

# **Historical Shifts in the Metric Organization of R&B Music: A Case Study of Motown Albums, 1961–2005**

Trevor de Clercq



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# Historical Shifts in the Metric Organization of R&B Music: A Case Study of Motown Albums, 1961–2005

- I. Background**
- II. Methodology**
- III. Statistical Analysis**
- IV. Discussion**

**I. Background**

II. Methodology

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**“Poison”** (Bell Biv DeVoe, 1990)

**Meter?**


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**Meter?**

**$\frac{4}{4}$  ♪ = 112 BPM**

**“Poison”** (Bell Biv DeVoe, 1990)

# Meter?

**4**  
**4**  = 112 BPM  
**SWING 16THS**

# **Contemporary R&B** **(mid-1980s to present)**

**SWING 16THS**

# **Contemporary R&B**

**(mid-1980s to present)**

**SWING 16THS**

**SWING 8THS**



# Contemporary R&B (mid-1980s to present)

SWING 16THS

~~SWING 8THS~~

I. Background

**II. Methodology**

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# Motown discography, 1961–2005

| Year | Artist                   | Album                           |
|------|--------------------------|---------------------------------|
| 1961 | The Marvelettes          | <i>Please Mr. Postman</i>       |
| 1963 | Martha and the Vandellas | <i>Heat Wave</i>                |
| 1967 | The Four Tops            | <i>Reach Out</i>                |
| 1970 | The Jackson 5            | <i>ABC</i>                      |
| 1971 | Marvin Gaye              | <i>What's Going On</i>          |
| 1976 | Stevie Wonder            | <i>Songs in the Key of Life</i> |
| 1981 | Rick James               | <i>Street Songs</i>             |
| 1983 | Lionel Richie            | <i>Can't Slow Down</i>          |
| 1985 | DeBarge                  | <i>Rhythm of the Night</i>      |
| 1990 | Johnny Gill              | <i>Johnny Gill</i>              |
| 1994 | Boyz II Men              | <i>II</i>                       |
| 1999 | Brian McKnight           | <i>Back at One</i>              |
| 2003 | Erykah Badu              | <i>Worldwide Underground</i>    |
| 2005 | India Arie               | <i>Testimony, vol. 1</i>        |

# Motown discography, 1961–2005

## 205 studio albums\*

- \* no soundtrack albums
- \* no holiday albums
- \* no compilation albums
- \* no greatest hits albums
- \* no live albums
- \* no “rock operas”
- \* no television specials
- \* no unreleased albums

# Motown discography, 1961–2005

50 songs per 5-year period (“pentade”)

## Pentade

1961-1965

1966-1970

1971-1975

1976-1980

1981-1985

1986-1990

1991-1995

1996-2000

2001-2005

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*Funk*  
*Girl Groups*  
*Uptown Soul*  
*Psychedelic Soul*  
*Disco*  
*Post-Disco*  
*Quiet Storm*  
*New Jack Swing*  
*Contemporary R&B*  
*Neo-Soul*

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450 songs total (50 songs x 9 pentades)

**“Higher Ground” (Stevie Wonder, 1973)**

**124 BPM**



**“Higher Ground” (Stevie Wonder, 1973)**

**Meter?**

**124 BPM**

# HIGHER GROUND

Words and Music by  
STEVIE WONDER

Moderate Shuffle

E $\flat$ 7(3)



G $\flat$



A $\flat$



E $\flat$ 7(3)



G $\flat$



A $\flat$



The first system of musical notation for 'Higher Ground' consists of two staves. The top staff is in treble clef with a key signature of two flats (B-flat and E-flat) and a 4/4 time signature. It begins with a dynamic marking of *mf*. The bottom staff is in bass clef with the same key signature and time signature. The music features a shuffle feel with eighth-note patterns and triplets. Above the staves, guitar chord diagrams are provided for E $\flat$ 7(3), G $\flat$ , A $\flat$ , and E $\flat$ 7(3) in the first measure, and G $\flat$  and A $\flat$  in the final measure. The notation includes various rhythmic markings such as '3' for triplets and '7' for eighth notes.

E $\flat$ 7(3)



G $\flat$



A $\flat$



E $\flat$ 7(3)



The second system of musical notation continues the piece. It features two staves in the same key signature and time signature. The notation includes triplets and eighth-note patterns. Above the staves, guitar chord diagrams are provided for E $\flat$ 7(3), G $\flat$ , A $\flat$ , and E $\flat$ 7(3) in the first measure, and G $\flat$  and A $\flat$  in the final measure. The system concludes with a double bar line and repeat dots.

G $\flat$



A $\flat$



E $\flat$ 7(3)



§

G $\flat$



A $\flat$



The third system of musical notation shows the beginning of the vocal line. It consists of a single treble clef staff with a key signature of two flats. The notation includes a double bar line and repeat dots, followed by a few notes and a final rest.

Peo - ple, —

Pow - ers.

