Total
≤ 2	?	?	180
> 2	?	?	120
Total	75	225	300

(c)			
	= 0	> 0	Total
≤ 2	?	?	280
> 2	?	?	220
Total	125	375	500

To determine the effect of the choice of the prior distribution on the results of the analysis, we considered the following prior distributions for the parameters of the model:

A s p r e v i o u s p l a n t h e i t e r r a t v u i t e a r e m u l t i p l e
s t r a t e g i e s t o i f f o r t h e s y n t h e t i c a r t a i n i n g m o d e
s e q u e n c e a l l i g n m e n t s a n d t h e r e a d s o u r c e s a w i n g
f o r c o m p a r a t i v e a n a l y s i s a n d i f f o r m u l t i s e q u e n c e
o n t h e o d n t s t r i b u t i o n s , a n d , w e p r o p o s e
c o m p a r a t i v e a n a l y s i s a n d i f f o r m u l t i s e q u e n c e
d a t a s e t g e n e r a t i o n i f f o r t h e s y n t h e t i c a r t a i n i n g
s t a g e s :

	$= 0$	> 0	Total
Yes ≤ 2	5	12	17
Yes > 2	3	10	13
Total	8	22	30

Tab 4 e

B l o g k o u p B l o g k o u p J o i n t s t .

	= 0	> 0	T o t a l
≤ 2	77.48	202.52	280
> 2	47.52	172.48	220
T o t a l	125	375	500

- 1 C a l c u l a t e t h e i n t e r t w o s t i m u l a t i o n h o u s e h o l d e r s u b s e q u e n d u p s t i m u l a t i o n h a s a s m p l e f r o m N H T S a s e n t h e s i m i l a r i t y .
- 2 I d e n t i f y s t i m u l a t i o n d r i v v d t u l a h e y n t h e o u s e h o l d e r s u b s e q u e n d u p s t i m u l a t i o n h a s a s m p l e f r o m N H T S a s e n t h e s i m i l a r i t y .
- 3 A l l o c a t e t i v o i f t n d e i s v i f d u n h t s d h n e o s s t i m u l a t i o n i n d i v i d u a l t h e y n t h e o u s e h o l d .

R e c a l c u l a t e t h e a m p l e i n h o u s e h o l d e r s u b s e q u e n d u p s t i m u l a t i o n h a s a s m p l e f r o m N H T S a s e n t h e s i m i l a r i t y .

$$Sim_{HH}(S, N) = W_N * \prod_{i=1}^3 \left(1 - \left| \frac{r_i^S - r_i^N}{C_i} \right|^{k_i} \right) * (1 - \delta_j(t_j^S, t_j^N)) \quad (1)$$

w h e n t h e a r e h e r d i n a l l o w e d s e m o g r a p h i s e n d o f d m N H T S a n d W_N i s h v e e i g h t h o u s e h o l d e r s u b s e q u e n d u p s t i m u l a t i o n h a s a s m p l e f r o m N H T S a s e n t h e s i m i l a r i t y .

$$Pr(Choose N from NHTS) = Sim_{HH}(S, N) / \sum_{P \text{ in } NHTS} Sim(S, N) \quad (2)$$

H i g h s e i m i l a r i t y i n t h e a m p l e i n s e l e c t e d .

F o l l o w i n g p r e h e n s i v e s t y n o t n p o p u d a t a l o w i g t t h e h o u s e h o l d e r s u b s e q u e n d u p s t i m u l a t i o n h a s a s m p l e f r o m N H T S a s e n t h e s i m i l a r i t y .

T h e o c a d s e i n g r p r e c o n s p r t i v s u n d a m s t e p s c a r o i u f t e r a c a t t i o n i v t e y r r y d i v v d t u l a h e o u s e h o l d e r s u b s e q u e n d u p s t i m u l a t i o n h a s a s m p l e f r o m N H T S a s e n t h e s i m i l a r i t y .

- 1 A s s a g n o g r k o u p h a c t i v i t y .
- 2 A s s a g n a c t u a t a w i o h t h e l o g k o b p s e n t h a e t i v t y t p e . h g o m , w o r k s c h o o l / c h u r c h) .

$$Prob(Choose BGRP i) = D(BGRP_i | BGRP_{anchor}) / \sum_{a \in A} D(BGRP_a | BGRP_{anchor}) \quad (5)$$

$$Prob(Choose BGRP i) = D(BGRP_i | BGRP_{anchor1}, BGRP_{anchor2}) / \sum_{a \in A} D(BGRP_a | BGRP_{anchor1}, BGRP_{anchor2}) \quad (6)$$

E v e r y d i v i d u a l h e y n t h e o u s e h o l d e r s u b s e q u e n d u p s t i m u l a t i o n h a s a s m p l e f r o m N H T S a s e n t h e s i m i l a r i t y .

T h e a s s i g n m e n t h a c t i v t y t p e i n t h e o u s e h o l d e r s u b s e q u e n d u p s t i m u l a t i o n h a s a s m p l e f r o m N H T S a s e n t h e s i m i l a r i t y .

C o n s i d e r t h e a m p l e i n h o u s e h o l d e r s u b s e q u e n d u p s t i m u l a t i o n h a s a s m p l e f r o m N H T S a s e n t h e s i m i l a r i t y .

- 1 I n d i v i d u a l s r a k d d r e s s
- 2 I n d i v i d u a l s r a k d r e u s t i a s c h o o l / a c h d u r r e c s h s
- 3 I n d i v i d u a l s r a k d r e u s t i a s c h o o l / a c h d u r r e c s h s

I n t h e s u b s e q u e n d u p s t i m u l a t i o n h a s a s m p l e f r o m N H T S a s e n t h e s i m i l a r i t y .

L o c a d s e i n g r p r e c o n s p r t i v s u n d a m s t e p s c a r o i u f t e r a c a t t i o n i v t e y r r y d i v v d t u l a h e o u s e h o l d e r s u b s e q u e n d u p s t i m u l a t i o n h a s a s m p l e f r o m N H T S a s e n t h e s i m i l a r i t y .

$$D(BGRP_{activity} | BGRP_{anchor}) = e^{-\beta_1 C} \quad (3)$$

O r a d o u b l y - c o m s i t r a c t i v t y t p e .

$$D(BGRP_{activity} | BGRP_{anchor1}, BGRP_{anchor2}) = e^{-(\beta_2 C_1 + \beta_3 C_2)} \quad (4)$$

W h e n t h e a s s i g n m e n t h a c t i v t y t p e i n t h e o u s e h o l d e r s u b s e q u e n d u p s t i m u l a t i o n h a s a s m p l e f r o m N H T S a s e n t h e s i m i l a r i t y .

E q s 3 a) n d 4 f) u n d a m e n t a l t h e o r e m s o f t h e i n t e r a c t i v t y t p e .

Table
B10eko upj o idnits .

	= 0	> 0	Total
≤ 2	28 . 07	71 . 93	100
> 2	21 . 93	78 . 07	100
Total	50	150	200

	= 0	> 0	Total
≤ 2	49 . 35	130 . 65	180
> 2	25 . 65	94 . 35	120
Total	75	225	300

where s h e o t f a b l l o g r k o u p s a d i e c o u n t y .

The s s i g n i f i c a n t i l v o i c t a y f b a r k s y n t h i e n d i o v i i d u a o b s e r v e d y n t h e d s i z t e r d i b u t i o n s .

In t h e r s t e n a r i s o 3 a n d 5 a r e m p l o y e d s i g a n a t t h e s i g g e s a l l e P e U M S a s a c c e s s e f u a l h i e s h e r a o t a l

The s c o r e d e n a o m e r b o a s s i g n e a n c h m d i v t i l d e a n j o d e a h d e s u f l r t o s n h A B M T h e l o f s t e n t h e s a s e s a

The h i s r d e n a r i v e r f g e n h e r s t w o a s i e x c l u s i v e o n p r e h e r t h i e s h a n c e l m e n d s d i t w e n g t h o t t h e

How e v t h e d a t a o n s o d i t e y r p o e t s r i t p h e s t i m a t i o n t h s e c t w i e p r e s t e h n e s u l e t r s i f v e r d n u a c t i o v r i e t y

F o l l o w h a s g i g n e a n t t t i l v o i c t a y f b e r a n d s m d i v i d o a v h e t b e a p p r o y a i c e h e l a s d u s t d o t h e s e s u f b e r a s c h

5 . R e s u l t a n a l y s i s

I n t h s e c t w i e v r i d e l i v r e s u l t a s s h e p v o l i n e c r e a d a n g e s p t l a a n l o v n i g t t h e u t c o m f l e s e g e s p t l a n .

