A Farewell to Army Segregation: The Effects of Racial Integration During the Korean War

Daniel Indacochea

University of Toronto

July 19, 2020

Origins of military integration: Korean War (1950 - 1953)

Origins of military integration: Korean War (1950 - 1953)

- Blacks had served in every major American conflict, but always in segregated units.

Origins of military integration: Korean War (1950 - 1953)

- Blacks had served in every major American conflict, but always in segregated units.
- Start of Korean War (Jun 1950):

Origins of military integration: Korean War (1950 - 1953)

- Blacks had served in every major American conflict, but always in segregated units.
- Start of Korean War (Jun 1950):
  - All-white units assigned combat roles.

Origins of military integration: Korean War (1950 - 1953)

- Blacks had served in every major American conflict, but always in segregated units.
- Start of Korean War (Jun 1950):
  - All-white units assigned combat roles.
  - All-blacks units were confined to non-combat support roles.

Origins of military integration: Korean War (1950 - 1953)

- Blacks had served in every major American conflict, but always in segregated units.
- Start of Korean War (Jun 1950):
  - All-white units assigned combat roles.
  - All-blacks units were confined to non-combat support roles.
- First six months of war: all-white units became severely depleted, so a handful received black replacements.

Origins of military integration: Korean War (1950 - 1953)

- Blacks had served in every major American conflict, but always in segregated units.
- Start of Korean War (Jun 1950):
  - All-white units assigned combat roles.
  - All-blacks units were confined to non-combat support roles.
- First six months of war: all-white units became severely depleted, so a handful received black replacements.
  - This practice became official Army policy midway through war.

Origins of military integration: Korean War (1950 - 1953)

- Blacks had served in every major American conflict, but always in segregated units.
- Start of Korean War (Jun 1950):
  - All-white units assigned combat roles.
  - All-blacks units were confined to non-combat support roles.
- First six months of war: all-white units became severely depleted, so a handful received black replacements.
  - This practice became official Army policy midway through war.
  - By the end of the war, eighty years of Jim Crow Era segregation in the military was dismantled.

Research questions

- How did integration affect the productivity of combat teams?
- Did integration reduce interracial prejudice among veterans after the war?

Outcomes of interest

- Productivity outcome:
    1. Survival rates of wounded soldiers.
- Prejudice outcomes:
    1. Where soldiers lived.
    2. Whom they married.

Korean War a suitable setting to study racial integration

1. Timing and scale: one of the earliest desegregation episodes, with over 1.8 million Americans serving in-theater.

2. Variation: different units integrated at different times.

3. Compliance: individual soldiers served in 12-month rotations and had little control over which units they were assigned to.

4. Contemporaneous evidence: Army commissioned study of productivity and prejudice during war (Bogart 1969).

This paper

This paper

- I use casualty data (i.e. killed or wounded) to construct a similarity index for each unit to quantify integration.

This paper

- I use casualty data (i.e. killed or wounded) to construct a similarity index for each unit to quantify integration.
- I estimate the effect of integration on:

This paper

- I use casualty data (i.e. killed or wounded) to construct a similarity index for each unit to quantify integration.
- I estimate the effect of integration on:
  1. Casualty survival rates.

This paper

- I use casualty data (i.e. killed or wounded) to construct a similarity index for each unit to quantify integration.
- I estimate the effect of integration on:
  1. Casualty survival rates.
  2. Residential sorting.

This paper

- I use casualty data (i.e. killed or wounded) to construct a similarity index for each unit to quantify integration.
- I estimate the effect of integration on:
  1. Casualty survival rates.
  2. Residential sorting.
     - I construct a similarity index for the soldier's last zip code of residence.

This paper

- I use casualty data (i.e. killed or wounded) to construct a similarity index for each unit to quantify integration.
- I estimate the effect of integration on:
  1. Casualty survival rates.
  2. Residential sorting.
     - I construct a similarity index for the soldier's last zip code of residence.
  3. Intermarriage.

This paper

- I use casualty data (i.e. killed or wounded) to construct a similarity index for each unit to quantify integration.
- I estimate the effect of integration on:
  1. Casualty survival rates.
  2. Residential sorting.
     - I construct a similarity index for the soldier's last zip code of residence.
  3. Intermarriage.
     - I proxy for wife's race using her first name, year of birth and state of death.

This paper

- I use casualty data (i.e. killed or wounded) to construct a similarity index for each unit to quantify integration.
- I estimate the effect of integration on:
  1. Casualty survival rates.
  2. Residential sorting.
     - I construct a similarity index for the soldier's last zip code of residence.
  3. Intermarriage.
     - I proxy for wife's race using her first name, year of birth and state of death.
- Identification: segregated units serve as counterfactuals for what would have happened in integrated units.

Preview of results

Preview of results

- During war:

Preview of results

- During war:
  - De facto integration increased markedly: $\rho = 0.02 \rightarrow 0.91$.

Preview of results

- During war:
  - De facto integration increased markedly: $\rho = 0.02 \rightarrow 0.91$.
  - A standard deviation (SD) increase in integration increased white casualty survival by 3% but decreased black survival by 3%.

Preview of results

- During war:
  - De facto integration increased markedly: $\rho = 0.02 \rightarrow 0.91$.
  - A standard deviation (SD) increase in integration increased white casualty survival by 3% but decreased black survival by 3%.
    - This reflects blacks joining whites in hazardous combat roles.

Preview of results

- During war:
  - De facto integration increased markedly: $\rho = 0.02 \rightarrow 0.91$.
  - A standard deviation (SD) increase in integration increased white casualty survival by 3% but decreased black survival by 3%.
    - This reflects blacks joining whites in hazardous combat roles.
  - Overall survival rates increased by almost 3%.

Preview of results

- During war:
  - De facto integration increased markedly: $\rho = 0.02 \rightarrow 0.91$.
  - A standard deviation (SD) increase in integration increased white casualty survival by 3% but decreased black survival by 3%.
    - This reflects blacks joining whites in hazardous combat roles.
  - Overall survival rates increased by almost 3%.
- After war: a SD increase in integration

Preview of results

- During war:
  - De facto integration increased markedly: $\rho = 0.02 \rightarrow 0.91$.
  - A standard deviation (SD) increase in integration increased white casualty survival by 3% but decreased black survival by 3%.
    - This reflects blacks joining whites in hazardous combat roles.
  - Overall survival rates increased by almost 3%.
- After war: a SD increase in integration
  - increased zip code similarity by 0.04 SDs.

Preview of results

- During war:
  - De facto integration increased markedly: $\rho = 0.02 \rightarrow 0.91$.
  - A standard deviation (SD) increase in integration increased white casualty survival by 3% but decreased black survival by 3%.
    - This reflects blacks joining whites in hazardous combat roles.
  - Overall survival rates increased by almost 3%.
- After war: a SD increase in integration
  - increased zip code similarity by 0.04 SDs.
  - increased non-white name index by 0.02 SDs.

Preview of results

- During war:
  - De facto integration increased markedly: $\rho = 0.02 \rightarrow 0.91$.
  - A standard deviation (SD) increase in integration increased white casualty survival by 3% but decreased black survival by 3%.
    - This reflects blacks joining whites in hazardous combat roles.
  - Overall survival rates increased by almost 3%.
- After war: a SD increase in integration
  - increased zip code similarity by 0.04 SDs.
  - increased non-white name index by 0.02 SDs.
    - Both effect sizes larger for younger cohorts (0.08 and 0.06 SDs, resp).

Road map for this talk

- Measuring integration.
  - Data: Korean War casualty file.
  - Similarity index.
- Outcome 1: casualty survival rates.
  - Model, identification, results.
- Outcome 2: Residential sorting.
  - Data: Social security death file, Census block data.
  - Model, identification, results.
- Outcome 3: Intermarriage.
  - Data: National Cemetery Data, SS-5 forms.
  - Model, identification, results.
- Conclusion.

Military units in U.S. Army

Units	Strength	Typical commander
Region/Theater	4+ Army Groups	Six-Star Rank
Army Group Front	2+ Field Armies	Five-Star General
Field Army	100,000-300,000	General
Corps	30,000-50,000	Lieutenant General
Division	10,000-25,000	Major General
[a]**Regiment/Brigade**	1,000-5,500	Colonel/Brigadier General
[b]Battalion/Cohort	300-800	Lieutenant Colonel
[b]Company	80-150	Captain/Major
[b]Platoon	15-45	Lieutenant
[b]Squad/Section	8-14	Sergeant
[b]Fireteam	2-4	Lance Corporal/Corporal

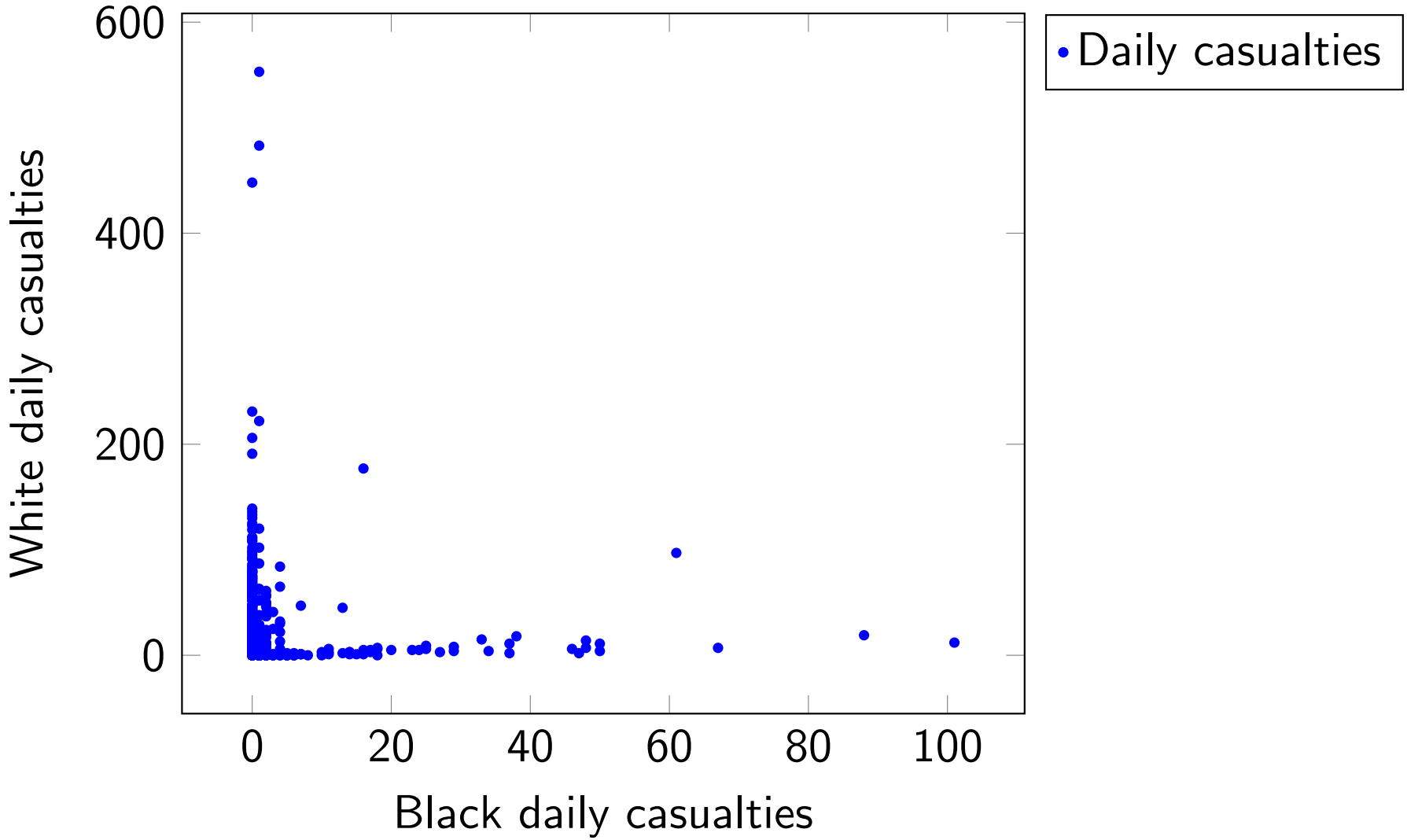
Notes: [a]I observe which regiment individual soldiers served in.