# HIGHER GROUND

Words and Music by  
STEVIE WONDER

Moderate Shuffle

E $\flat$ 7(9)



G $\flat$



A $\flat$



E $\flat$ 7(9)



G $\flat$



A $\flat$



The first system of musical notation for 'Higher Ground' is in 4/4 time with a key signature of two flats (B $\flat$  and E $\flat$ ). It features a piano introduction with a melody in the right hand and a bass line in the left hand. The melody consists of eighth and quarter notes, often grouped in threes. The bass line features a steady eighth-note pattern. The tempo is marked 'Moderate Shuffle' and the dynamic is 'mf'. A red oval highlights the first few notes of the melody and the bass line.

E $\flat$ 7(9)



G $\flat$



A $\flat$



E $\flat$ 7(9)



The second system of musical notation continues the piano introduction. It features a repeat sign in the middle. The melody and bass line continue with similar rhythmic patterns. The dynamic remains 'mf'.

G $\flat$



A $\flat$



E $\flat$ 7(9)



§

G $\flat$



A $\flat$



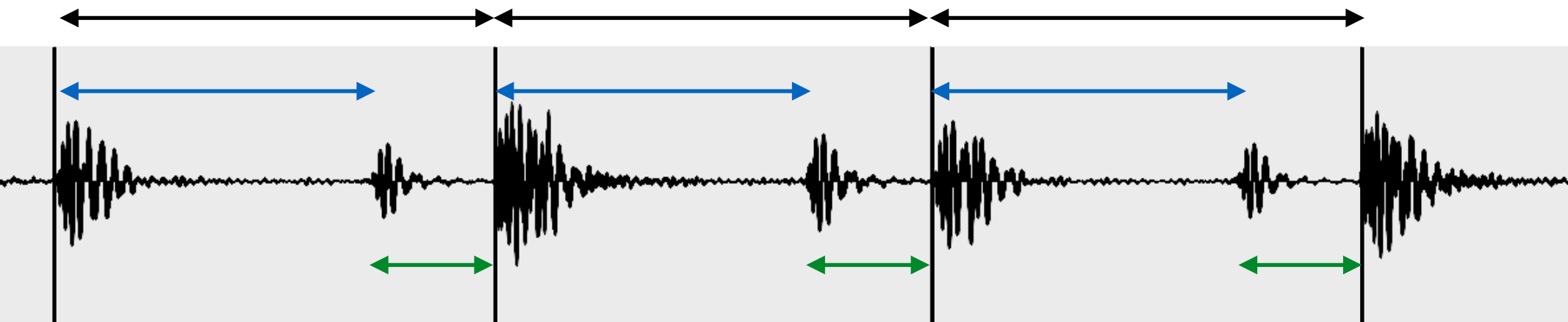
The third system of musical notation shows the beginning of the vocal entry. It features a single treble clef staff with a key signature change to one flat (F major) and a common time signature. The melody starts with a quarter note followed by a half note.

Peo - ple, —

Pow - ers.

# “Higher Ground” (Stevie Wonder, 1973)

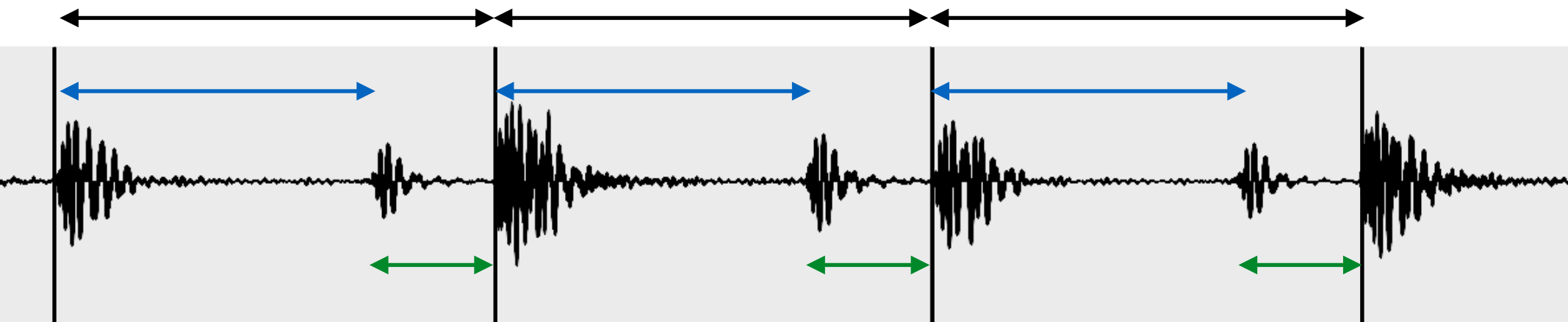
Beat length ~ 488 ms



long-short ratio for compound meter = 325 ms : 163 ms  
( 2 : 1 )