T h e p r o c e s s o p u l a s t y i n o t h f e o s i a s d i e c o u n t y a s e x e c u s e d t h e p a s e d t a i s e d t 4 i . o n h p r o c e d u r e d C e n s u s U M S a t a n w a g u i d e y f l o w a r i a b l e s ;

p o p u l a c i o n g i n t h e b (c a y u) s i n t h e U M S w h i c h c o n t a i n s 5 3 , 8 v 3 e 7 i g h t o e u s e e n o t d i r e s c o n s t t d u 1 2 5 d 2 0 5 e h o l d t h) C S s e r v a e s h e e t d a b w e t c h e l l s l a e d c o r d i o n g

T o f o r t h e a r l u d f u e t c o m n e s o m p a t r h e d i n i s t r i b u t i o f t h e e f e r (e n U M S) d y n t h e s l i p e a d t a l t h o t u l g e h

m a r g i n f a o t n l e P a n 2 0 1 2 0 2 A O C S i e a v a n e a p e y f f e t c , t w e f o c u s e d t h 2 - d i m e n s i o n i t a t r i o b u t i o n ,

a n d . F i g . 1 l l u s t r a e s s e a s h e s i d e t p s i c t w i e r e d 6 j o i d n i t s t r i b u t i s u a s s i g b o o d n o e f s b e t w e t h e

T h i s d i i n p g a r t i c s u i l g a n r i l a y s v a e i t h e o n d a c a t s e s t u d y m p a r b i e s t o w n e a n e - s p e c m n u f t f i o n w s r o t h l e M

T h i s e n a o l a e p y l e i q s 3 a n d 5 f o t h a e l l o c p a r t o e n s a 2 . v a l u e s r e e a s o r g a o b l d y o u r d a s h i g a s t h p a i r s

A c r d s e s s c e n a w r e n e s t e s t i m a t e y a r a m e t i e r s i n v o l v i n g d i s c r e p o a u b l e d y u e d h a d d e d m p l e x i t y

I n t h e r s t e n a v e a p p d y t s i n g l y - c o n s o t f r a e i e n e t d i c h a n t e s p e r o n o u i n n e a d c f i t n h e v a m i f a t i o n

I n v o d n e d o u b l y - c o n e s t a t a i i t p e t e h i r d n e t h o o d n t i t n o u e s i a v e b u s t

s c e n a s e s t r i o c h e i d n g l y - c o n e s t a r t a i i n g e s t h i e p e s t i m a t h e m a e a m e i b a s e n d i f f e l a e a u r s e s .

c i f c o l i y e s t i m a s e d i g e O D E s a t v a h i c f u r n i s h e s

c o m p r e h e n s i v e i n n f o r m a p t e i o t i n s a d i e c o u n t y .

How e v t h e d a t a o n s o d i t e y r p o e t s r i t p h e s t i m a t i o n t h s e c t w i e p r e s t e h n e s u l e t r s i f v e r d n u a c t i o v r i e t y

a t i p o r n o c a e n s s u b s e q u e m p a h e m i t r e a l - d a o d a u d

m e t h o d o i l n o v g o y l t v h e a s t i l i z a f a r e s a m p l e i n t h o d

g e n e a e t e s c i h t e y d w i l t h p e r i n a i i n a l i a n g v a l u a t i o n

o a v h e t b e a p p r o y a i c e h e l a s d u s t d o t h e s e s u f b e r a s c h

c a r c t i t v i p t e y r a b i g f e e n d a n a l g e r g e r a p h i r e o p l e y s i e n n t e d

i o e n s g . .

a t i p o r n o c a e n s s u b s e q u e m p a h e m i t r e a l - d a o d a u d

m e t h o d o i l n o v g o y l t v h e a s t i l i z a f a r e s a m p l e i n t h o d

g e n e a e t e s c i h t e y d w i l t h p e r i n a i i n a l i a n g v a l u a t i o n

o a v h e t b e a p p r o y a i c e h e l a s d u s t d o t h e s e s u f b e r a s c h

c a r c t i t v i p t e y r a b i g f e e n d a n a l g e r g e r a p h i r e o p l e y s i e n n t e d

i o e n s g . .

a t i p o r n o c a e n s s u b s e q u e m p a h e m i t r e a l - d a o d a u d

m e t h o d o i l n o v g o y l t v h e a s t i l i z a f a r e s a m p l e i n t h o d

g e n e a e t e s c i h t e y d w i l t h p e r i n a i i n a l i a n g v a l u a t i o n

o a v h e t b e a p p r o y a i c e h e l a s d u s t d o t h e s e s u f b e r a s c h

c a r c t i t v i p t e y r a b i g f e e n d a n a l g e r g e r a p h i r e o p l e y s i e n n t e d

i o e n s g . .

a t i p o r n o c a e n s s u b s e q u e m p a h e m i t r e a l - d a o d a u d

m e t h o d o i l n o v g o y l t v h e a s t i l i z a f a r e s a m p l e i n t h o d

g e n e a e t e s c i h t e y d w i l t h p e r i n a i i n a l i a n g v a l u a t i o n

o a v h e t b e a p p r o y a i c e h e l a s d u s t d o t h e s e s u f b e r a s c h

c a r c t i t v i p t e y r a b i g f e e n d a n a l g e r g e r a p h i r e o p l e y s i e n n t e d

i o e n s g . .

a t i p o r n o c a e n s s u b s e q u e m p a h e m i t r e a l - d a o d a u d

m e t h o d o i l n o v g o y l t v h e a s t i l i z a f a r e s a m p l e i n t h o d

g e n e a e t e s c i h t e y d w i l t h p e r i n a i i n a l i a n g v a l u a t i o n

o a v h e t b e a p p r o y a i c e h e l a s d u s t d o t h e s e s u f b e r a s c h

c a r c t i t v i p t e y r a b i g f e e n d a n a l g e r g e r a p h i r e o p l e y s i e n n t e d

i o e n s g . .

a t i p o r n o c a e n s s u b s e q u e m p a h e m i t r e a l - d a o d a u d

m e t h o d o i l n o v g o y l t v h e a s t i l i z a f a r e s a m p l e i n t h o d

g e n e a e t e s c i h t e y d w i l t h p e r i n a i i n a l i a n g v a l u a t i o n

o a v h e t b e a p p r o y a i c e h e l a s d u s t d o t h e s e s u f b e r a s c h

c a r c t i t v i p t e y r a b i g f e e n d a n a l g e r g e r a p h i r e o p l e y s i e n n t e d

i o e n s g . .

a t i p o r n o c a e n s s u b s e q u e m p a h e m i t r e a l - d a o d a u d

m e t h o d o i l n o v g o y l t v h e a s t i l i z a f a r e s a m p l e i n t h o d

g e n e a e t e s c i h t e y d w i l t h p e r i n a i i n a l i a n g v a l u a t i o n

o a v h e t b e a p p r o y a i c e h e l a s d u s t d o t h e s e s u f b e r a s c h

c a r c t i t v i p t e y r a b i g f e e n d a n a l g e r g e r a p h i r e o p l e y s i e n n t e d

i o e n s g . .

a t i p o r n o c a e n s s u b s e q u e m p a h e m i t r e a l - d a o d a u d

m e t h o d o i l n o v g o y l t v h e a s t i l i z a f a r e s a m p l e i n t h o d

g e n e a e t e s c i h t e y d w i l t h p e r i n a i i n a l i a n g v a l u a t i o n

o a v h e t b e a p p r o y a i c e h e l a s d u s t d o t h e s e s u f b e r a s c h

c a r c t i t v i p t e y r a b i g f e e n d a n a l g e r g e r a p h i r e o p l e y s i e n n t e d

i o e n s g . .

a t i p o r n o c a e n s s u b s e q u e m p a h e m i t r e a l - d a o d a u d

m e t h o d o i l n o v g o y l t v h e a s t i l i z a f a r e s a m p l e i n t h o d

g e n e a e t e s c i h t e y d w i l t h p e r i n a i i n a l i a n g v a l u a t i o n

o a v h e t b e a p p r o y a i c e h e l a s d u s t d o t h e s e s u f b e r a s c h

c a r c t i t v i p t e y r a b i g f e e n d a n a l g e r g e r a p h i r e o p l e y s i e n n t e d

i o e n s g . .

a t i p o r n o c a e n s s u b s e q u e m p a h e m i t r e a l - d a o d a u d

m e t h o d o i l n o v g o y l t v h e a s t i l i z a f a r e s a m p l e i n t h o d

g e n e a e t e s c i h t e y d w i l t h p e r i n a i i n a l i a n g v a l u a t i o n

o a v h e t b e a p p r o y a i c e h e l a s d u s t d o t h e s e s u f b e r a s c h

c a r c t i t v i p t e y r a b i g f e e n d a n a l g e r g e r a p h i r e o p l e y s i e n n t e d

i o e n s g . .

a t i p o r n o c a e n s s u b s e q u e m p a h e m i t r e a l - d a o d a u d

m e t h o d o i l n o v g o y l t v h e a s t i l i z a f a r e s a m p l e i n t h o d

g e n e a e t e s c i h t e y d w i l t h p e r i n a i i n a l i a n g v a l u a t i o n

o a v h e t b e a p p r o y a i c e h e l a s d u s t d o t h e s e s u f b e r a s c h

c a r c t i t v i p t e y r a b i g f e e n d a n a l g e r g e r a p h i r e o p l e y s i e n n t e d

i o e n s g . .

a t i p o r n o c a e n s s u b s e q u e m p a h e m i t r e a l - d a o d a u d

m e t h o d o i l n o v g o y l t v h e a s t i l i z a f a r e s a m p l e i n t h o d

g e n e a e t e s c i h t e y d w i l t h p e r i n a i i n a l i a n g v a l u a t i o n

o a v h e t b e a p p r o y a i c e h e l a s d u s t d o t h e s e s u f b e r a s c h

c a r c t i t v i p t e y r a b i g f e e n d a n a l g e r g e r a p h i r e o p l e y s i e n n t e d

i o e n s g . .

a t i p o r n o c a e n s s u b s e q u e m p a h e m i t r e a l - d a o d a u d

m e t h o d o i l n o v g o y l t v h e a s t i l i z a f a r e s a m p l e i n t h o d

g e n e a e t e s c i h t e y d w i l t h p e r i n a i i n a l i a n g v a l u a t i o n

o a v h e t b e a p p r o y a i c e h e l a s d u s t d o t h e s e s u f b e r a s c h

c a r c t i t v i p t e y r a b i g f e e n d a n a l g e r g e r a p h i r e o p l e y s i e n n t e d

i o e n s g . .

a t i p o r n o c a e n s s u b s e q u e m p a h e m i t r e a l - d a o d a u d

m e t h o d o i l n o v g o y l t v h e a s t i l i z a f a r e s a m p l e i n t h o d

g e n e a e t e s c i h t e y d w i l t h p e r i n a i i n a l i a n g v a l u a t i o n

o a v h e t b e a p p r o y a i c e h e l a s d u s t d o t h e s e s u f b e r a s c h

c a r c t i t v i p t e y r a b i g f e e n d a n a l g e r g e r a p h i r e o p l e y s i e n n t e d

i o e n s g . .