[b]Formally segregated before Oct 1951.

Data: Army casualties only

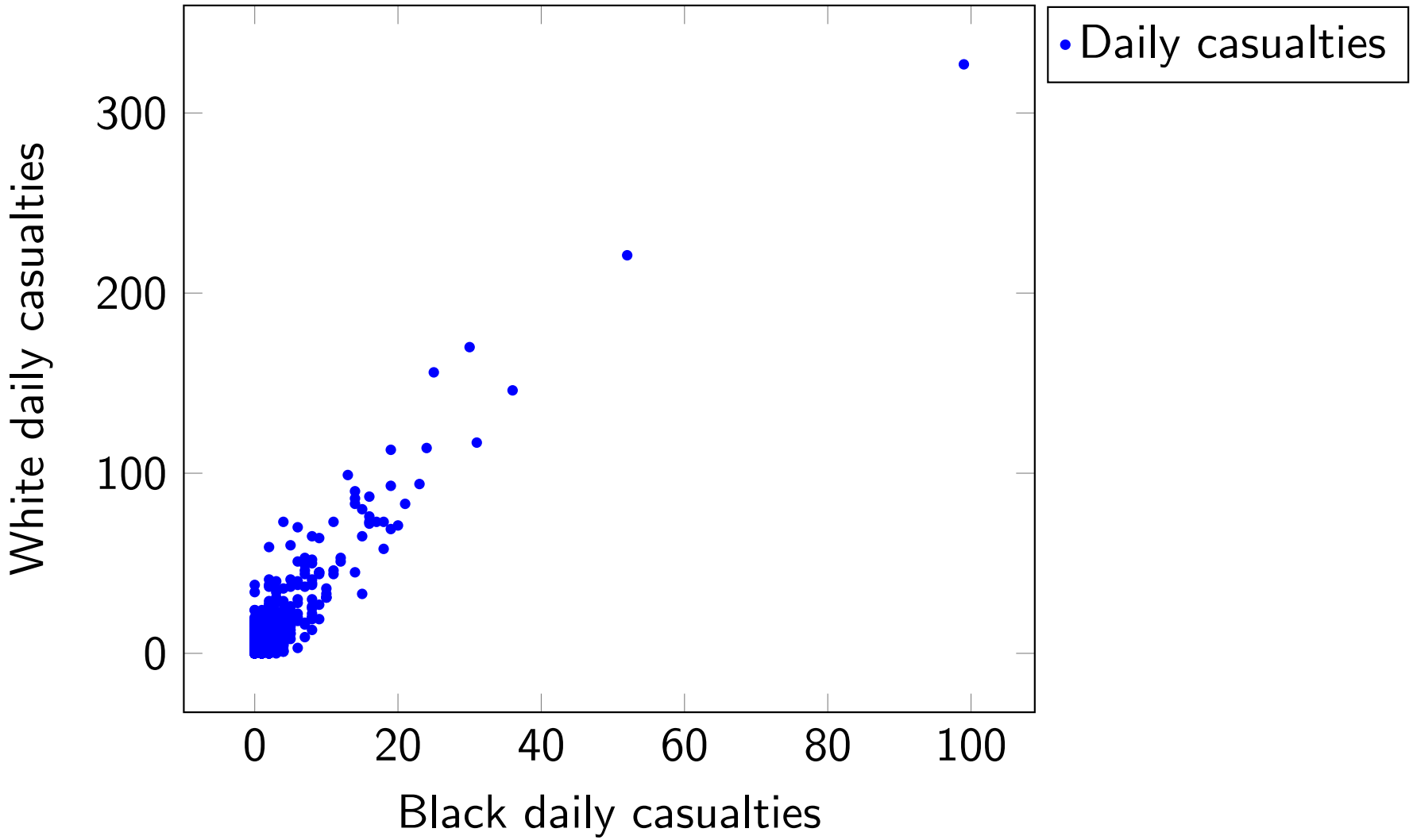
- The Adjutant General's Office Korean (TAGOKOR) casualty file.
  - Casualty type (killed/wounded), date of casualty, race and regiment.
  - Contains county of residence, first/last names, and middle initial.
    - Contains year of birth if killed in action.
  - $n_{white} \approx 92,000$, $n_{black} \approx 12,000$.

White vs black daily casualties (months 1-3) ($\rho = 0.02$)



Scaled

White vs black daily casualties after formal integration (last 12 months) ($\rho = 0.91$)



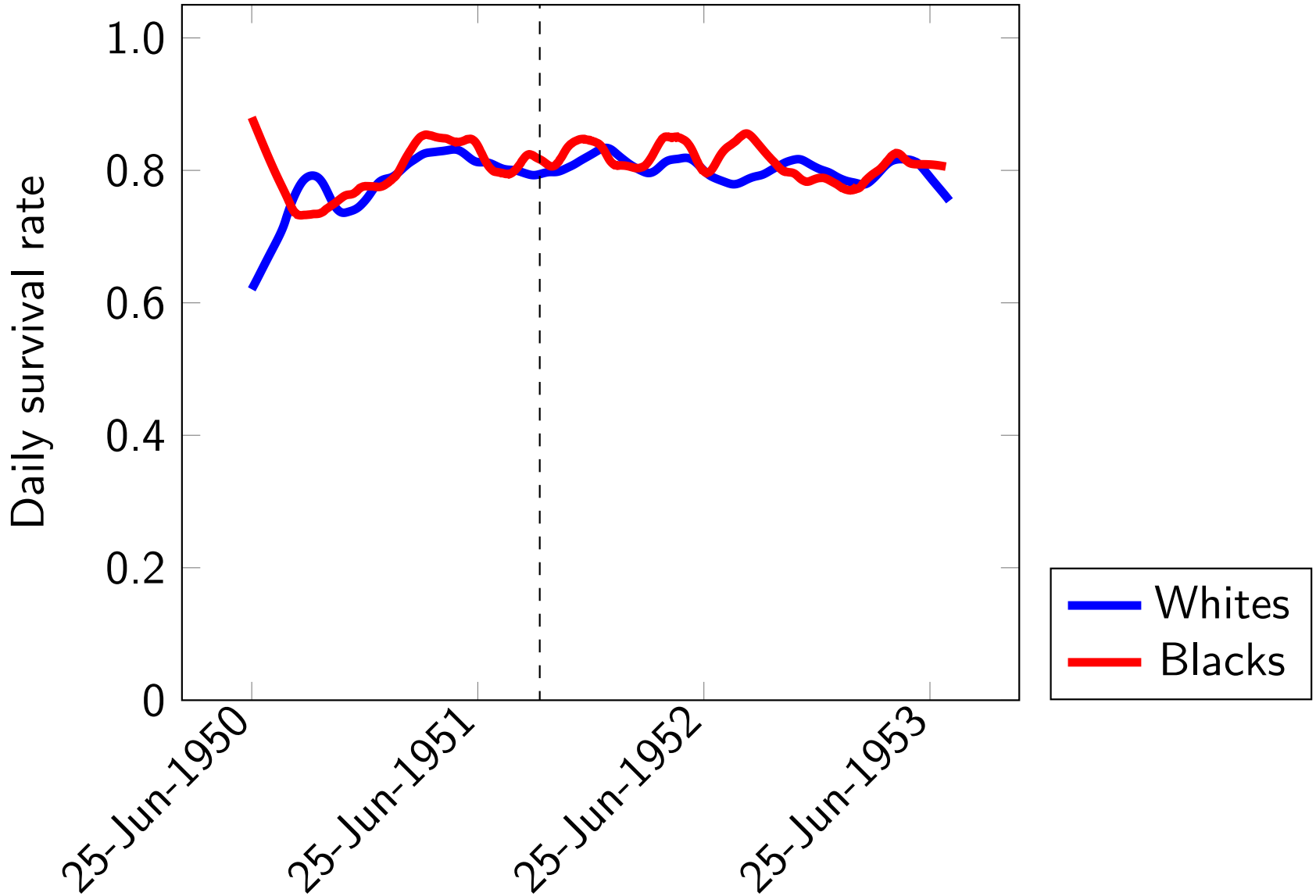
Example: Informal integration in 9th Regiment (Sep 1950)

⏩ Case study

Results

1. Casualties survival rates

White and black casualty survival probabilities (LOWESS)



Raw data

Model

- I test this relationship with a linear model:

$$y_{irt} = \beta_0 + \beta_1 s_{rt}^{BW} + \boldsymbol{X}_{irt}\boldsymbol{\beta}_2 + \lambda_t + \gamma_r + \varepsilon_{irt},$$

with

  - $y_{irt} = 1$ if soldier survived casualty, 0 otherwise,
  - s_{rt}^{BW} is the similarity index, ⏩ Defining Similarity Index
  - $\boldsymbol{X}_{irt}$ is a vector of individual-level controls,
  - λ_t and γ_r are time and regiment (i.e. group) fixed effects.