# “Higher Ground” (Stevie Wonder, 1973)

Beat length ~ 488 ms

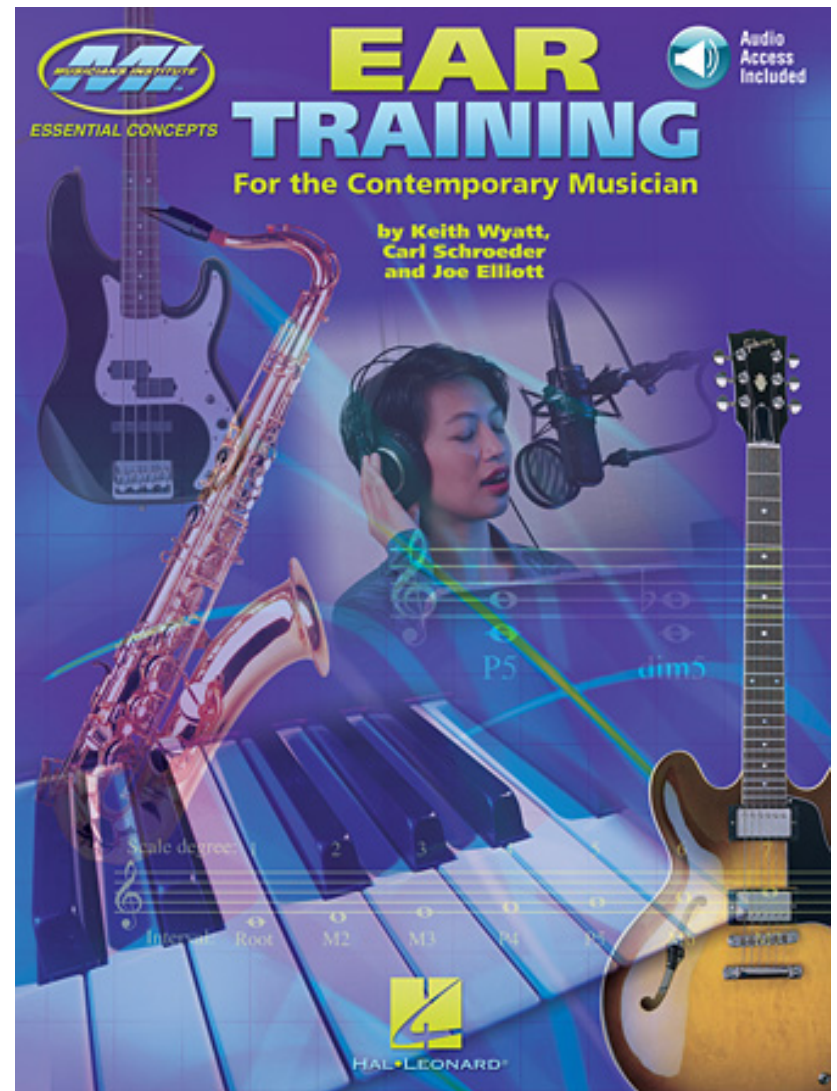


~~long-short ratio for compound meter = 325 ms : 163 ms  
(2 : 1)~~

actual long-short ratio here = ~ 353 ms : ~ 135 ms

# “Higher Ground” (Stevie Wonder, 1973)

“In popular music, compound meter is generally used only at slower tempos; when the tempo picks up, the triplet feeling is better defined as *shuffle* or *swing*.”  
(Wyatt, Schroeder, and Elliott, 2005, p. 77)

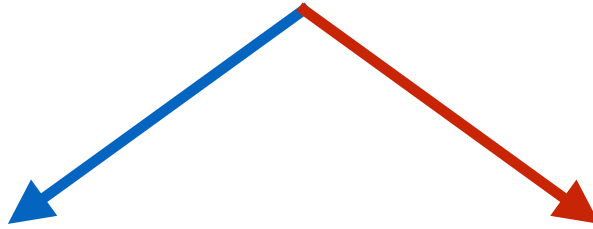


# **Meter Categorization Strategy**

Kick / Snare = “Beat”

# Meter Categorization Strategy

Kick / Snare = “Beat”