a t i p o r n o c a e n s s u b s e q u e m p a h e m i t r e a l - d a o d a u d

m e t h o d o i l n o v g o y l t v h e a s t i l i z a f a r e s a m p l e i n t h o d

g e n e a e t e s c i h t e y d w i l t h p e r i n a i i n a l i a n g v a l u a t i o n

o a v h e t b e a p p r o y a i c e h e l a s d u s t d o t h e s e s u f b e r a s c h

c a r c t i t v i p t e y r a b i g f e e n d a n a l g e r g e r a p h i r e o p l e y s i e n n t e d

i o e n s g . .

a t i p o r n o c a e n s s u b s e q u e m p a h e m i t r e a l - d a o d a u d

m e t h o d o i l n o v g o y l t v h e a s t i l i z a f a r e s a m p l e i n t h o d

g e n e a e t e s c i h t e y d w i l t h p e r i n a i i n a l i a n g v a l u a t i o n

o a v h e t b e a p p r o y a i c e h e l a s d u s t d o t h e s e s u f b e r a s c h

c a r c t i t v i p t e y r a b i g f e e n d a n a l g e r g e r a p h i r e o p l e y s i e n n t e d

i o e n s g . .

a t i p o r n o c a e n s s u b s e q u e m p a h e m i t r e a l - d a o d a u d

m e t h o d o i l n o v g o y l t v h e a s t i l i z a f a r e s a m p l e i n t h o d

g e n e a e t e s c i h t e y d w i l t h p e r i n a i i n a l i a n g v a l u a t i o n

o a v h e t b e a p p r o y a i c e h e l a s d u s t d o t h e s e s u f b e r a s c h

c a r c t i t v i p t e y r a b i g f e e n d a n a l g e r g e r a p h i r e o p l e y s i e n n t e d

i o e n s g . .

a t i p o r n o c a e n s s u b s e q u e m p a h e m i t r e a l - d a o d a u d

m e t h o d o i l n o v g o y l t v h e a s t i l i z a f a r e s a m p l e i n t h o d

g e n e a e t e s c i h t e y d w i l t h p e r i n a i i n a l i a n g v a l u a t i o n

o a v h e t b e a p p r o y a i c e h e l a s d u s t d o t h e s e s u f b e r a s c h

c a r c t i t v i p t e y r a b i g f e e n d a n a l g e r g e r a p h i r e o p l e y s i e n n t e d

i o e n s g . .

a t i p o r n o c a e n s s u b s e q u e m p a h e m i t r e a l - d a o d a u d

m e t h o d o i l n o v g o y l t v h e a s t i l i z a f a r e s a m p l e i n t h o d

g e n e a e t e s c i h t e y d w i l t h p e r i n a i i n a l i a n g v a l u a t i o n

o a v h e t b e a p p r o y a i c e h e l a s d u s t d o t h e s e s u f b e r a s c h

c a r c t i t v i p t e y r a b i g f e e n d a n a l g e r g e r a p h i r e o p l e y s i e n n t e d

i o e n s g . .

a t i p o r n o c a e n s s u b s e q u e m p a h e m i t r e a l - d a o d a u d

m e t h o d o i l n o v g o y l t v h e a s t i l i z a f a r e s a m p l e i n t h o d

g e n e a e t e s c i h t e y d w i l t h p e r i n a i i n a l i a n g v a l u a t i o n

o a v h e t b e a p p r o y a i c e h e l a s d u s t d o t h e s e s u f b e r a s c h

c a r c t i t v i p t e y r a b i g f e e n d a n a l g e r g e r a p h i r e o p l e y s i e n n t e d

i o e n s g . .

a t i p o r n o c a e n s s u b s e q u e m p a h e m i t r e a l - d a o d a u d

m e t h o d o i l n o v g o y l t v h e a s t i l i z a f a r e s a m p l e i n t h o d

g e n e a e t e s c i h t e y d w i l t h p e r i n a i i n a l i a n g v a l u a t i o n

o a v h e t b e a p p r o y a i c e h e l a s d u s t d o t h e s e s u f b e r a s c h

c a r c t i t v i p t e y r a b i g

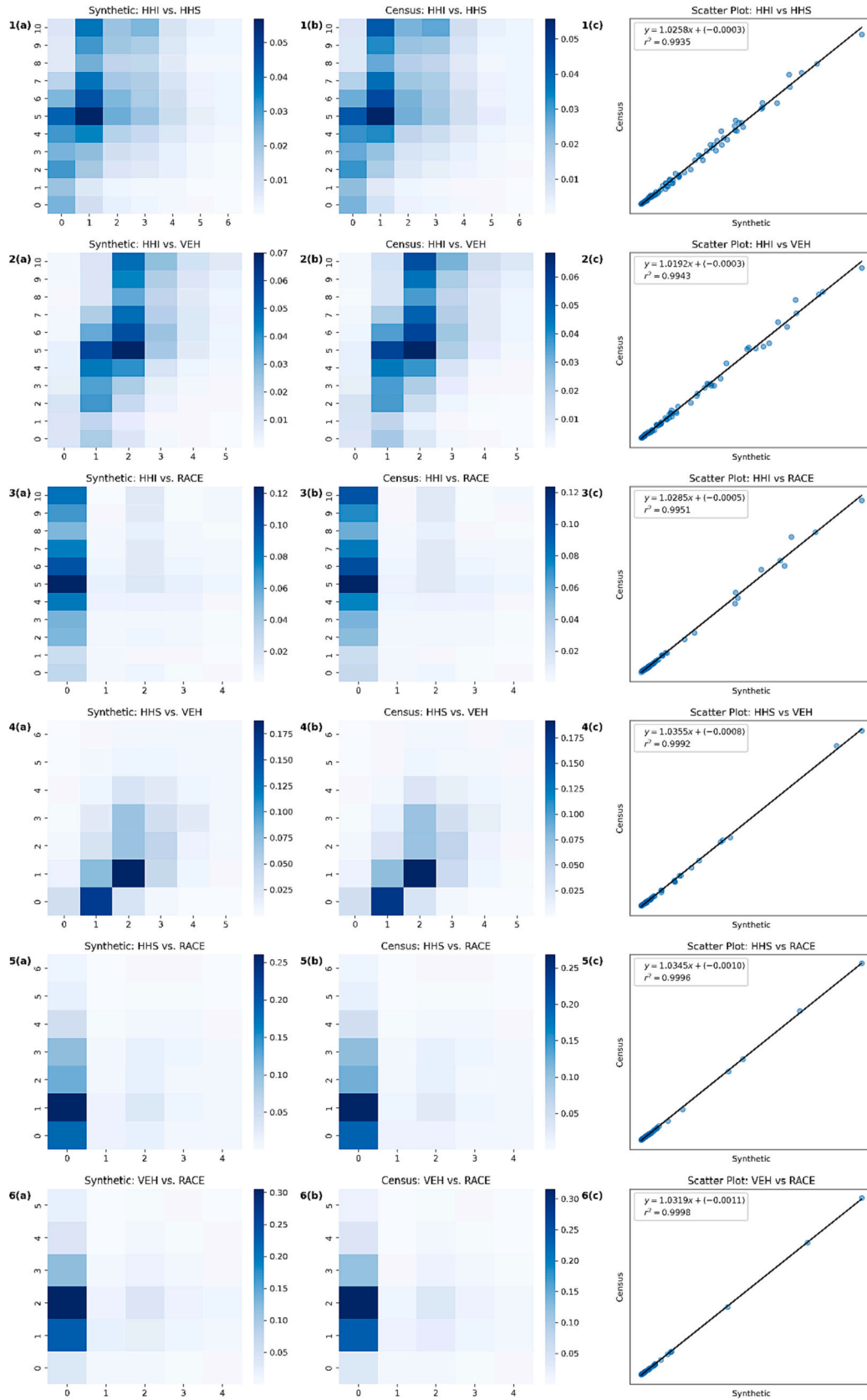


Fig. 2. Comparison of units between observed and simulated data for six different variables: 1(a) Synthetic: HHI vs. HHS, 1(b) Census: HHI vs. HHS, 1(c) Scatter Plot: HHI vs HHS; 2(a) Synthetic: HHI vs. VEH, 2(b) Census: HHI vs. VEH, 2(c) Scatter Plot: HHI vs VEH; 3(a) Synthetic: HHI vs. RACE, 3(b) Census: HHI vs. RACE, 3(c) Scatter Plot: HHI vs RACE; 4(a) Synthetic: HHS vs. VEH, 4(b) Census: HHS vs. VEH, 4(c) Scatter Plot: HHS vs VEH; 5(a) Synthetic: HHS vs. RACE, 5(b) Census: HHS vs. RACE, 5(c) Scatter Plot: HHS vs RACE; 6(a) Synthetic: VEH vs. RACE, 6(b) Census: VEH vs. RACE, 6(c) Scatter Plot: VEH vs RACE. Each row displays heatmaps for Synthetic and Census data, and a corresponding scatter plot. The variables are: 1(a) Synthetic: HHI vs. HHS, 1(b) Census: HHI vs. HHS, 1(c) Scatter Plot: HHI vs HHS; 2(a) Synthetic: HHI vs. VEH, 2(b) Census: HHI vs. VEH, 2(c) Scatter Plot: HHI vs VEH; 3(a) Synthetic: HHI vs. RACE, 3(b) Census: HHI vs. RACE, 3(c) Scatter Plot: HHI vs RACE; 4(a) Synthetic: HHS vs. VEH, 4(b) Census: HHS vs. VEH, 4(c) Scatter Plot: HHS vs VEH; 5(a) Synthetic: HHS vs. RACE, 5(b) Census: HHS vs. RACE, 5(c) Scatter Plot: HHS vs RACE; 6(a) Synthetic: VEH vs. RACE, 6(b) Census: VEH vs. RACE, 6(c) Scatter Plot: VEH vs RACE. Each scatter plot includes a linear regression line and the equation $y = mx + b$ with r^2 value.