- Identification assumption:

$$\mathbf{E}(\varepsilon_{irt} | s_{rt}^{BW}, \boldsymbol{X}_{irt}, \lambda_t, \gamma_r) = 0.$$ ⏩ Parallel Trends

  i.e. Integration is exogenous conditional on fixed effects.

The effects of integration on survival

Balance Test

Dependent variable y_{irt}: individual's casualty survival dummy

	Whites		Blacks		Pooled
	(1)	(2)	(3)	(4)	(5)
Similarity	0.031**	0.022**	-0.013	-0.030*	0.019**
	(0.013)	(0.010)	(0.016)	(0.015)	(0.011)
Private		-0.015**		-0.037**	-0.019***
		(0.006)		(0.016)	(0.007)
N	42,725	42,725	6,159	6,159	48,884
Regiment FE	Y	Y	Y	Y	Y
Period FE	Y	Y	Y	Y	Y
$\overline{y}_{r,t-1}$	N	Y	N	Y	Y

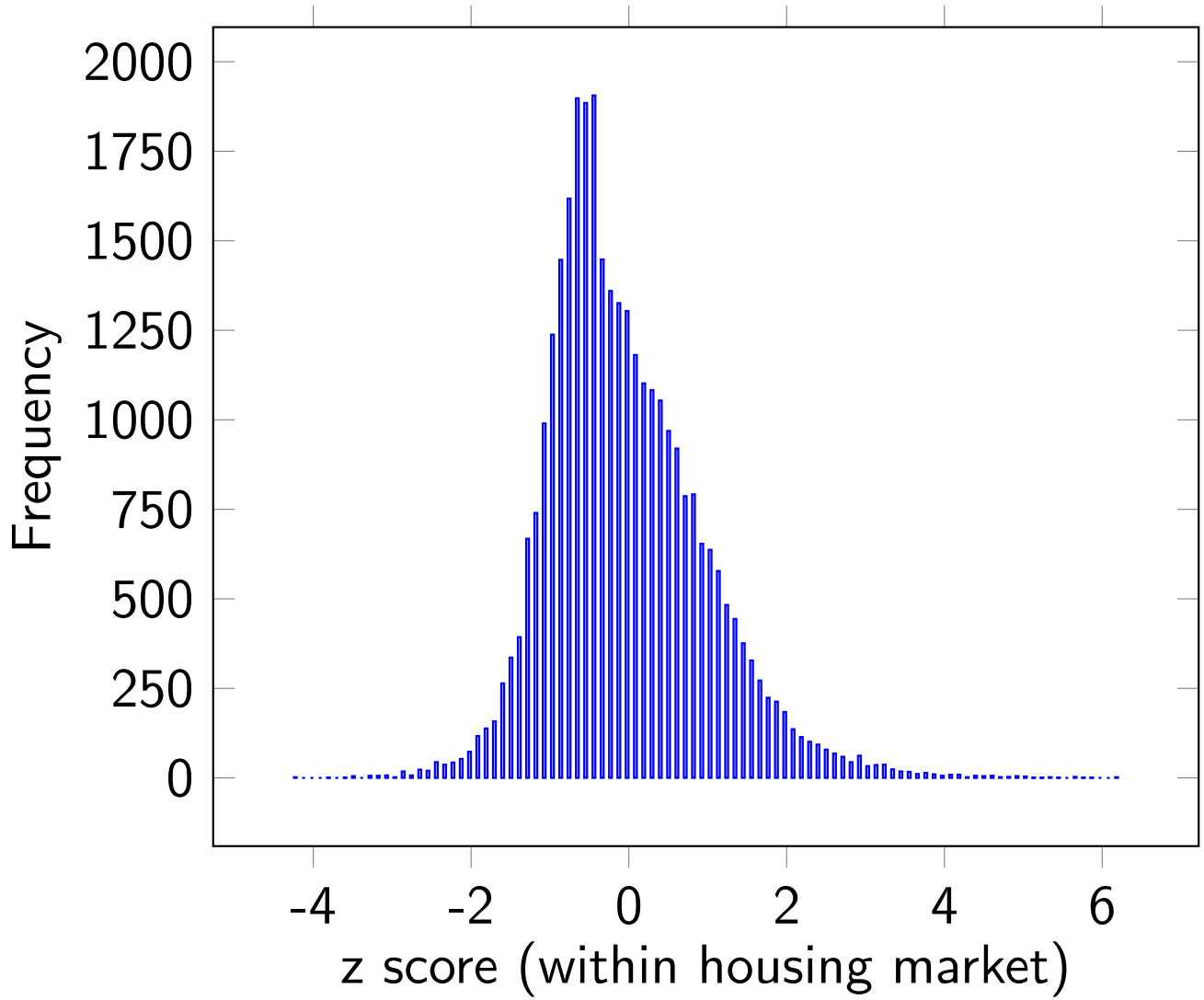
Results

1. Casualties survival rates
2. Residential sorting

Data for residential sorting: Social Security Death Index

- I link veterans in casualty file to Social Security Death Index (SSDI) using the Expectation Maximization algorithm.
  ⏩ Match Quality
- SSDI contains last zip code of residence.
- Dependent variable y_{zt}: similarity index for each zip code-year (i.e. z, t) pair. ⏩ Construction
  - I standardize y_{zt} within its core-based statistical area (CBSA).
- Question: Did integration during the war lead veterans to live in more integrated neighbourhoods?

Similarity index for all US zip codes (2010, standardized)



The effects of integration on residential sorting

Dependent variable: last zip code similarity index

	Whites		Blacks	
	All	Young	All	Young
Similarity (s_i^{BW})	0.036**	0.082**	0.055	0.110
	(0.014)	(0.023)	(0.065)	(0.132)
Regiment/period % black	-0.031	0.025	-0.052	-0.099
	(0.027)	(0.042)	(0.101)	(0.103)
Last zip mean hp	0.211***	0.244***	0.102***	0.141***
	(0.013)	(0.012)	(0.015)	(0.014)
Last zip black share	0.441***	0.453***	0.080***	0.141***
	(0.010)	(0.026)	(0.016)	(0.035)
N	11,063	3,821	1,587	280

Note: Period, regiment & state FEs and origin county characteristics included.

Results

1. Casualties survival rates
2. Residential sorting
3. Intermarriage

Data for intermarriage: 135 national cemeteries across US

- Eligibility: any war veteran not dishonorably discharged.
- Cemetery services provided at no cost to soldiers' families.
- Identifies wife, but not her race.
  - I use social security data to construct name index.

$$\mathbf{P}(\textit{nonwhite}_i = 1 | \text{first name, YOB, state of death}),$$
$$\mathbf{P}(\textit{black}_i = 1 | \text{first name, YOB, state of death}).$$ Histogram

- I estimate both OLS and fractional model.

Effect of integration on intermarriage (young whites)

Dependent variable: wife's name index

	$\mathbf{P}(nonwhite_i = 1)$		$\mathbf{P}(black_i = 1)$	
	OLS	Fractional	OLS	Fractional
	(1)	(2)	(3)	(4)
Similarity (s_{rt}^{BW})	0.018^{*}	0.335^{***}	0.024^{**}	0.510^{***}
	(0.008)	(0.128)	(0.008)	(0.169)
		$[0.031]^{*}$		$[0.038]^{***}$
Origin county %black	-0.011^{***}	-0.045	-0.015	-0.061
	(0.003)	(0.039)	(0.009)	(0.046)
Age at casualty	-0.001	-0.009	0.003	0.004
	(0.012)	(0.022)	(0.008)	(0.027)
N	664	664	664	664
Period/Regiment FE	Y	Y	Y	Y
State of res FE	Y	Y	Y	Y

Conclusion

- Korean War provides unique setting to learn about racial integration.
- The timing of black and white casualties contains information about the extent of integration.
- Integration improved overall survival by efficiently allocating scarce labor.
  - Future work will consider additional measure of productivity (e.g. unit citations).
- Post-war behaviour of veterans provides suggestive evidence large-scale intergroup contact reduces prejudice long-term.

Defining integration using similarity index

- Let B_{rd}, W_{rd} be the number black/white casualties in regiment r on day d.
- I divide the war into nine equal periods denoted by $t \in \{1, ..., 9\}$.
- D_t is the set of days in period t (e.g. $D_1 = \{1, \ldots, 125\}$.)
- Total black/white casualties in regiment/period r, t:

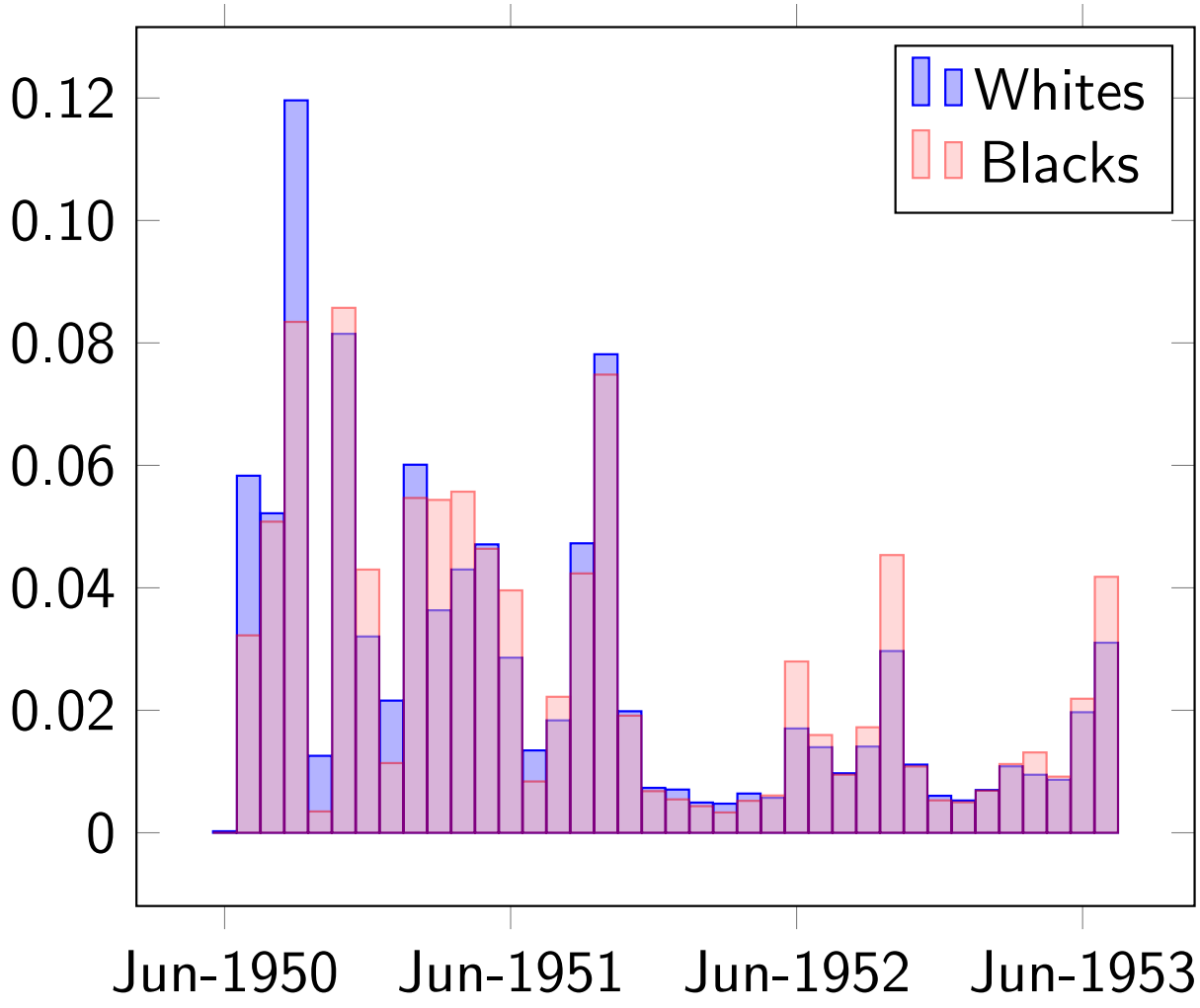
$$B_{rt}^{Total} \equiv \sum_{d \in D_t} B_{rd}; \qquad W_{rt}^{Total} \equiv \sum_{d \in D_t} W_{rd},$$

Similarity index: $s_{rt}^{BW} \equiv 1 - \frac{1}{2} \sum_{d \in D_t} \left| \frac{B_{rd}}{B_{rt}^{Total}} - \frac{W_{rd}}{W_{rt}^{Total}} \right|.$

⏩ Histogram

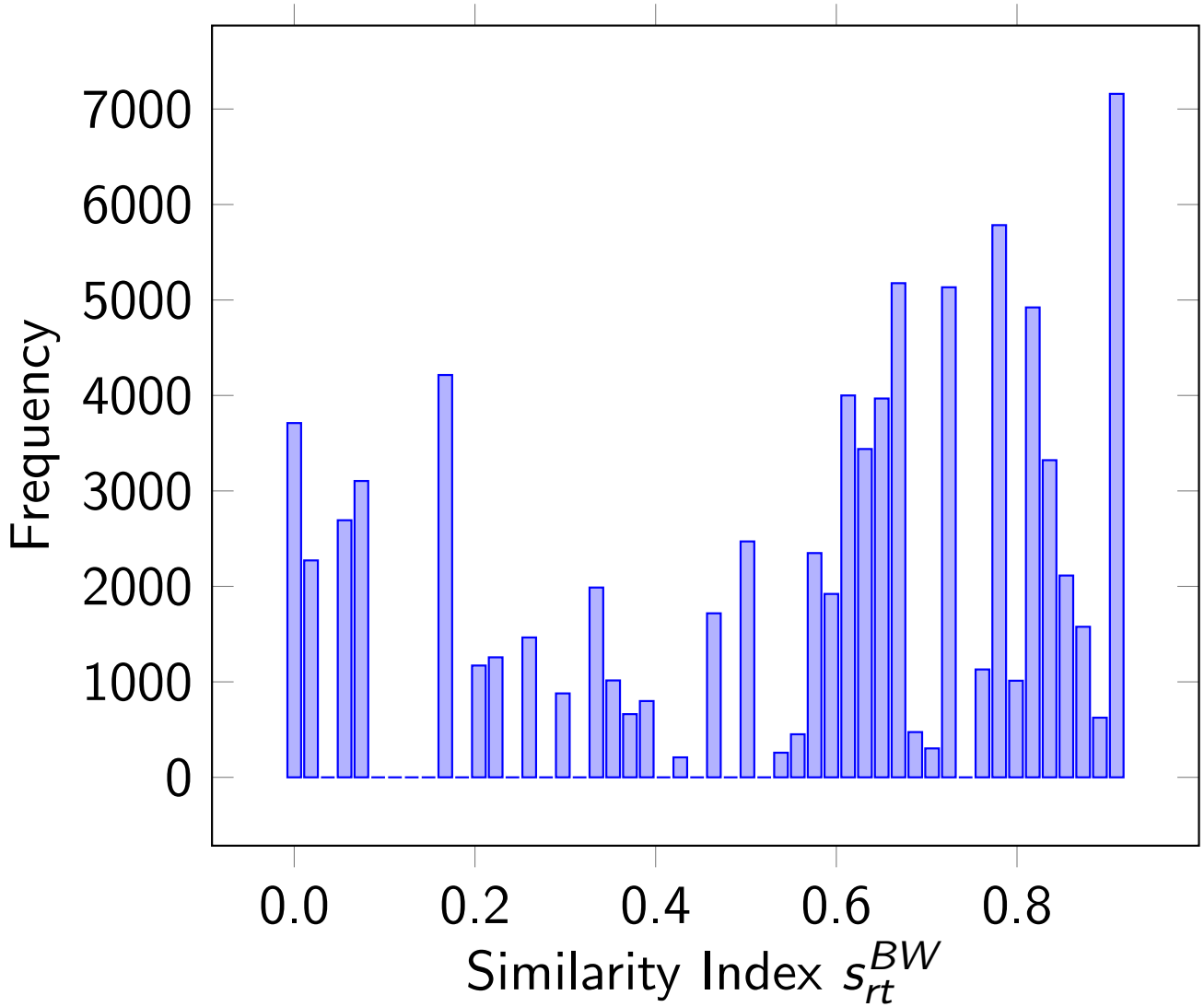
⏩ Back

White and black monthly casualties shares (not stacked)