Divides into  
2 equal parts

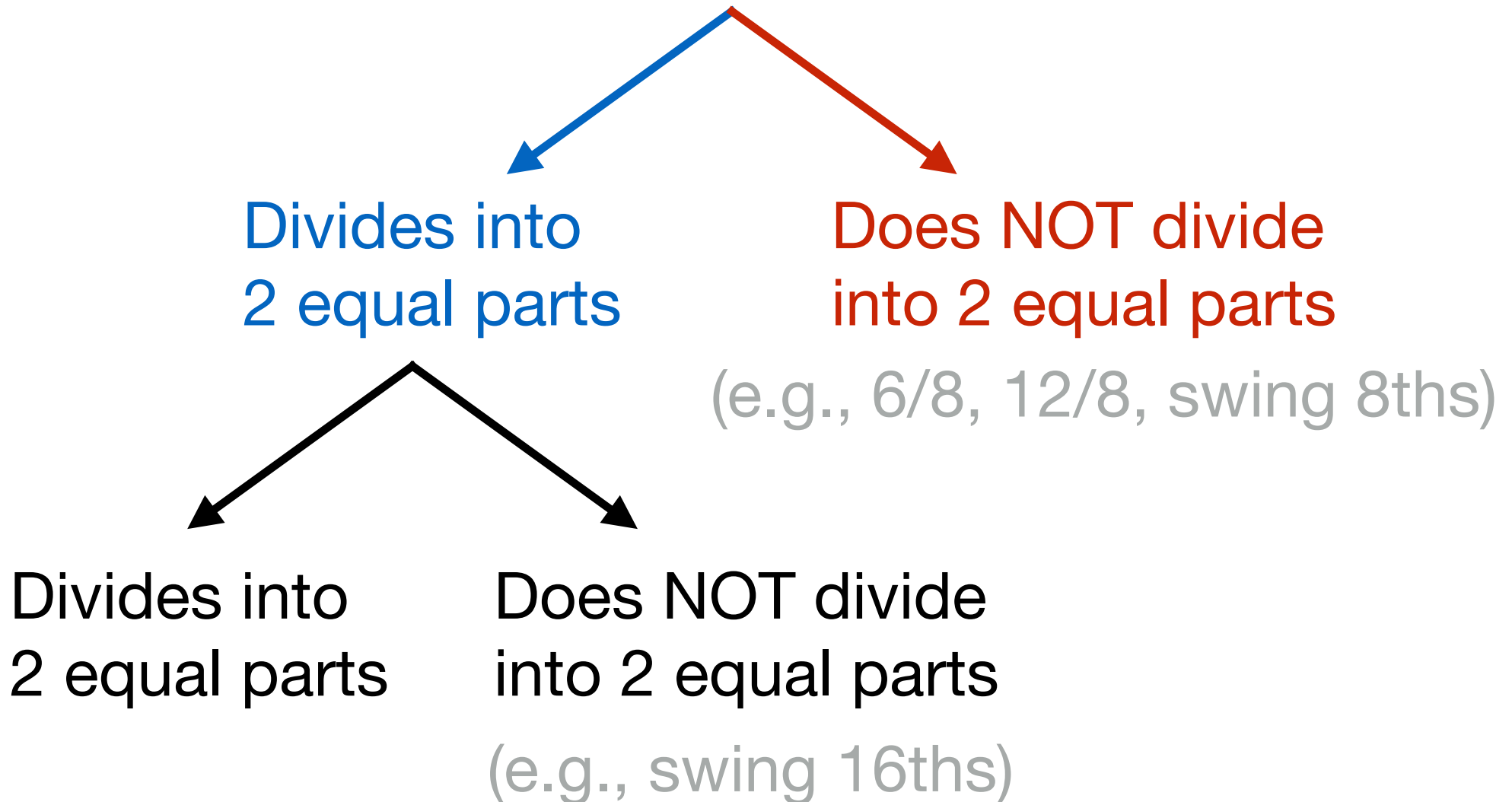
Does NOT divide  
into 2 equal parts

(e.g., 6/8, 12/8, swing 8ths)



# Meter Categorization Strategy

Kick / Snare = “Beat”