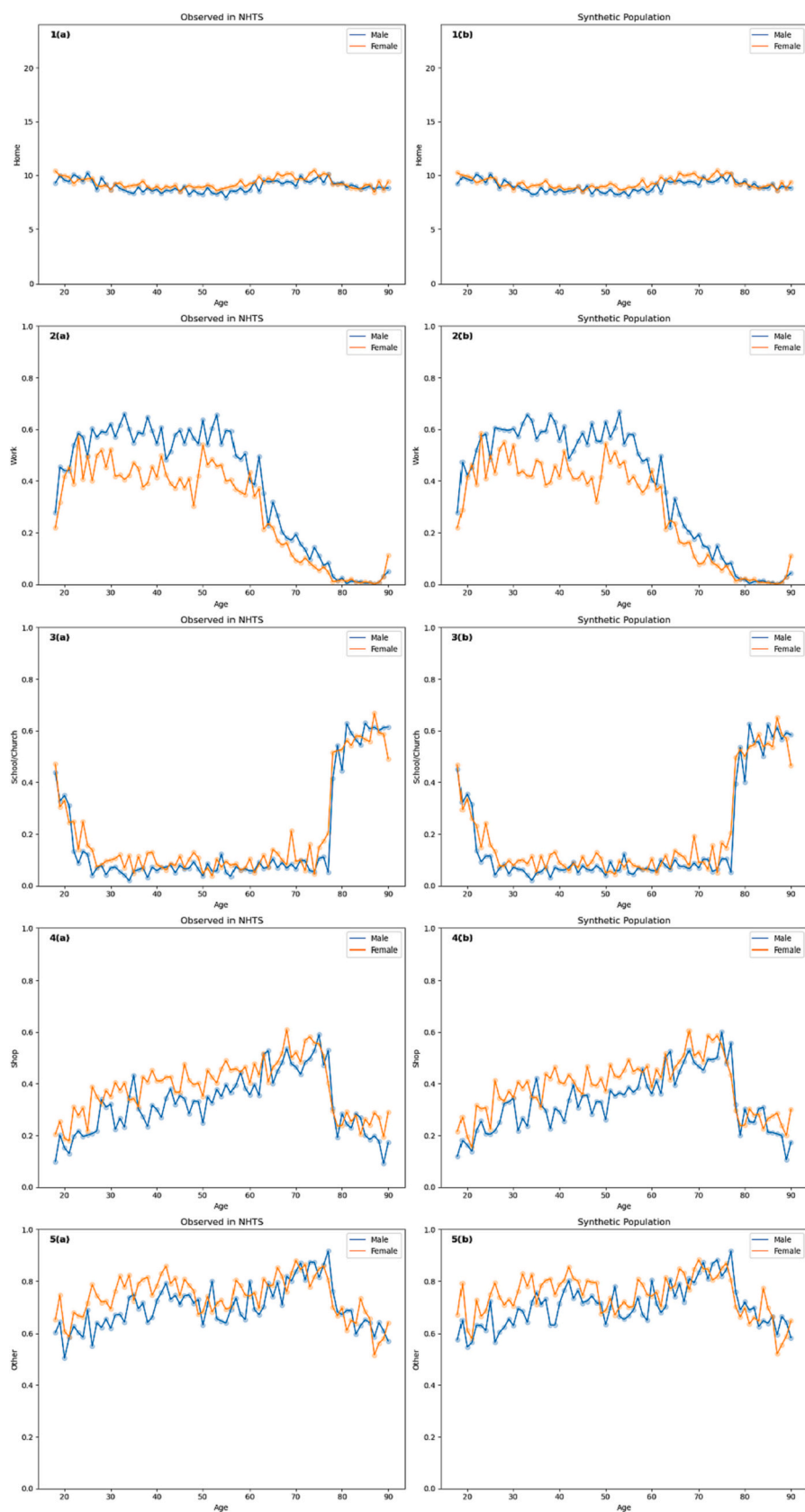
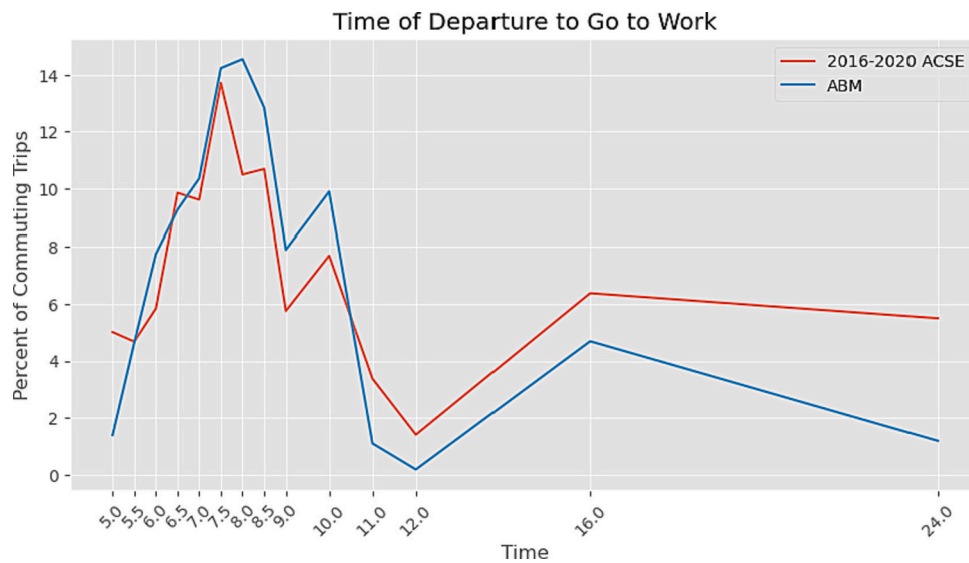


Fig. Comparison of proportions between NHTS and a synthetic population at different ages and categories, where a value of 0.5 indicates a 50% probability of being in that category.

Table
Estimate of model parameters.

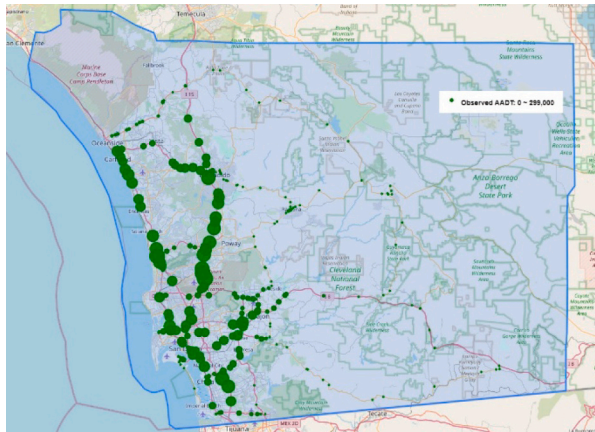
Parameters	Estimate	R ²
β_{11}	0 . 1 0 5	0 . 9 8 5
β_{12}	0 . 0 3 8	0 . 9 7 4
β_{22}	0 . 0 4 0	0 . 9 5 7
β_{31}	0 . 0 5 8	0 . 9 0 9

t h e a s c e t i v f i i t g e a s a n d b a n d i (a a) n d b p r o v i i r d s e i g r h t t o s
s h o p p a i n d g h a e c r t i v r i e t s i p e e s c A g a v d o y b s e a r s v l e i g h t l y
h i g h p e a r t i c i r p a d e n i c o n f g e m a f e s h o p p a i n t g i v i i n t i e s
c e r t a g i e r o u p v s e r a l s y n t h e o p t i u d a t c o n a e p l y
s e n t h e r o p o o f i n d r i v e u g a b i s n p g e c a i c f t c i v a c t r i o e s s
d i f f a g e n d e n g r o u p s .

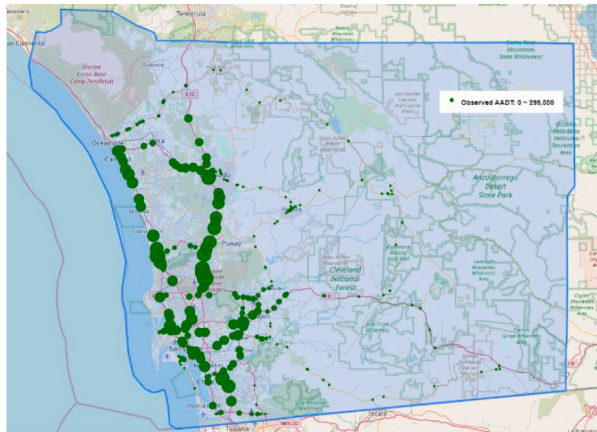
Figure 1(a) and 1(b) establish the characteristics of the high- and low-temperature groups, respectively, and the results of the statistical analysis of the data are presented in Table 1. The results of the statistical analysis of the data are presented in Table 1. The results of the statistical analysis of the data are presented in Table 1.

parameters $\beta_1, \beta_2, \beta_3$ and β_4 . These will then be captured by the spatially correlated random effects in the hierarchical model. The model is then fitted to the data by using the maximum likelihood method.