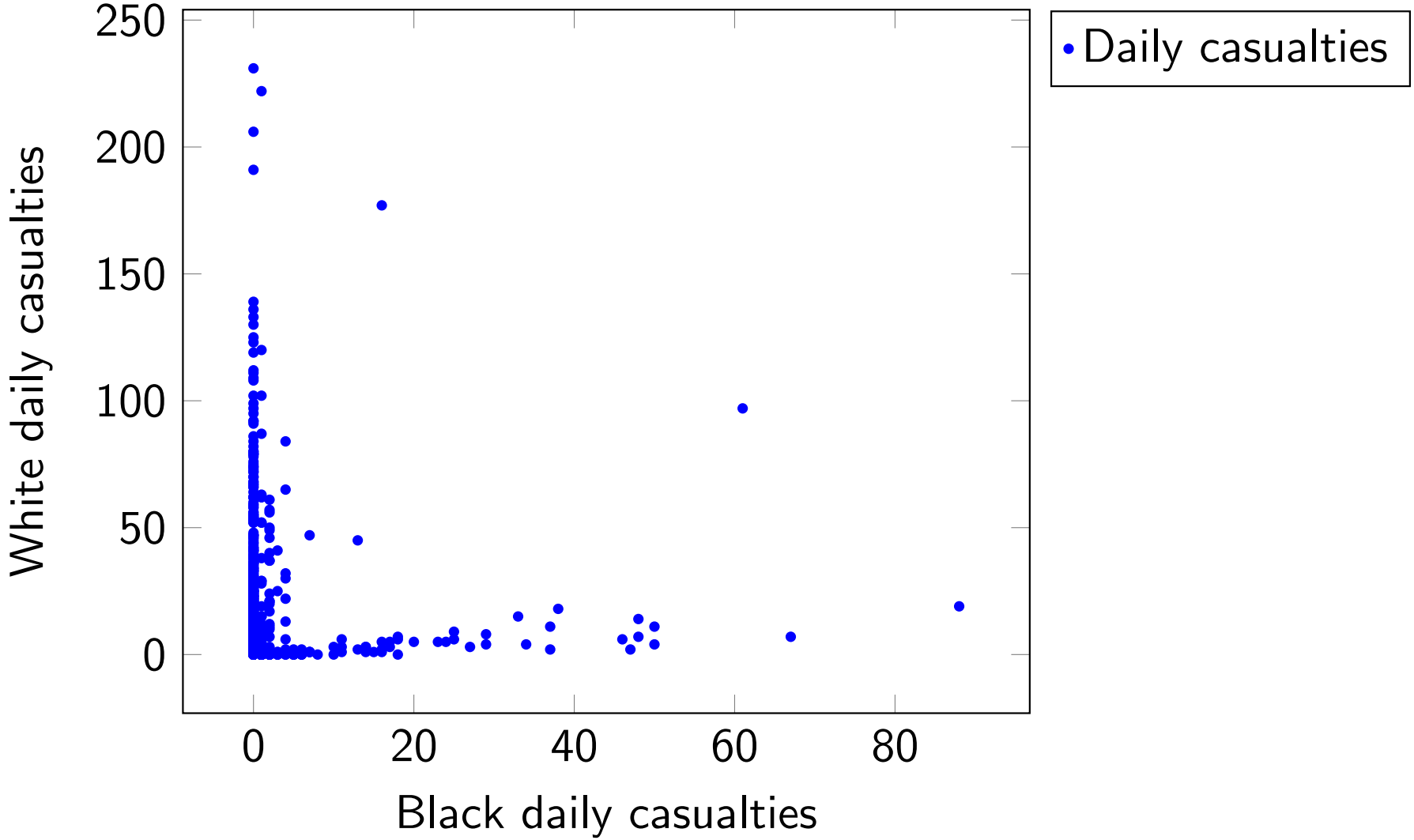
Back

Defining integration



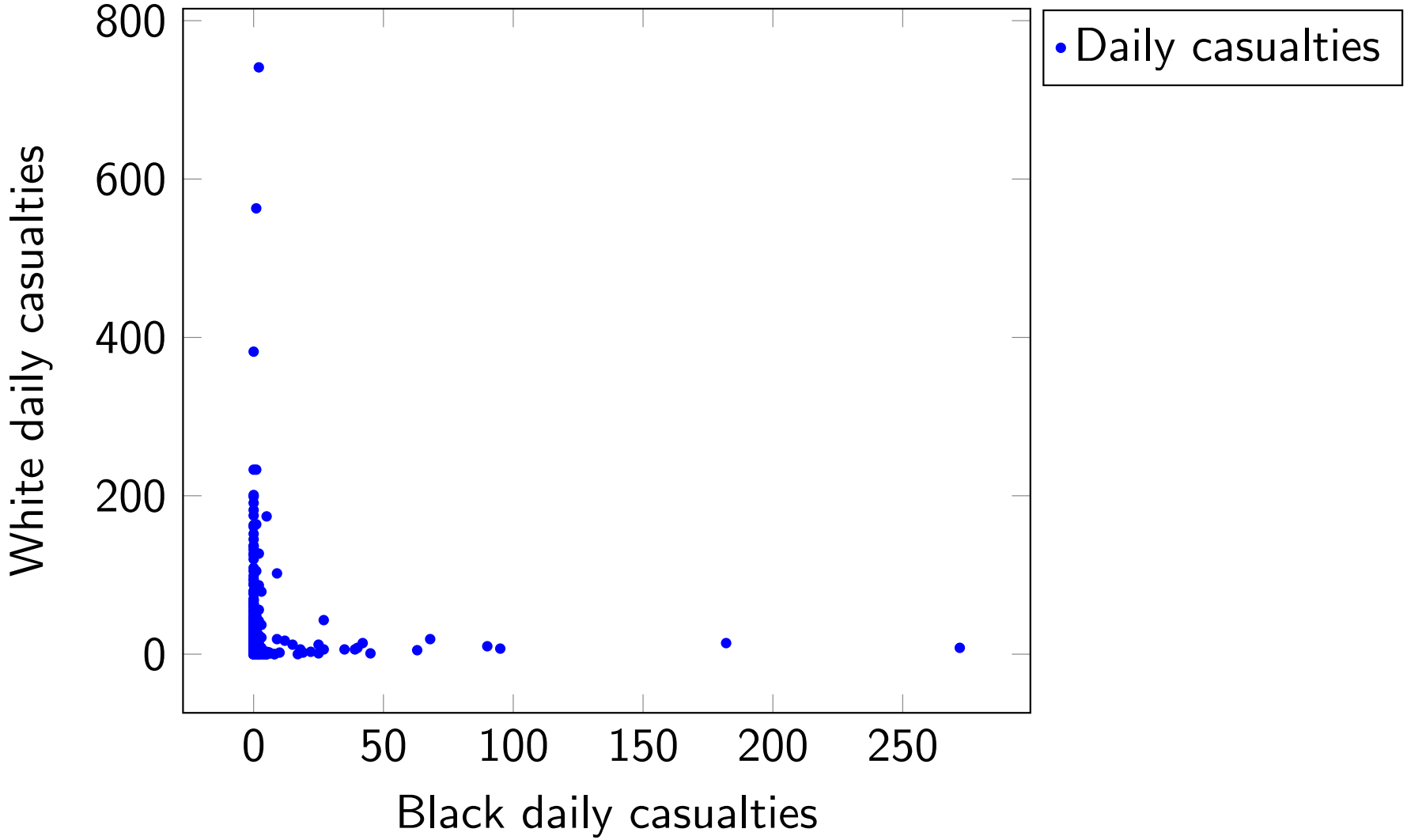
Back

White vs black daily casualties first three months ($\rho = 0.03$)

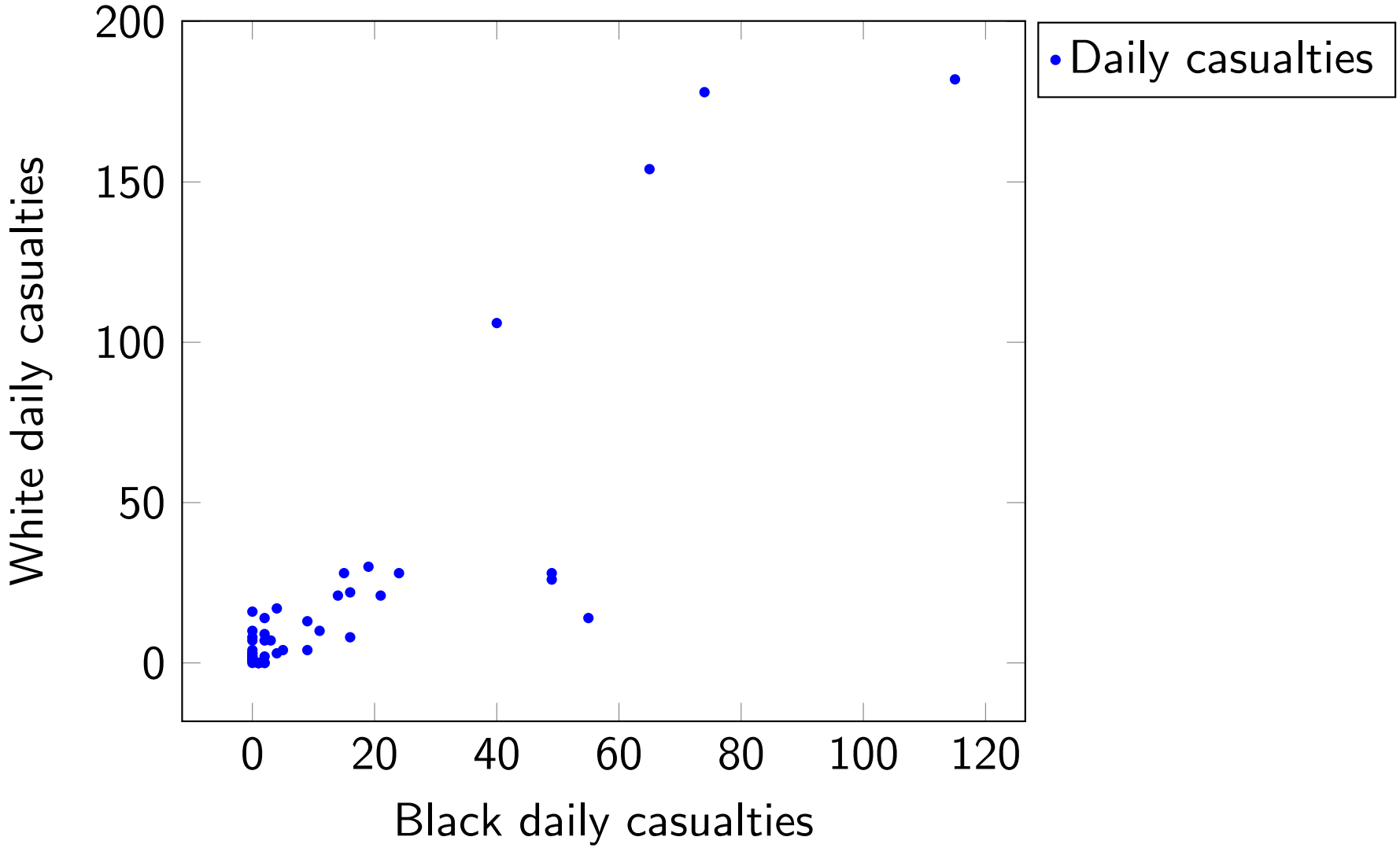


Back

White vs black daily casualties excluding 9th (months 4-6) ($\rho = 0.01$)



White vs black daily casualties in 9th regiment (months 4-6) ($\rho = 0.88$)



Back

Identification

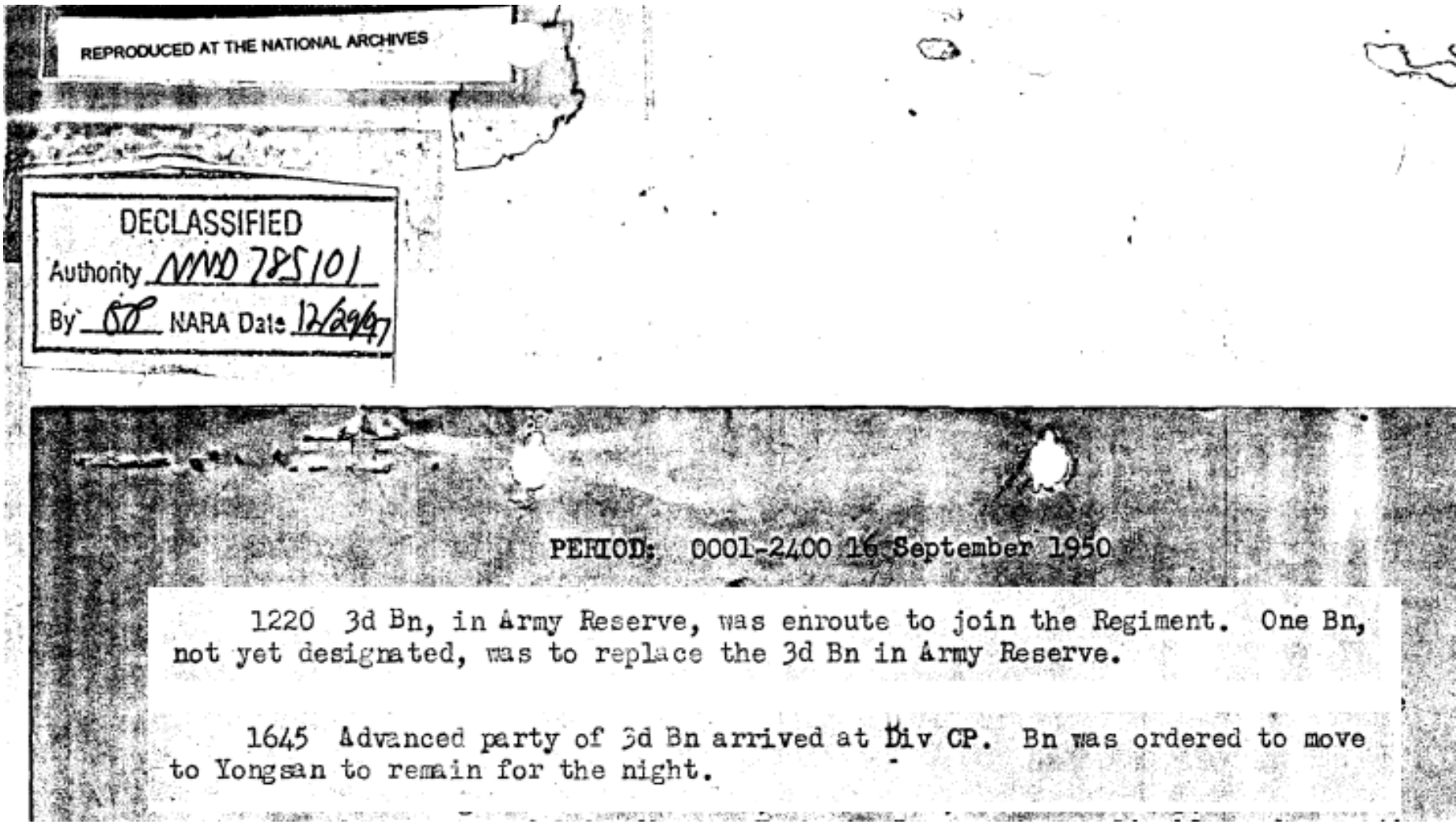
- Consider again

$$y_{irt} = \beta_0 + \beta_1 s_{rt}^{BW} + \boldsymbol{X}_{irt}\boldsymbol{\beta}_2 + \lambda_t + \gamma_r + \varepsilon_{irt},$$

- This model predicts that in periods when s_{rt}^{BW} is constant, two regiments should exhibit parallel trends.