I. Background

II. Methodology

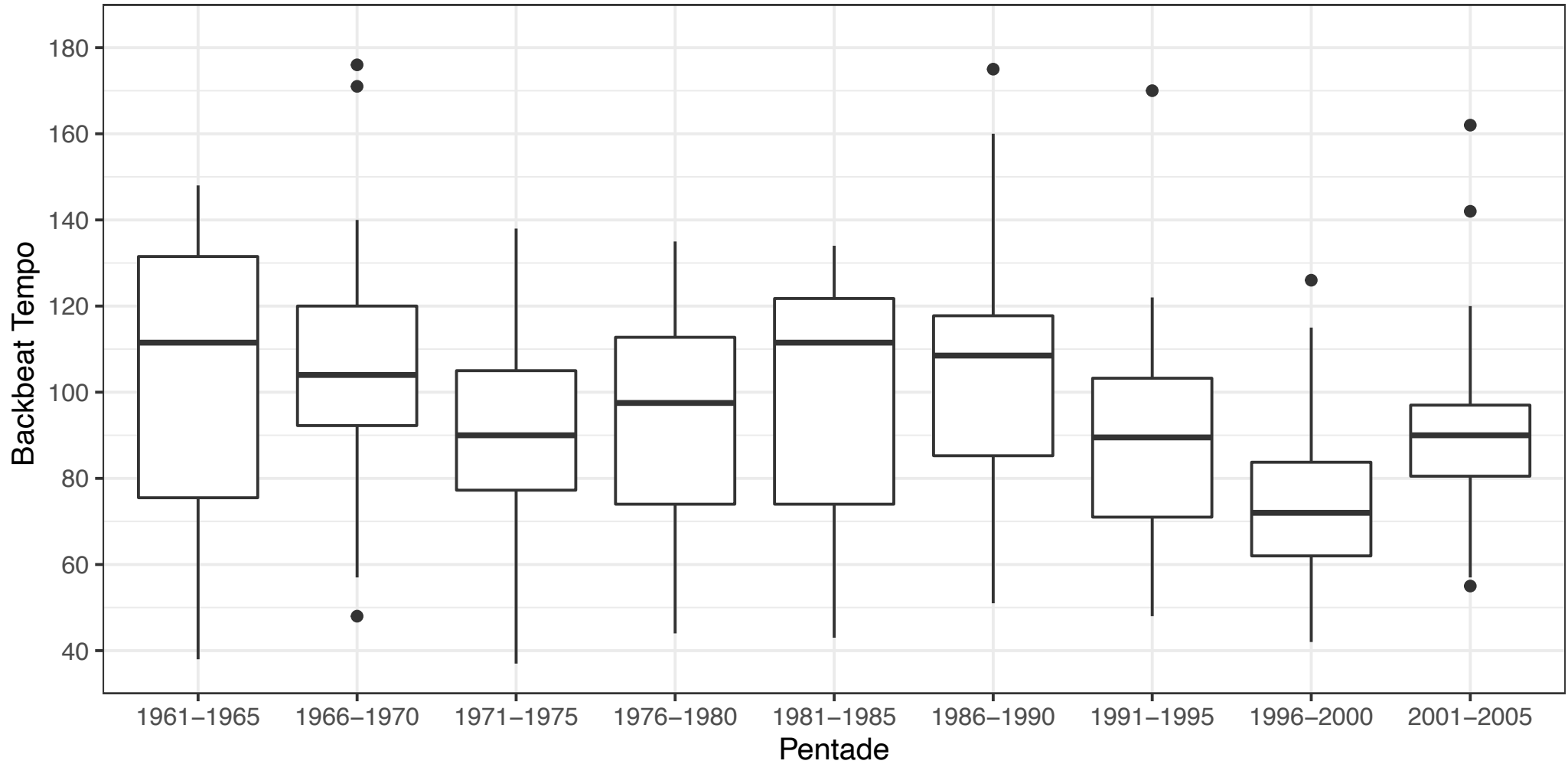
**III. Statistical Analysis**

IV. Discussion

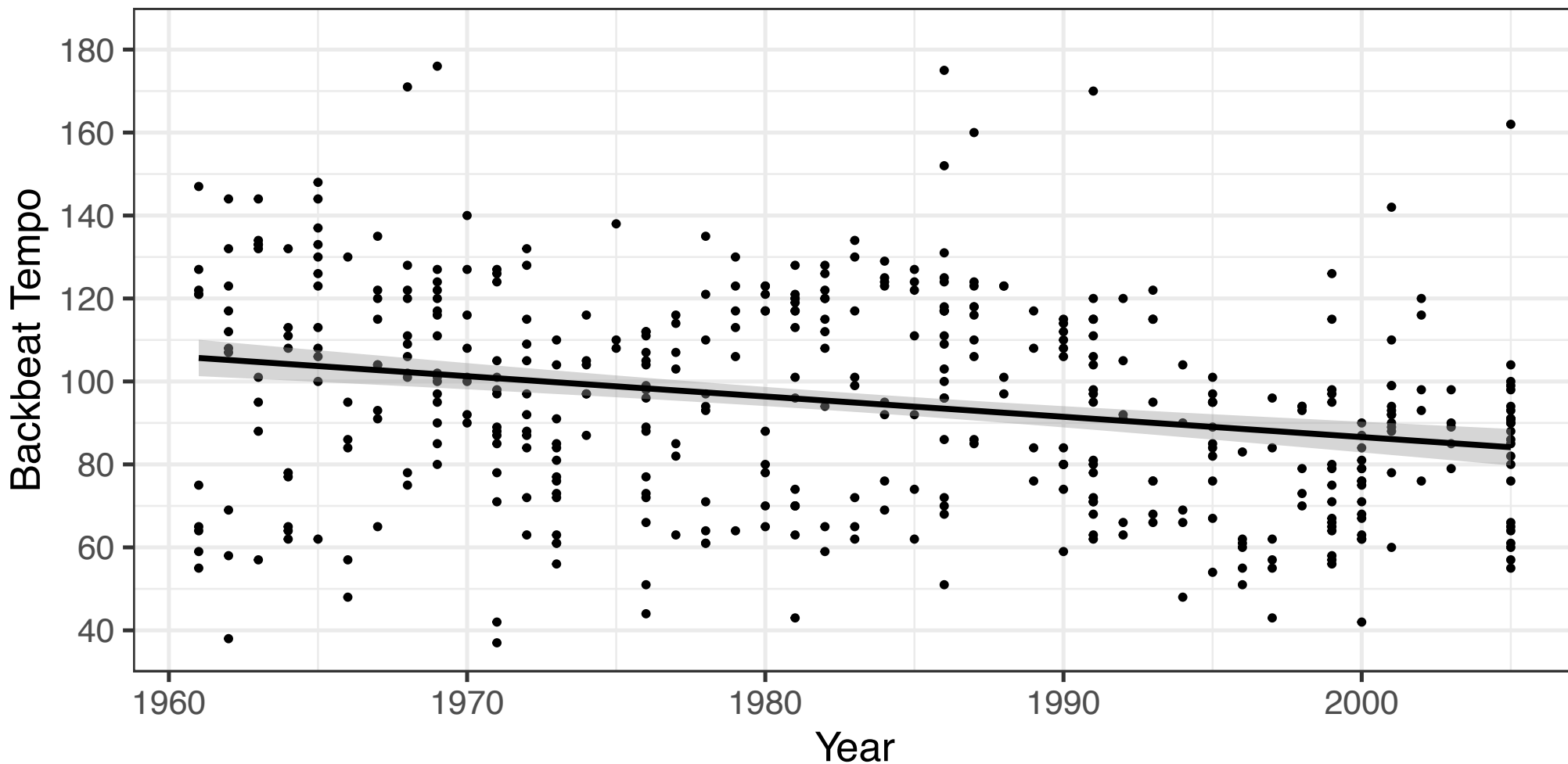
# Average Kick-Snare Rates (in BPM) for all songs