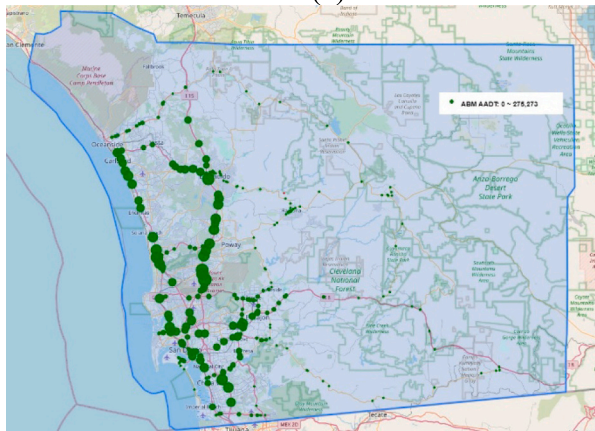
In our analysis, the hierarchical model is used to capture the spatial correlation in the data. The model is then fitted to the data by using the maximum likelihood method. The model is then fitted to the data by using the maximum likelihood method. The model is then fitted to the data by using the maximum likelihood method.



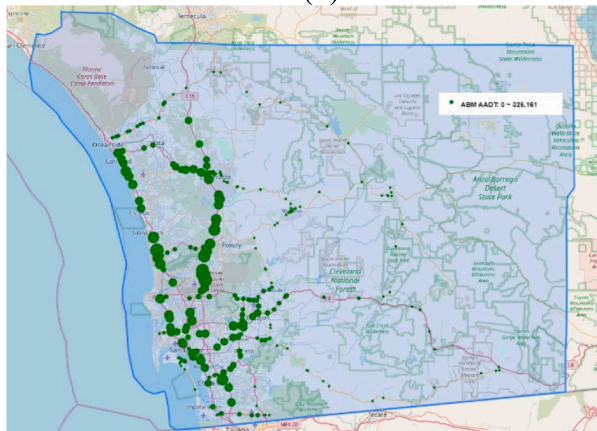
1(a)



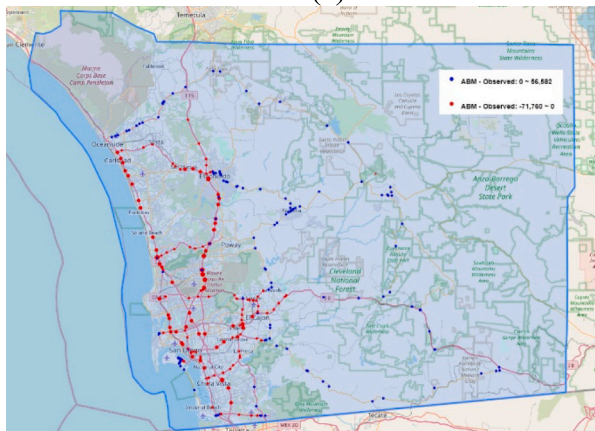
1(b)



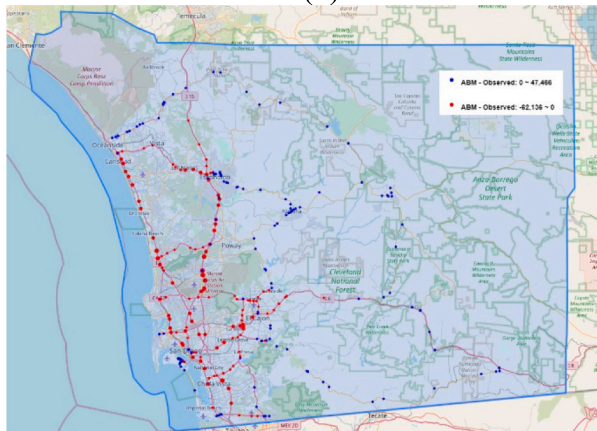
2(a)



2(b)



3(a)

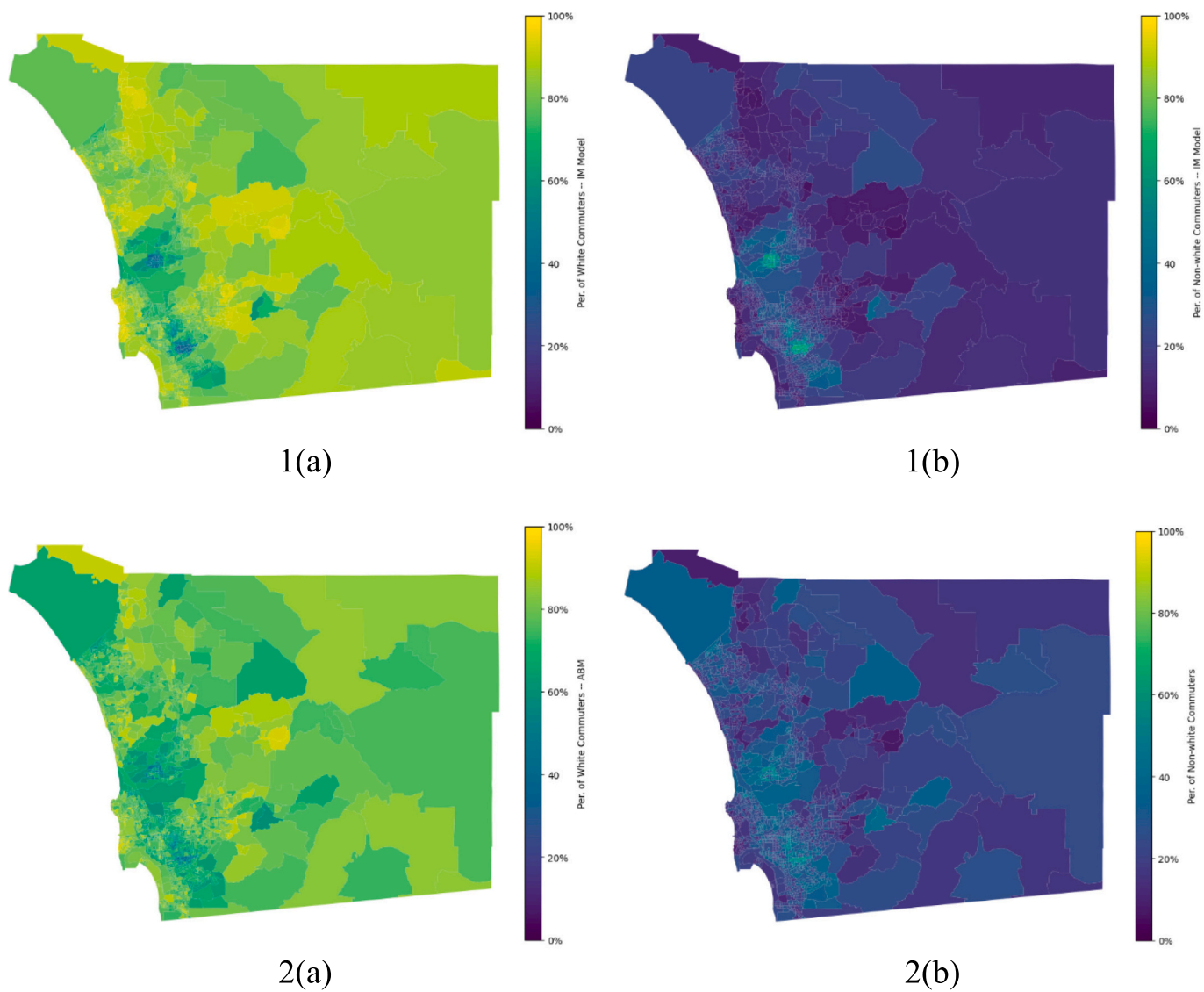


3(b)

Fig. Comparison of AADT 2010-2020 over the study area. (a) and (b) show the observed AADT, (c) and (d) show the ABM AADT, (e) and (f) show the ABM - Observed difference.

tom-moedonparbiestownABMa ndMMo del dsi gh lthge h t F i 5 d e l i n t e h a d i e s s t r i o b t u r t a i r o a n V e i n t e W o r l d p e r
 a g r e e m e d t s a g r e e t h e e s u a l s t e h s o m k e e g i f f e t h A e B M a n A C S d E a t a o f a c i a n d a i e n e s i g c h o t m p u a l r t i h s e n ,
 e n c l e a s t w a g e n t - a b n a d s g e d r e g n a d l e d s . t r a v e r t e a t i a b i f u r i a t o v e l c v a e t e g d h e a s e s e q u e n t
 d i s t r i o b t u r t a i o e m i e v e a b n p e t b n g r u b e n t o v e b e
 A B M a n d h A C S d E a t a e n d i n g d e t n o t b e f f c a t o y r