- From regimental war diaries, I know that the 9^{th} regiment's all-black 3^{rd} battalion reunited with all-white 1^{st} and 2^{nd} battalions on 16-Sep-1950.

9th Infantry Regimental War Diary (Sep 1950)



PERIOD: 0001-2400 16 September 1950

1220 3d Bn, in Army Reserve, was enroute to join the Regiment. One Bn, not yet designated, was to replace the 3d Bn in Army Reserve.

1645 Advanced party of 3d Bn arrived at Div CP. Bn was ordered to move to Yongsan to remain for the night.

Identification

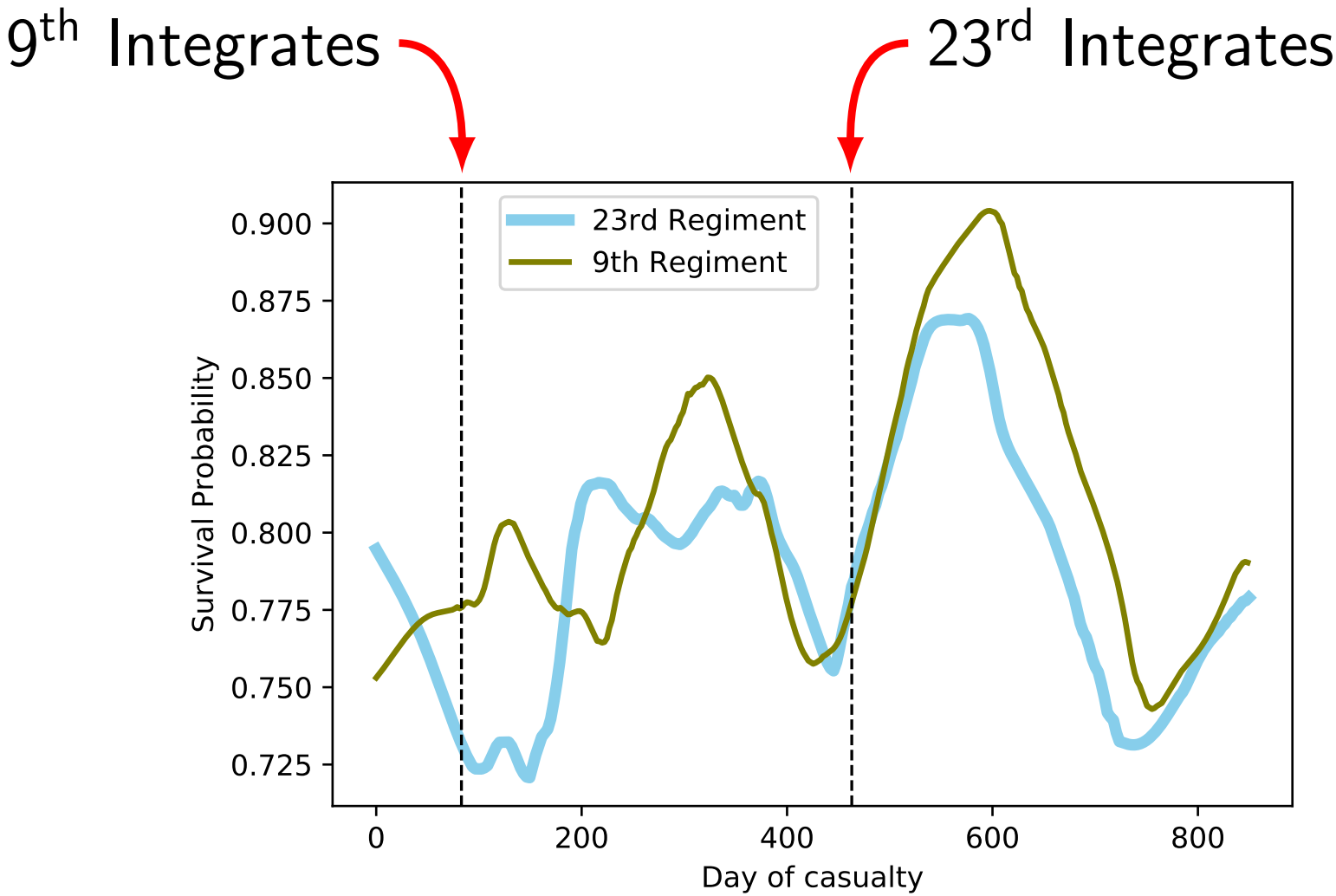
- Consider again

$$y_{irt} = \beta_0 + \beta_1 s_{rt}^{BW} + \boldsymbol{X}_{irt}\boldsymbol{\beta}_2 + \lambda_t + \gamma_r + \varepsilon_{irt},$$

- According to this model, we should see white survival rates in the 9^{th} regiment increase after the arrival of the all-black 3^{rd} battalion in mid-September.

- If we compare the 9^{th} to another regiment from the same division (e.g. 23^{rd} regiment), we should see parallel trends after they both integrate.

Identification: parallel trends after formal integration



Back

Assessing match quality: match by first, last name and SSN FIPS BEFORE dropping duplicates

- I get 20,064 candidate matches (survived or KIA).
  - Of these, 75% of matching middle names.
- There are 9,330 survivors with data on middle names and matching first name, last name and residence.
  - Of these, 83% have matching middle names.
  - I only have middle names for half my sample, so the number of matches (i.e. same full name and residence) is closer to 19,000.
    - NB: Again, I have not matched on middle name!

Back

Testing for balance (first year of war)

	Dependent variable: Similarity Index			
	q_1	$q_2 - q_1$	$q_3 - q_1$	$q_4 - q_1$
	(1)	(2)	(3)	(4)
From north	0.4559	0.0139	0.0264	0.0414
		(0.009)	(0.008)	(0.009)
From south	0.3105	0.0794	0.0152	−0.0061
		(0.008)	(0.008)	(0.008)
Age at casualty	23.281	−0.274	−0.869	−0.858
		(0.14)	(0.14)	(0.15)
N	25,978	25,978	25,978	25,978

Note: Column (1) shows the average of the regiments whose similarity fall within the first quartile (i.e. least integrated). Columns (2)-(4) show the difference in mean of the top three quartiles relative to the bottom quartile.

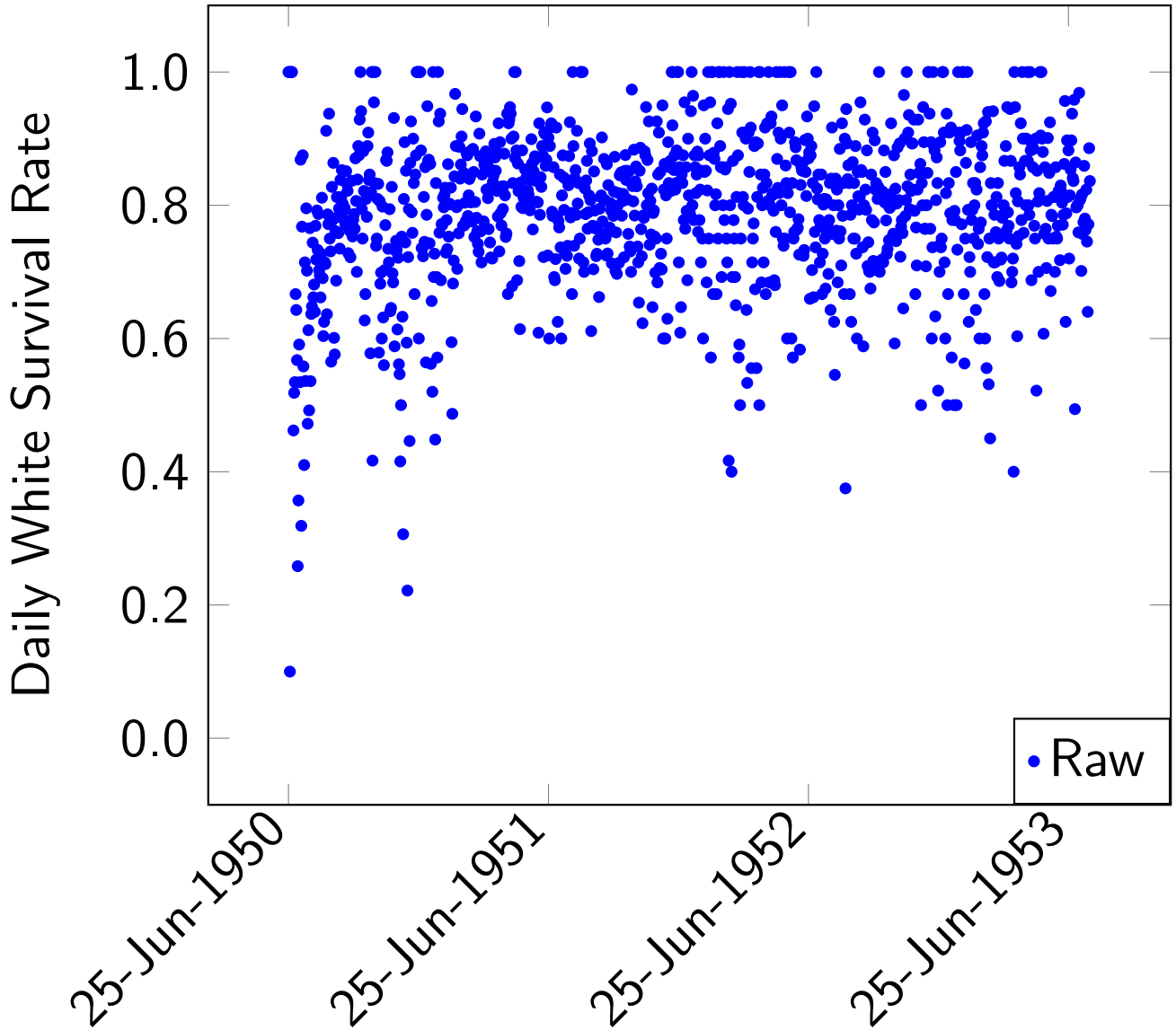
Testing for balance (last year of war)