| <b>Pentade</b> | <b>n</b> | <b>Median</b> | <b>Mean</b> |
|----------------|----------|---------------|-------------|
| 1961-1965      | 50       | 112           | 104         |
| 1966-1970      | 50       | 104           | 106         |
| 1971-1975      | 50       | 90            | 92          |
| 1976-1980      | 50       | 98            | 94          |
| 1981-1985      | 50       | 112           | 101         |
| 1986-1990      | 50       | 109           | 105         |
| 1991-1995      | 50       | 90            | 89          |
| 1996-2000      | 50       | 72            | 74          |
| 2000-2005      | 50       | 90            | 90          |

# Average Kick-Snare Rates (in BPM) for all songs



# Average Kick-Snare Rates (in BPM) for all songs



$p < .001, r^2 = .065$

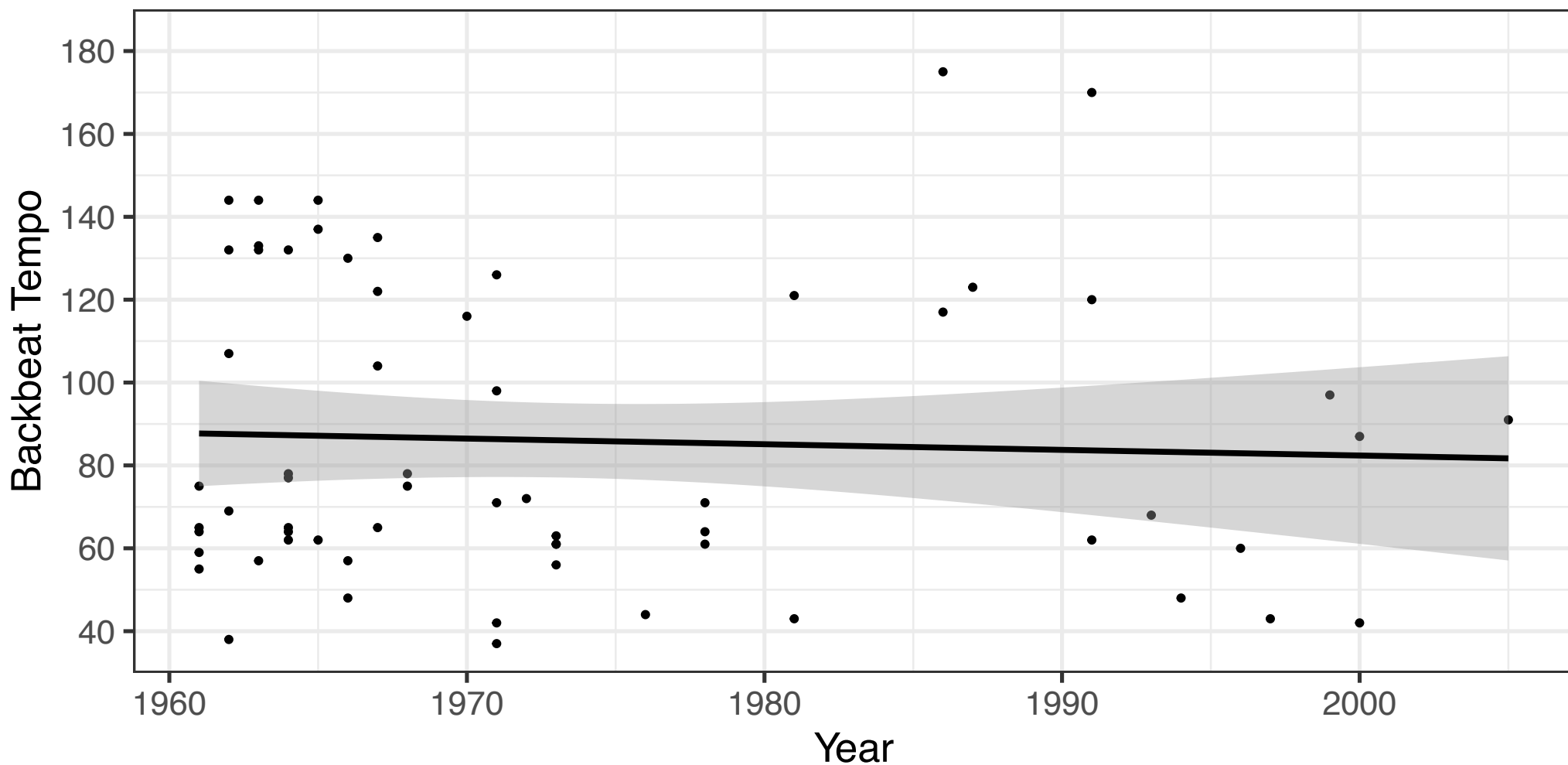
# Average Kick-Snare Rates (in BPM) for songs **without** duple 8ths