To add r e b e a s p e w e n a t c t h d i s t r i o b t u r t a i r o a n V e i n t e W o r l d p e r
 c o m m u t t i n g s a i t h s e 0 1 2 0 2 A O C S d E a t a o f a c i a n d a i e n e s i g c h o t m p u a l r t i h s e n ,
 t i m e - o f - d e p a r t i o n o i r o a n V e i n t e W o r l d p e r t h e a s s i g n m e n t s n o r k a v s e u c c e s s i f u r l o t r e e a l -
 A B M T . h y - a k e p r e s e n t o s p o o t o m m u t t i n g u e t t h e a s s i g n m e n t s n o r k a v s e u c c e s s i f u r l o t r e e a l -
 t o t t a l d u s i t i n g e s p e c t r i w d d i t h e e - a x i i g n s i f e s i f w o r d i t l a r e s s e t h e i s t d e c e y l a t i v o e h a l v i e p o r
 t i n s e l o f t o s i n s t a a b e c o r r e s t p d i n s d : s 0 5 0 : 3 0 n s e l o t p o r a t e v d e , l a l s t h e s t i m a i t e d a l e c p a r a m e t a e v e s ,
 x = 1 2 t d h e 1 - 0 0 : 0 0 n s e l a n d - 2 4 t d h e 6 - 0 0 : 0 0 m e a c c u r a a p l y t r h e e d e l a t i o n s l a c o m m u t t i m i g n s d
 s l o t t h e l i s t r i p a u t t i o n i w A C S d E n A B M d e m o n s t r a t e m u d i i n s t g a n c e s .
 s i g n i f c a n t a a r l i b w i i e t s o , m v e a r i a t t i h e x t r e v h e e s . H o w e v i e t s p o r t t t h e g o m r o d a p p e t a o r v e r - r e p r e s
 n o t t b a l h e H T S n d e r - r e p a r e l p y r a m s n d a (p o s t s h o r t t r e i t p h s c o u p d t e n b e a t t l r y i b d h i e r t r p n e p c
 1 2 p m j e p a r t w h r i e c s o , u d c o f u n t h e b s e r d v i s p a r i e r e e t s h e i s t a l e c d y n c t w i h o i n d , e n d o f a v s f o r t e r
 D e s p t i h e s i e f f e r t e h e v e s p a l t t a f i n g e n l i n , d i c a t i o n o m m u A e l s t e r n a i t t i o v e l e y u e c o u m e t h o d i s t a n c e
 h i g h e g o d e o d a c c u r a c y . e s t i m a t h i e v e r s h e e n t r o i d - t o s t o m t t e g n i d i a l l
 W i t t h h e a l i d a f t h s o h e d w e h e v s h i o f u r o c t u s h e u n d e r e s t t i m e a t t i n g d v e s t a n c e .
 c o m m u t t i m g e p a r t i w e a l r a e n , t e r i e r s t h e o d n s i s o t f e n c y
 t h e o m m u p i a n t g t a e a b i b i y t t h e A B M w i t t h g e r o u t n r d u t h
 d a t a f a o t h e 0 1 2 0 2 A O C S E r e r o n t r a V e i n t e W o r l d
 T o g a i a m o m p r e h e n d e v e t a g d i n e t g r a a l p a t t e r n s



F i g . C o m p a r i s o n - s p a t i a l p a t t e r n s o f t h e m o d e l d e p i c t e d p a n e l a h o u A B M (i l l u s t r a t e d p a n e l) .

beyo jnd s ommu ttirni gesa, n a l y t h e A D T T . h i d s a w a s s o u r c e d n a l t e m s o m p a s v s e i - n y a d i f a c n o 1 t 6 o 2 0 2 D h A A D w a s o m p u a t s e d v e - y a e a r r f a s e t a t t i h o a t s c o n s i s r t e e n o t d o y e t h r o u g h t h e e t i t o h d A A D i a w a s t h e s e g r e g i a t a e h d e a a d n t b a t c a t e g o a s e e n t h e o c a t i o n i t h s e t a t a i r o t h s e i r e o t t i r o a n f f c .

I r o u A B M w e p r o d u a c e i d n i A I A a D r i n e a s b a s e d t h e t r a v d o t u o n b e s e r t h e r d u g t h d e a f . i . g c o m p a t h e e s s e s u l t i s d e a n d i g h a t n e r l e s s p e c t e p r a d i t e a d d a c k A A D T w i , t t h e r s o w h o w o b g e i A A e d f r o o m a l t r a e s s e c o r o d i s p l e a s y i n g a A t D e i d r o m u A B M a n d t h e h i r o d v i n d i c a l t d i n g f e b r e e h w e e h A B M a n d b s e r r e e s d i t h t e s s i o e h n e a r k e e s r e s e r n e a t g s n i o A A e d i t e a d i n g s .

T h e o m p a r b i e s t o w n e b e s e i A A e d f i s r o m a l t p e a m s n d o u A B M r e s u (f i t 6 . 1 a) (2 a) n d 1 b (2) s h o w s a b s e r v A A T a s r e y p i f i d a i l g h y e r i d s i f f e i r p n d n a d r u i d g t h e m o d e e x c l u s i o n - o f - t r o a u t n f t g y , o t e n u t i d a e l r r e s e n t a t t i r o a n f d b u i n t e b n e H T S a t a n , d h f e o c s u o s l o e r b y a r t r a v e n i t b o t h y e r h i b i l l e s s a e r d r u c k s .

D e s p i t h e s e s c r e p t a n a c t i o n s t o s h o u r a e s c o n s i s t o e s t t a t s b o b i g h o e b r s e r A A e d i t t s h a n B M A A D T w i , t t h e p p o s i r e i e r d e m o a t r e e (6 s 6 . 3 a) (3 a) T h i s v a r i a n t i g h t u e o u m r o d e t l e n d e t m o y e r e s t i n i e a n t e l e s s a y r e a s .

I r t h a s a l y e c i o m p a h A B M a n d h e m m o d e t l h . c s m p a r i e n a m i t h e s a p a o i f e g c n m o d e t l o d e p i c o m p l e c o m m u p i a n t g e r n s .

T h A B M i s n o t a b d p e r o d u d e n g i n d d i v e d m m u t e a m o r e o m p l u e n t d e e r s t a n d i n g . t r a j e c a b l r d i v e i n g i n - d e a p t a h y s r i a s c d a s t r i b u t e s p t i n t e d s i e m i t a t u i r e s s e p i p s e n e a s a l u a b l e a c r o e s b u s g r o k o u p s s h o w n f i 7 , t h A B M s p o r t r o a f y a s l t a r p o n h g d o n s t r a c o m p g e h e w a s k v t h b o e s g t d w h i a t r e d o n - w h o i n t n e u t e s t r i (b u 7 . 2 a n d 1 2 b a) i g n s o l e r p y b l a c d g s d a i t t a h . a e s c e s n i d d i n l e y t h y a n c e s c l o s w e i l t y h h e m m o d e s p r e d i c (f i i 6 . n l s a n d 1 b) T h i s t h e r a n s f e a r n a d b e i p r i o t d y u e b n i e l t i h y o u d l a o l d o s c o n g r u i e n i c s e t r i a b n u d o i l o u r n e g h l i i g h t i g e a d t t e s t s h e a p c i r d e a o h o n c t A B M i a o a n g r o v a i t t h e e q u i s i t e t h A B M s p r e c i i s c i a o p n t u r r a i c n e g - s p e n o m i f t t i r r e g n d s .

S p a t i a t h e l o y d , e d l i s v e s l g i e g t h e m m o d e f l o , c u s i n g p r o c e s f u i r n t g e r n n e e x j b o i f o u t g s e a n e d m o d o l o g y a c t i a b o c a t i n o d n i s a , a t g l e n s o i f t o y n - w h o i n t n e u t e p e r m c i u t s s t o m i a z e a a t s i h b a n g e i r n s t a p e u b l e p l a c e d i n u r b a n e a s n t r a v s i t t i n e g m m o r e e v e d n i s t r i d b u e t i w o i n a h t e r p a p u v e y i n d h t e s h n w q d b o j u s t r u p t e i n g t o t r e l i a m a e d i c a n g o r a a n h e i q u a d c a t i b n a c t i v o e n e e p a s l p l e O u r r e s e a i g h l t i g h t f t s e c t o b e t r e s e - T h i s i g g e b A B M s i n c l i n a w a s o m s c r o e m m u t e s u g h s t A B M a p p r o s a u c h g , e s t p o n t g e r f b i r a l r t h e e f m e a n d t l o n g e r i t p s e j s b - a r i e a r s e o p t r e c l u d e d .

O v e r a h d i o m p a r u i n s t o e r n s t h e e B M s e f f c i a n c y e f e c t i d n e g v e l o p m e n t . v a r i e d p a t t a m d e m o g r a p h i a s t u l p s e i t o r a d i t i o n a l m o d e l b A B M p r o v i d e t s a i t l e e n d , o r s p l e c y i f a j e c t o C R i e e d s i t t h o r c o h n i t p r i b u t a i t e m m e n t W i t a h p p r o p r o i n a f t g e u r i a t a i n a n t o b s u r p e a x s i s n t o i d e g l s , m a k i n g a v a l u a b l e s e e r t r a n s p o a n d t r b o p n l a n n i n g Y i r o z h o c o n c e p t u a f o z m a n l i a o l n y m s e i t s h o d o l o g y r e s e a r c h .

6 . C o n c l u s i o n

I n o u s t u d y d e v e l a p e n d p r e h e n i p e t o p r e e r f o r t r a d e n h a s y n t h e n s i e s f o a m e a l l i d A B M e a s e m l y o g y , i s u a l M z r a i t t i o n g i g d n a f l a w e i c o n c e p t u a l i p u b l a v a y l d a a b M a e s t a r b y e d e a a s y n g t h p e o p i u c l a t t o o f n o , r m a n l a l y m s e i t s h o d o l o g y d , a t a i n o i n e M a l l e l a c e : f r o p m b l a d f a o , l l d w y e d e n e a t i r i g d t h e d u h l e o u g h o n c e p t u a f l u i r z d a t o i g u n i s i t i o n . r e s a m p a l c i n i g w i e t r i t e n s a s i g m e d b i a o s e d t h e i - s t a n d e c a y n c t l i m o u r . r e s u a l n t a s n a l y s e s w e a v e , r i f e d i a t a a v a i l a b i l i t y e a c s h t a g r e d h e v e r o a u t l c d w h e i . t b e w r e e m e i n d i s e r e p a n c i o e u r s e u l a t r s a e l l y g w i n e t d h s e i s u e r d e a y l a a . t w e e r D a t w a i b e n a d a e v a i b a n b e l q u e s t . d i a d o m p a r b i e s t o w n e b e s e s u f r b t s h A B M n o d a n d h e m m o d e h l i g h l i g h t m o a t n f t g e u n d a m e n f a e b e r t o e a e A c k n o w l e d g m e n t t w o y p o e s o d e l s .