	Dependent variable: Similarity Index			
	q_1	$q_2 - q_1$	$q_3 - q_1$	$q_4 - q_1$
	(1)	(2)	(3)	(4)
From north	0.5313	−0.0049	−0.0260	−0.0073
		(0.011)	(0.011)	(0.012)
From south	0.3011	0.0034	0.0363	0.0055
		(0.010)	(0.010)	(0.011)
Age at casualty	22.457	0.080	−0.072	−0.257
		(0.14)	(0.13)	(0.14)
N	15,058	15,058	15,058	15,058

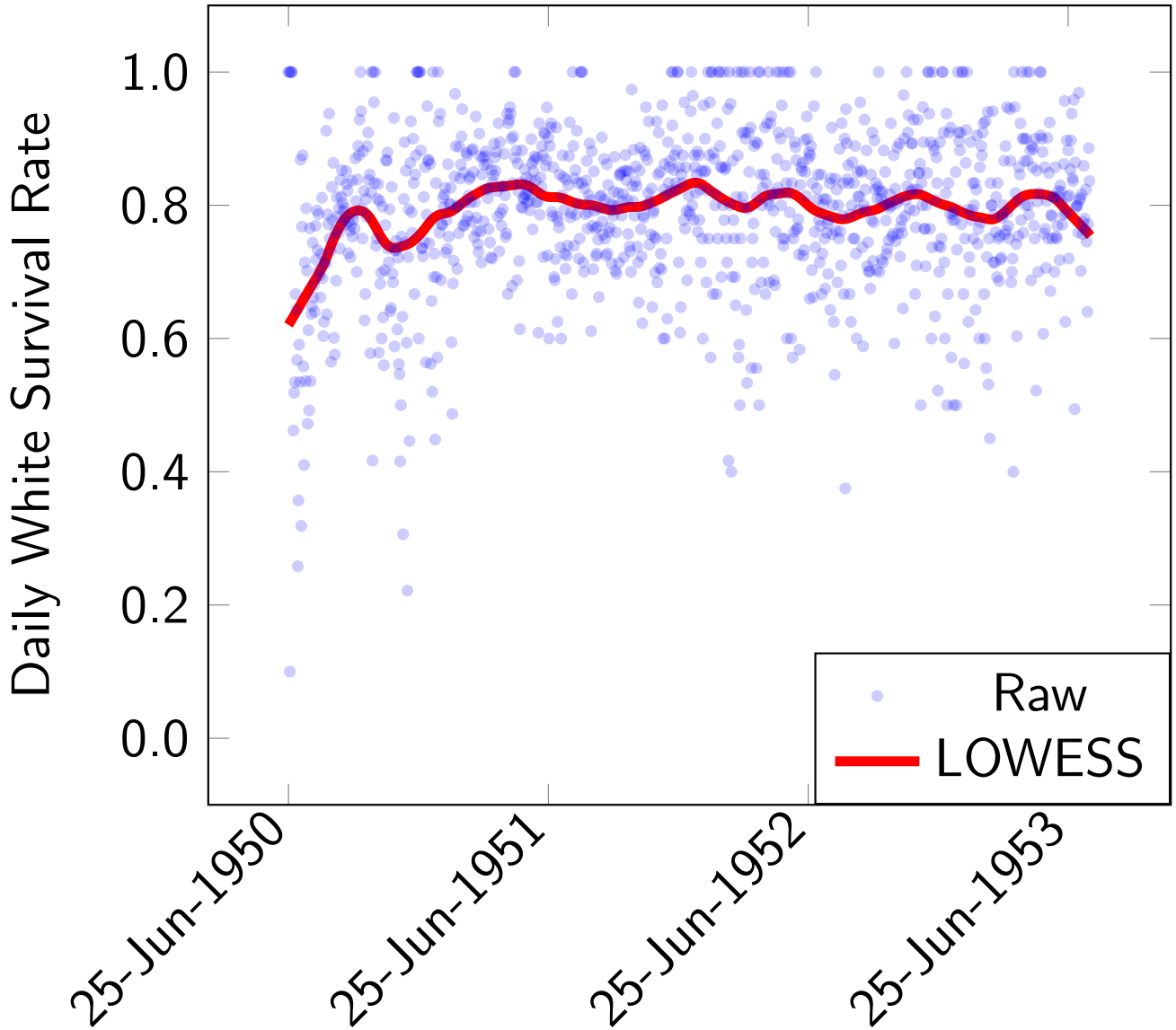
Note: Column (1) shows the average of the regiments whose similarity fall within the first quartile (i.e. least integrated). Columns (2)-(4) show the difference in mean of the top three quartiles relative to the bottom quartile.