| <b>Pentade</b> | <b>n</b> | <b>Median</b> | <b>Mean</b> |
|----------------|----------|---------------|-------------|
| 1961-1965      | 23       | 75            | 91          |
| 1966-1970      | 10       | 91            | 93          |
| 1971-1975      | 10       | 62            | 69          |
| 1976-1980      | 4        | 63            | 60          |
| 1981-1985      | 2        | 82            | 82          |
| 1986-1990      | 3        | 123           | 138         |
| 1991-1995      | 5        | 68            | 94          |
| 1996-2000      | 5        | 60            | 66          |
| 2000-2005      | 1        | 91            | 91          |

# Percent of songs **without** duple 8ths



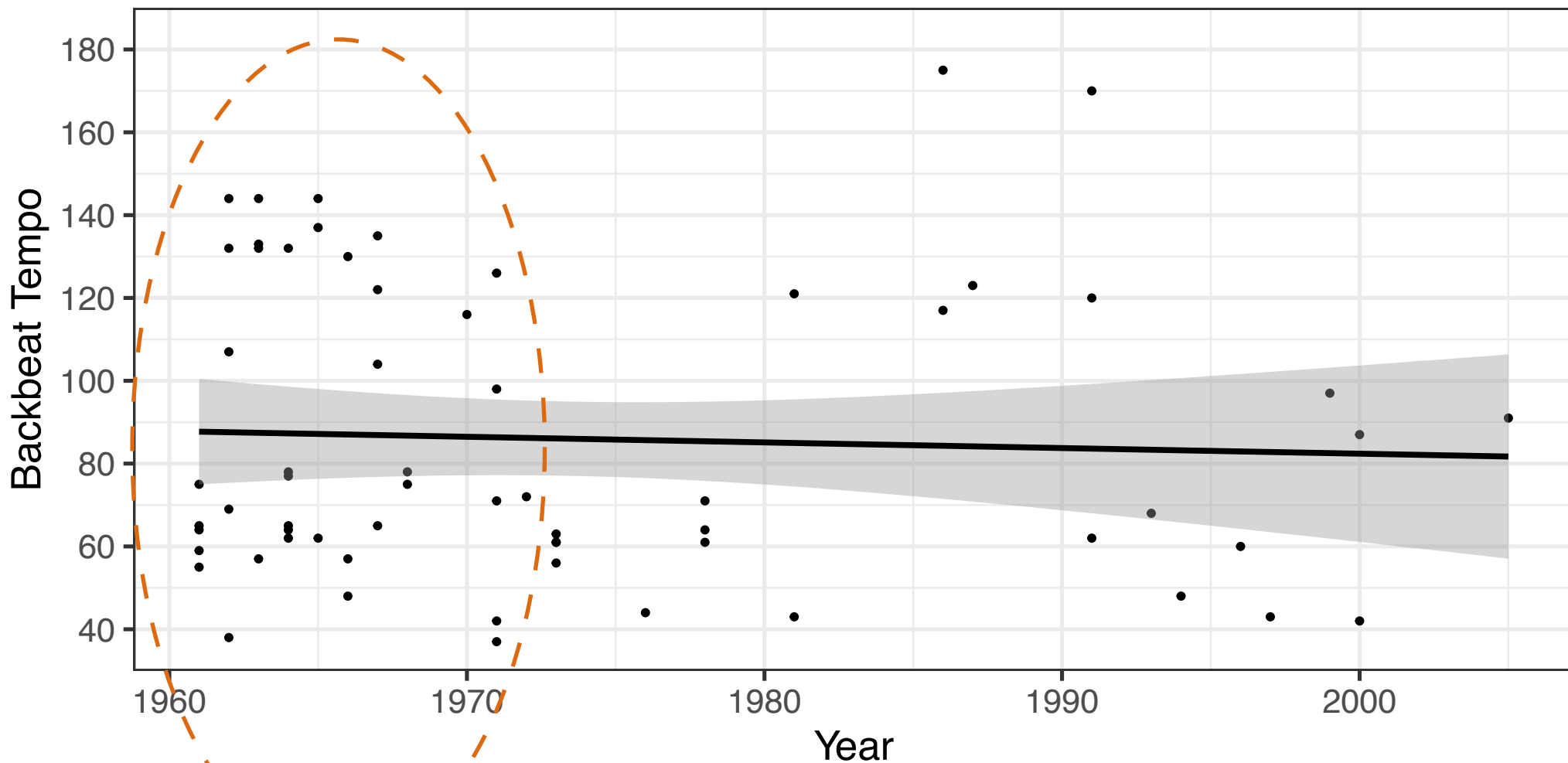
# Average Kick-Snare Rates (in BPM) for songs **without** duple 8ths