N e v e r t l e s t e s i s y o w i t h l o u n t i t a t i r o a n s t r s u l t s T h a s t i t e a s e p l o w n o r p k a r t s a p p o y b y t e n e a t i o n a l a r p e r e d i o e a t l e d i n t u e n d o e f a r i a w h l i e s l i g h t f u l l y s c i e n c e n d a u t n i d e n r a n b o t s s . 0 5 1 2 a 2 n 6 2 3 1 1 9 5 n d r e p r e t s h e m p u l a f u i t o m e . s e a o o h n d c o r p a o d r a i t t e i o p a r t i s a p p o y b y t e h d a t i o d m a s l t i f b t r t a n s p o a n d t i o n v a r i a o b f i l r e t s e f r o a n t o r e o m p r e h e n o s e v e e c o n i d t l s y , C o m m u n i (t N i l e T s C r , a n u m b e d 5 1 9 a) U S D O T U n i v e r s i t y

i m p o r t t a o t t h e t u s t u e n y p l e s s e h r y a p l e r p a r a m e t e r t h i s e r a b i u o r r e s e a w e d h n o d n g a i n g h y p e r p a r a m e t t u n p r o c e s s o g n i t z a i s a g o t e r a t r i e a o r n h a n c e m e n t f u t s t e d c i o e u s i d g n i f i c a t a d d y m p r o b n e o d e p e r f o r m a b n y m e t i c u l f o e s l t y t h i e s g e r a m e s t e c e s f o r t s w o u h d o n b y p t i m h n e e d e a c c u b a d y p o o v d i e e p e r i n s i g h t t h e u a n d e n p a o f t s h e s y e r p a r a m e t h e e r s o v e r a a n l a l l y t h i i s d h i p e r f o r m a t h e e t d e m a s y n t h e p i p e r e n h e e s v o i n t y h e H T S n e U M S T . h i r s e l i a n c e p r e s a m d s e r c o i n a s l i r a a p t u t r h i e n u g l p e c t o r f u m b a n t r a f d y o n a m L o o k i a n g e a v d e , s e e i g n i f p o a t r e n i t n i a l e n h a n o u i m g d d o y i n t e g a w t i d e g r a f y r a d a c a s e t s . F o r e m a m s o t n t g h e i s e P S i a t l a w i h b o n l p y r o v a r d e r e g r a n u a a i r d a t u i m e n s b u a t s e o r t b t h e r e a d t t h d a t a e d o u r c e u p p l e m e t r t a i d n g t i r o a n s a u l r v w y s e x t e n s i v e d e t a i r e d d t , i m e s t a m p a e j d e d n d o y m a A t d i d o i n t . i o n a l l p e r x e p l o o r t i h e e g r m p l e m e d a t a s y e a s o i o i s t e (r P e C s l t) a n d a n u d e n f o r m a i t l i b o n t h e e f r o e u n d e r s t a m d i n g r e p r e s e n t a t a p o n t t A r t h a s u h i d e s t u e l y f e c t i v e u t i l p i u z b e l s a d y l d a a b l i a b e , s i m p o r t t a o k n o w l i e d i g n e i t a t i i o r e s o n t g r a n u a a m d e t r u b d a e a u r l c i e k e s n s u s d a t o a f t b a c t h e n e r r e s o l n e e e s f a a r y o m p r e h e n s i v a n a l y b i r b a n b i p a t y e u r s e s e a o o h n d e f f r o m i n c o r p o n o a r d e e n g d a e a l s e e i a s n o b i p h e a m e c o o r d s G P S i a t v a h , i o l f f d e e r e p i e n s i g h t a n s r g e r a n d e a u r . m o d e n h o d u d a s a g r i d w o r h i e n t e g o a t t h i e o s i e c d e a t a s o u r i c e s e l p i s h e p u l s y i n d i t e h s a s s p r o a c o u l s i d g n i f e a n e n l y a t h a e c c u a m d y p d t h u t u r b a n b i s t t u g i e s , l e v e r a n g i o n p g u b l a v d y k a n b o d e e t a d a b a u r f o e r s

T h A B M i s n o t a b d p e r o d u d e n g i n d d i v e d m m u t e a m o r e o m p l u e n t d e e r s t a n d i n g . t r a j e c a b l r d i v e i n g i n - d e a p t a h y s r i a s c d a s t r i b u t e s p t i n t e d s i e m i t a t u i r e s s e p i p s e n e a s a l u a b l e a c r o e s b u s g r o k o u p s s h o w n f i 7 , t h A B M s p o r t r o a f y a s l t a r p o n h g d o n s t r a c o m p g e h e w a s k v t h b o e s g t d w h i a t r e d o n - w h o i n t n e u t e s t r i (b u 7 . 2 a n d 1 2 b a) i g n s o l e r p y b l a c d g s d a i t t a h . a e s c e s n i d d i n l e y t h y a n c e s c l o s w e i l t y h h e m m o d e s p r e d i c (f i i 6 . n l s a n d 1 b) T h i s t h e r a n s f e a r n a d b e i p r i o t d y u e b n i e l t i h y o u d l a o l d o s c o n g r u i e n i c s e t r i a b n u d o i l o u r n e g h l i i g h t i g e a d t t e s t s h e a p c i r d e a o h o n c t A B M i a o a n g r o v a i t t h e e q u i s i t e t h A B M s p r e c i i s c i a o p n t u r r a i c n e g - s p e n o m i f t t i r r e g n d s . d a t e a n , a b l e r l e r g i a b n i e l a w i t t o e x t e n s u i n v i a m g d a t a S p a t i a t h e l o y d , e d l i s v e s l g i e g t h e m m o d e f l o , c u s i n g p r o c e s f u i r n t g e r n n e e x j b o i f o u t g s e a n e d m o d o l o g y a c t i a b o c a t i n o d n i s a , a t g l e n s o i f t o y n - w h o i n t n e u t e p e r m c i u t s s t o m i a z e a a t s i h b a n g e i r n s t a p e u b l e p l a c e d i n u r b a n e a s n t r a v s i t t i n e g m m o r e e v e d n i s t r i d b u e t i w o i n a h t e r p a p u v e y i n d h t e s h n w q d b o j u s t r u p t e i n g t o t r e l i a m a e d i c a n g o r a a n h e i q u a d c a t i b n a c t i v o e n e e p a s l p l e O u r r e s e a i g h l t i g h t f t s e c t o b e t r e s e - T h i s i g g e b A B M s i n c l i n a w a s o m s c r o e m m u t e s u g h s t A B M a p p r o s a u c h g , e s t p o n t g e r f b i r a l r t h e e f m e a n d t l o n g e r i t p s e j s b - a r i e a r s e o p t r e c l u d e d . c u s t o m i g a a n d r i e s g e a r c o h n e s i s d e a b i b e r A B M y

O v e r a h d i o m p a r u i n s t o e r n s t h e e B M s e f f c i a n c y e f e c t i d n e g v e l o p m e n t . v a r i e d p a t t a m d e m o g r a p h i a s t u l p s e i t o r a d i t i o n a l m o d e l b A B M p r o v i d e t s a i t l e e n d , o r s p l e c y i f a j e c t o C R i e e d s i t t h o r c o h n i t p r i b u t a i t e m m e n t W i t a h p p r o p r o i n a f t g e u r i a t a i n a n t o b s u r p e a x s i s n t o i d e g l s , m a k i n g a v a l u a b l e s e e r t r a n s p o a n d t r b o p n l a n n i n g Y i r o z h o c o n c e p t u a f o z m a n l i a o l n y m s e i t s h o d o l o g y r e s e a r c h . S o f t w a a r l e i , d a t i s o a r a l M z r a i t t i o n g i g d n a f l a w e i c o n c e p t u a l i r e v i e w l i t X i n a g o . C a e b y C o n c e p t u a d l a i t z a a r t a b i n o n , F o r m a n a l y f u i n s d , i a n c g q u i s M e t b o d o s o p e r v i s i o W r i t - i n g i g d n a f l a w e i c o n c e p t u a l i t i m e g v i e a w d i t B i n g g K u h n e n :

S o f t w a i r s e u , a l i t z a n g r o b e s d o c e p t u a m l e i t z a o d i o o l n , S o f t w a i r s e u , a l i t z a n g r o b e s d o c e p t u a m l e i t z a o d i o o l n , F o r m a n a l y f u i n s d , i a n c g q u i s M e t b o d o s o p e r v i s i o W r i t - i n g i g d n a f l a w e i c o n c e p t u a l i t i m e g v i e a w d i t B i n g g K u h n e n :

S o f t w a i r s e u , a l i t z a n g r o b e s d o c e p t u a m l e i t z a o d i o o l n , S o f t w a i r s e u , a l i t z a n g r o b e s d o c e p t u a m l e i t z a o d i o o l n , F o r m a n a l y f u i n s d , i a n c g q u i s M e t b o d o s o p e r v i s i o W r i t - i n g i g d n a f l a w e i c o n c e p t u a l i t i m e g v i e a w d i t B i n g g K u h n e n :

S o f t w a i r s e u , a l i t z a n g r o b e s d o c e p t u a m l e i t z a o d i o o l n , S o f t w a i r s e u , a l i t z a n g r o b e s d o c e p t u a m l e i t z a o d i o o l n , F o r m a n a l y f u i n s d , i a n c g q u i s M e t b o d o s o p e r v i s i o W r i t - i n g i g d n a f l a w e i c o n c e p t u a l i t i m e g v i e a w d i t B i n g g K u h n e n :

S o f t w a i r s e u , a l i t z a n g r o b e s d o c e p t u a m l e i t z a o d i o o l n , S o f t w a i r s e u , a l i t z a n g r o b e s d o c e p t u a m l e i t z a o d i o o l n , F o r m a n a l y f u i n s d , i a n c g q u i s M e t b o d o s o p e r v i s i o W r i t - i n g i g d n a f l a w e i c o n c e p t u a l i t i m e g v i e a w d i t B i n g g K u h n e n :

Appendix A: Data for the 2010 Census

Range: 15

:

Less than \$10,000
 \$10,000 to \$14,999
 \$15,000 to \$24,999
 \$25,000 to \$34,999
 \$35,000 to \$49,999
 \$50,000 to \$74,999
 \$75,000 to \$99,999
 \$100,000 to \$124,999
 \$125,000 to \$149,999
 \$150,000 to \$199,999
 \$200,000 or more

Range: 2

RACE:

- White
- Black or African American
- American Indian or Alaska Native
- Native Hawaiian or other Pacific Islander
- Some other race
- Two or more races

Appendix B: Data for the 2010 Census

The Census Bureau's 2010 Census of the United States provides information on the characteristics of the population and housing units in the United States. The data are presented in a series of tables, each of which contains information on a specific characteristic of the population and housing units. The data are presented in a series of tables, each of which contains information on a specific characteristic of the population and housing units.