Back

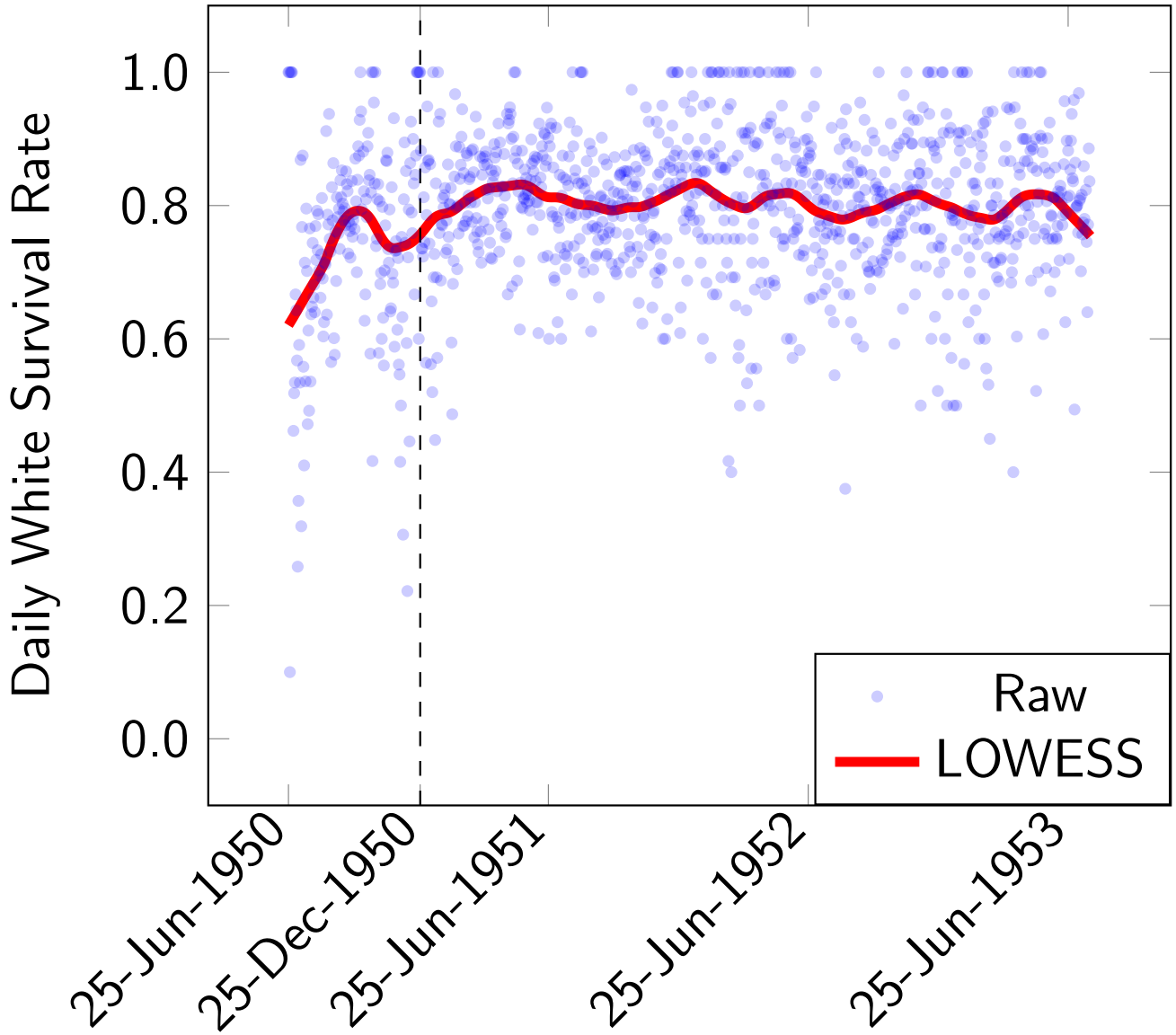
White casualty survival probability



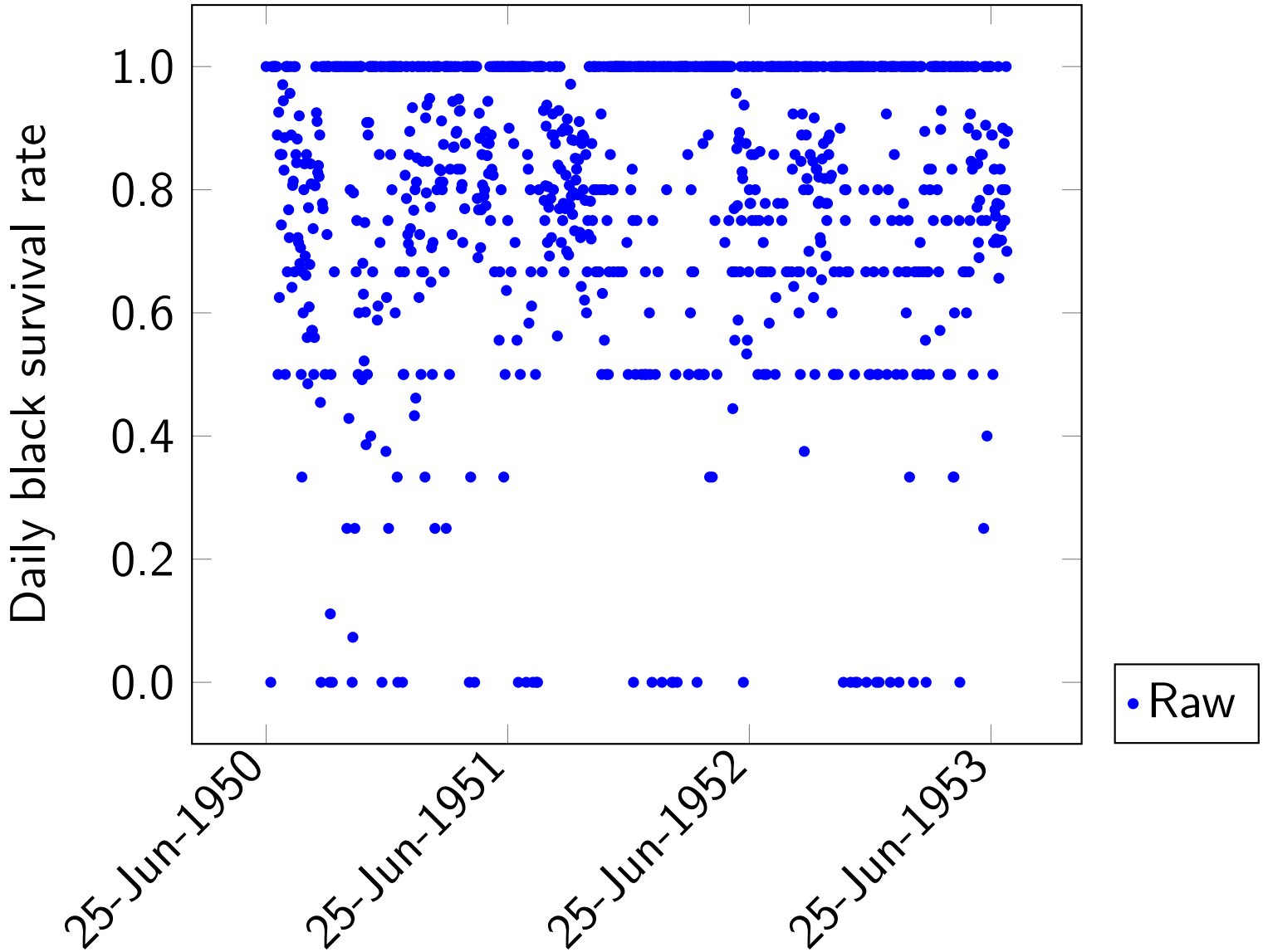
White casualty survival probability



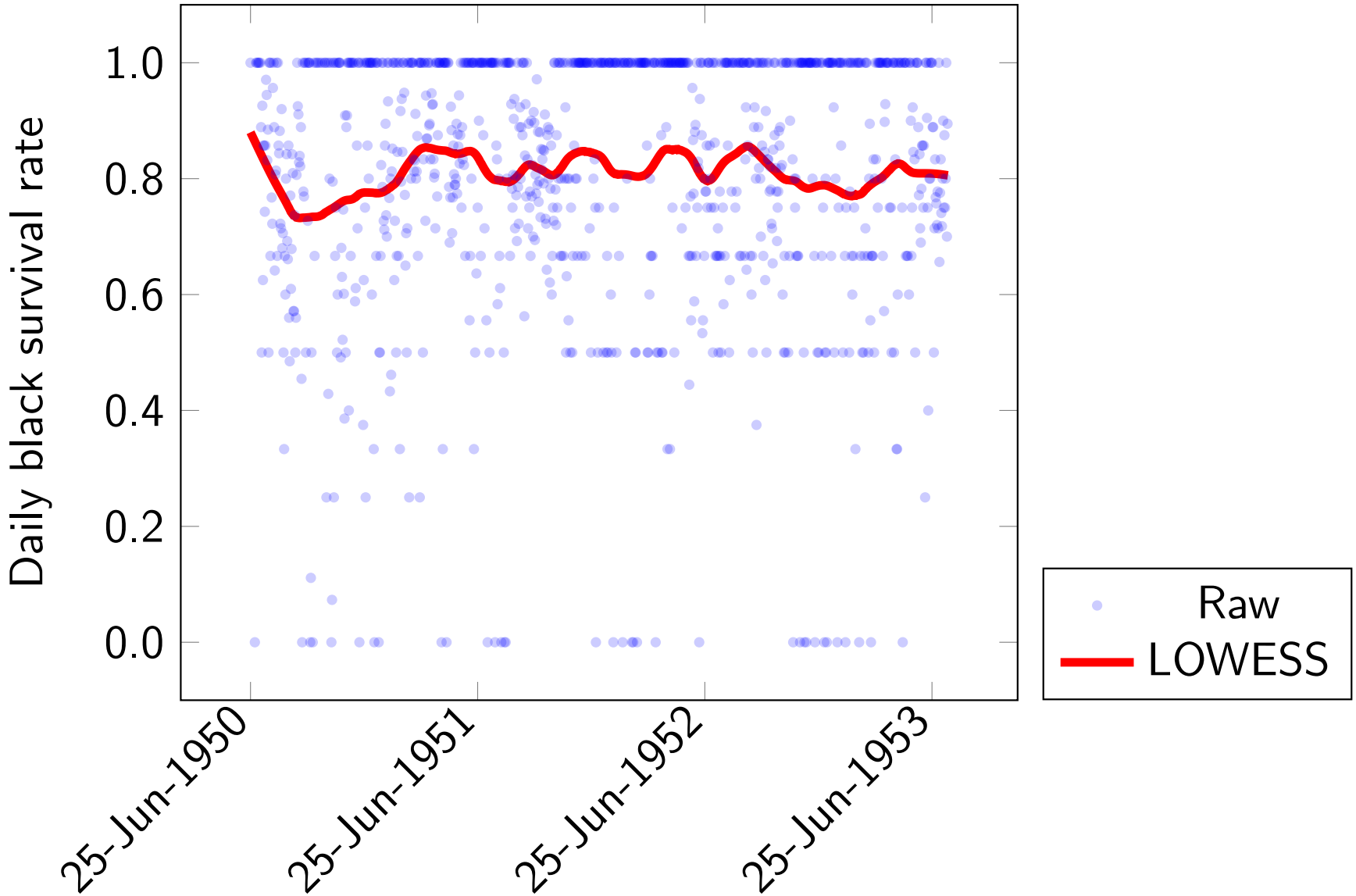
White casualty survival probability



Black casualty survival probability

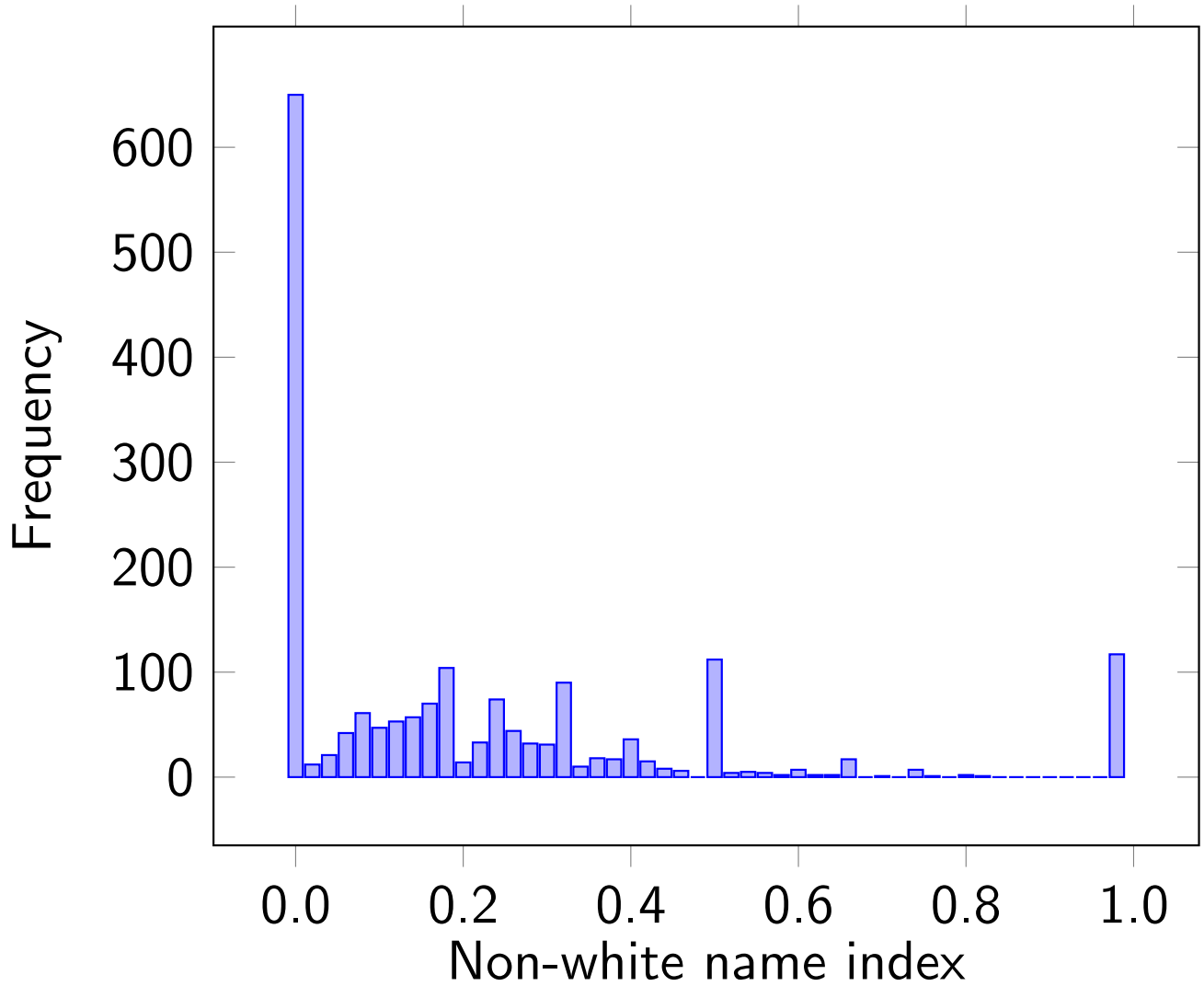


Black casualty survival probability



Back

Non-white name index histogram



Back