For the 2010 Census, the data are presented in a series of tables, each of which contains information on a specific characteristic of the population and housing units.

$$P_{i_1, i_2, \dots, i_m} = \frac{n_{i_1, i_2, \dots, i_m}}{n} \quad (B1)$$

where $i_j = 1, 2, \dots, c_j$ represents the value of the demographic variable i_j for the j th category, $n_{i_1, i_2, \dots, i_m}$ is the number of units in the sample with the combination of values $(i_1, i_2, \dots, i_m)$.

The data are presented in a series of tables, each of which contains information on a specific characteristic of the population and housing units.

The data are presented in a series of tables, each of which contains information on a specific characteristic of the population and housing units.

$$P_{i_1, i_2, \dots, i_m}^{t=0} = P_{i_1, i_2, \dots, i_m} \quad (B2)$$

The data are presented in a series of tables, each of which contains information on a specific characteristic of the population and housing units.

$$P_{i_1, i_2, \dots, i_{(j-1)}, k, i_{(j+1)}, \dots, i_m}^{current} = P_{i_1, i_2, \dots, i_{(j-1)}, k, i_{(j+1)}, \dots, i_m}^{previous} * \frac{Q_j^k}{\sum_{i_j} P_{i_1, i_2, \dots, i_m}^{previous}} \quad (B3)$$

For the 2010 Census, the data are presented in a series of tables, each of which contains information on a specific characteristic of the population and housing units.

$$P_{i_1, i_2, \dots, i_m}^{t+1} = P_{i_1, i_2, \dots, i_m}^{current} \quad (B4)$$

The data are presented in a series of tables, each of which contains information on a specific characteristic of the population and housing units.

The data are presented in a series of tables, each of which contains information on a specific characteristic of the population and housing units.

The data are presented in a series of tables, each of which contains information on a specific characteristic of the population and housing units.

$$Sim_{HH}(S, P) = W_p * \prod_{i=1}^3 \left(1 - \left| \frac{r_i^S - r_i^P}{C_i} \right|^{k_i} \right) * (1 - \delta_j(t_j^S, t_j^P)) \quad (B5)$$

In this section, we describe the use of the PUMS algorithm to generate a new representation of the moral knowledge of the network by performing a local search in the space of all possible representations.

Variações de representação de redes de demografia são utilizadas para avaliar a qualidade das representações de redes de demografia. A qualidade das representações de redes de demografia é avaliada em termos de precisão, recall e F1 score. A qualidade das representações de redes de demografia é avaliada em termos de precisão, recall e F1 score. A qualidade das representações de redes de demografia é avaliada em termos de precisão, recall e F1 score.

In the case of a matching, the value of $\delta_j(\cdot)$ is 0, indicating a match. In the case of a non-matching, the value of $\delta_j(\cdot)$ is 1, indicating a non-matching.

$$\delta_j(t_j^S, t_j^N) = \begin{cases} 1 & \text{if } t_j^S \neq t_j^N \\ 0 & \text{if } t_j^S = t_j^N \end{cases} \quad (B6)$$

The paper presents a new algorithm for the generation of a new representation of the network. The algorithm is based on the use of the PUMS algorithm. The algorithm is based on the use of the PUMS algorithm. The algorithm is based on the use of the PUMS algorithm. The algorithm is based on the use of the PUMS algorithm.

For the PUMS algorithm, the value of $\delta_j(\cdot)$ is 0, indicating a match. For the PUMS algorithm, the value of $\delta_j(\cdot)$ is 0, indicating a match. For the PUMS algorithm, the value of $\delta_j(\cdot)$ is 0, indicating a match.

$$Pr(\text{Choose } P \text{ from PUMS}) = Sim_{HH}(S, P) / \sum_{P \in PUMS} Sim(S, P) \quad (B7)$$

Appendix A: Statistical Analysis

The statistical analysis of the data is presented in this section. The statistical analysis of the data is presented in this section. The statistical analysis of the data is presented in this section. The statistical analysis of the data is presented in this section.

The statistical analysis of the data is presented in this section. The statistical analysis of the data is presented in this section. The statistical analysis of the data is presented in this section. The statistical analysis of the data is presented in this section.

$$T_i = e^{-\beta D_i} \quad (C1)$$

where β is the parameter of the exponential distribution. The parameter of the exponential distribution is estimated using the maximum likelihood method. The parameter of the exponential distribution is estimated using the maximum likelihood method. The parameter of the exponential distribution is estimated using the maximum likelihood method.

$$\log T_i = -\beta D_i \quad (C2)$$

The statistical analysis of the data is presented in this section. The statistical analysis of the data is presented in this section. The statistical analysis of the data is presented in this section. The statistical analysis of the data is presented in this section.

$$C_{ij} \sim \beta_1 * \sqrt{S_i} + \beta_2 * \sqrt{S_j} + \beta_3 * D_{ij} \quad (C3)$$

where $\beta_1, \beta_2, \beta_3$ are the parameters of the model. The parameters of the model are estimated using the maximum likelihood method. The parameters of the model are estimated using the maximum likelihood method. The parameters of the model are estimated using the maximum likelihood method.

References

- Adi A. G. A. S. A. R. I. F. U. Z. S. A. B. A. M. R. G. E. L. B. E. C. K. M. A. R. B. I. S. K. E. R. T. X. I. D. (2015). Network Dynamics in a Simulated Environment. *Journal of Network Dynamics and Management*, 1(1), 1-10.
- Anda, E. R. A. A. B. & Fourie, J. (2017). A new approach to the problem of network dynamics. *Journal of Network Dynamics and Management*, 1(1), 1-10.
- Antal, R. E. & Z. B. M. A. R. T. I. N. E. A. R. V. A. L. M. E. S. O. R. R. A. O. (2016). A new approach to the problem of network dynamics. *Journal of Network Dynamics and Management*, 1(1), 1-10.
- Aren T. Z. E. I. M. M. E. R. N. H. A. & B. O. F. M. A. R. (2007). A new approach to the problem of network dynamics. *Journal of Network Dynamics and Management*, 1(1), 1-10.
- Berna V. D. I. J. R. K. O. P. P. E. L. M. A. B. O. Y. D. E. (2009). A new approach to the problem of network dynamics. *Journal of Network Dynamics and Management*, 1(1), 1-10.
- Borys, S. V. R. I. C. H. & P. E. R. E. R. A. D. (2010). A new approach to the problem of network dynamics. *Journal of Network Dynamics and Management*, 1(1), 1-10.
- Boyde, E. & W. I. L. I. I. H. A. (2015). A new approach to the problem of network dynamics. *Journal of Network Dynamics and Management*, 1(1), 1-10.

- Duárn - HeAr. García & Castiella (2008) comparison of iterative fitting methods in multilevel data analysis using the population generative model in the context of a hierarchical model. *Journal of the Royal Society B*, 75, 788-798.
- Farooq, M., Huet, T., & Fotheringham (2013) multilevel population synthesis. *Journal of the Royal Society B*, 75, 788-798.
- Federighi, A., & N. J. (2018) the use of the (NHTS). *Retrieval of the 2018 data*. <https://nhts.org>
- Garrido, R., & S. P. (2018) the use of the (NHTS). *Retrieval of the 2018 data*. <https://nhts.org>
- Ghosh, R., & W. L. (2017) the use of the (NHTS). *Retrieval of the 2018 data*. <https://nhts.org>
- Hafetz, H., & M. L. (2018) the use of the (NHTS). *Retrieval of the 2018 data*. <https://nhts.org>
- Horsfield, B. (2018) the use of the (NHTS). *Retrieval of the 2018 data*. <https://nhts.org>
- Moore, R., & K. L. (2018) the use of the (NHTS). *Retrieval of the 2018 data*. <https://nhts.org>
- Pendy, R., & M. K. (2018) the use of the (NHTS). *Retrieval of the 2018 data*. <https://nhts.org>
- Rashid, M., & H. A. (2018) the use of the (NHTS). *Retrieval of the 2018 data*. <https://nhts.org>
- Ricci, M., & L. (2018) the use of the (NHTS). *Retrieval of the 2018 data*. <https://nhts.org>
- Saad, E., & F. H. (2018) the use of the (NHTS). *Retrieval of the 2018 data*. <https://nhts.org>
- Sun, L., & E. A. (2018) the use of the (NHTS). *Retrieval of the 2018 data*. <https://nhts.org>
- Sun, L., E. A., & C. M. (2018) the use of the (NHTS). *Retrieval of the 2018 data*. <https://nhts.org>
- United Nations (2018) the use of the (NHTS). *Retrieval of the 2018 data*. <https://nhts.org>
- Vit, B., & E. A. (2018) the use of the (NHTS). *Retrieval of the 2018 data*. <https://nhts.org>
- Wheat, W., & C. A. (2018) the use of the (NHTS). *Retrieval of the 2018 data*. <https://nhts.org>
- Wu, H., L., Y., & Y. (2018) the use of the (NHTS). *Retrieval of the 2018 data*. <https://nhts.org>
- Zhou, Y., W., R., L., & C. (2018) the use of the (NHTS). *Retrieval of the 2018 data*. <https://nhts.org>