$$p = .71, r^2 = .002$$

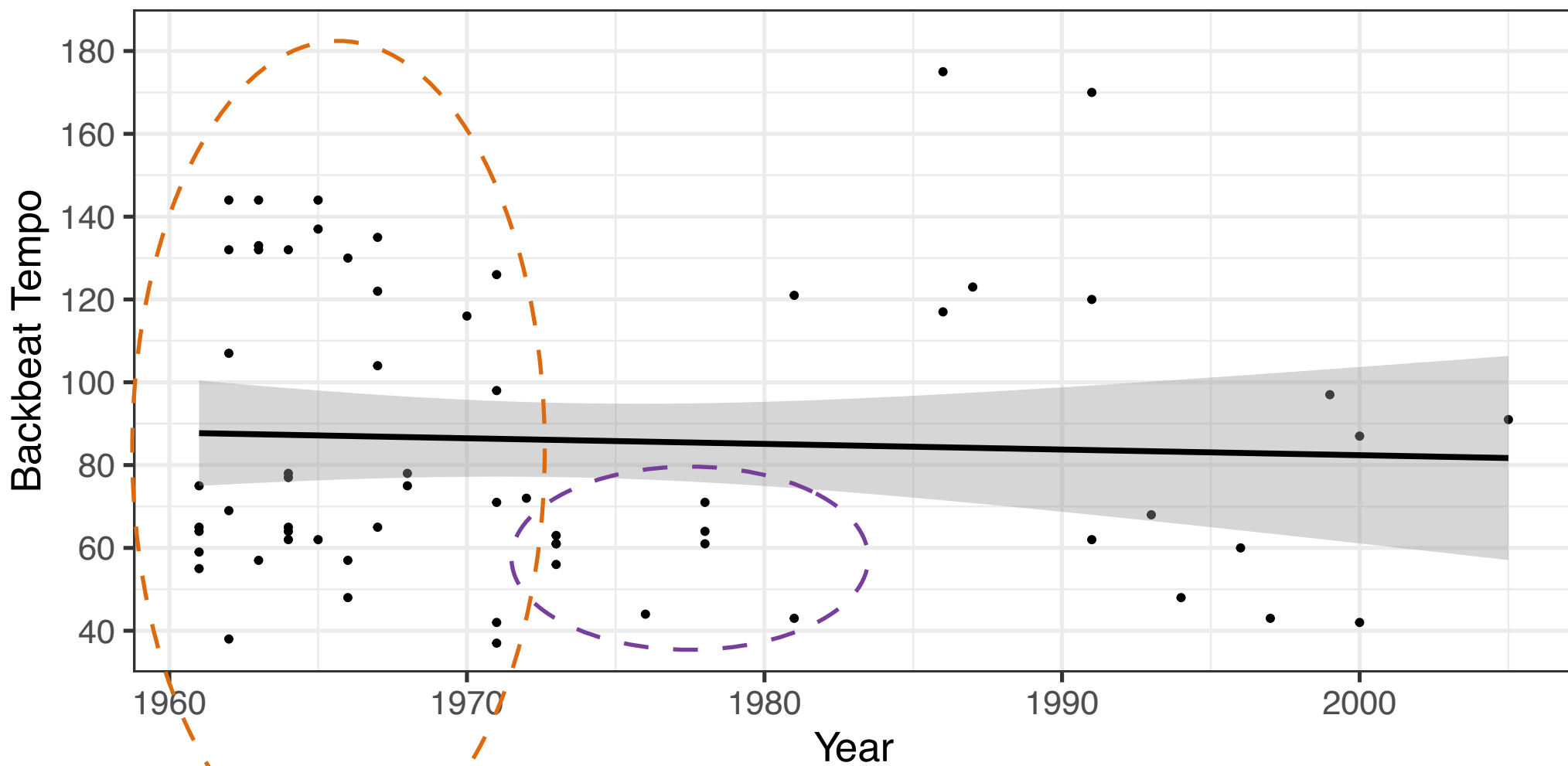


# Average Kick-Snare Rates (in BPM) for songs **without** duple 8ths



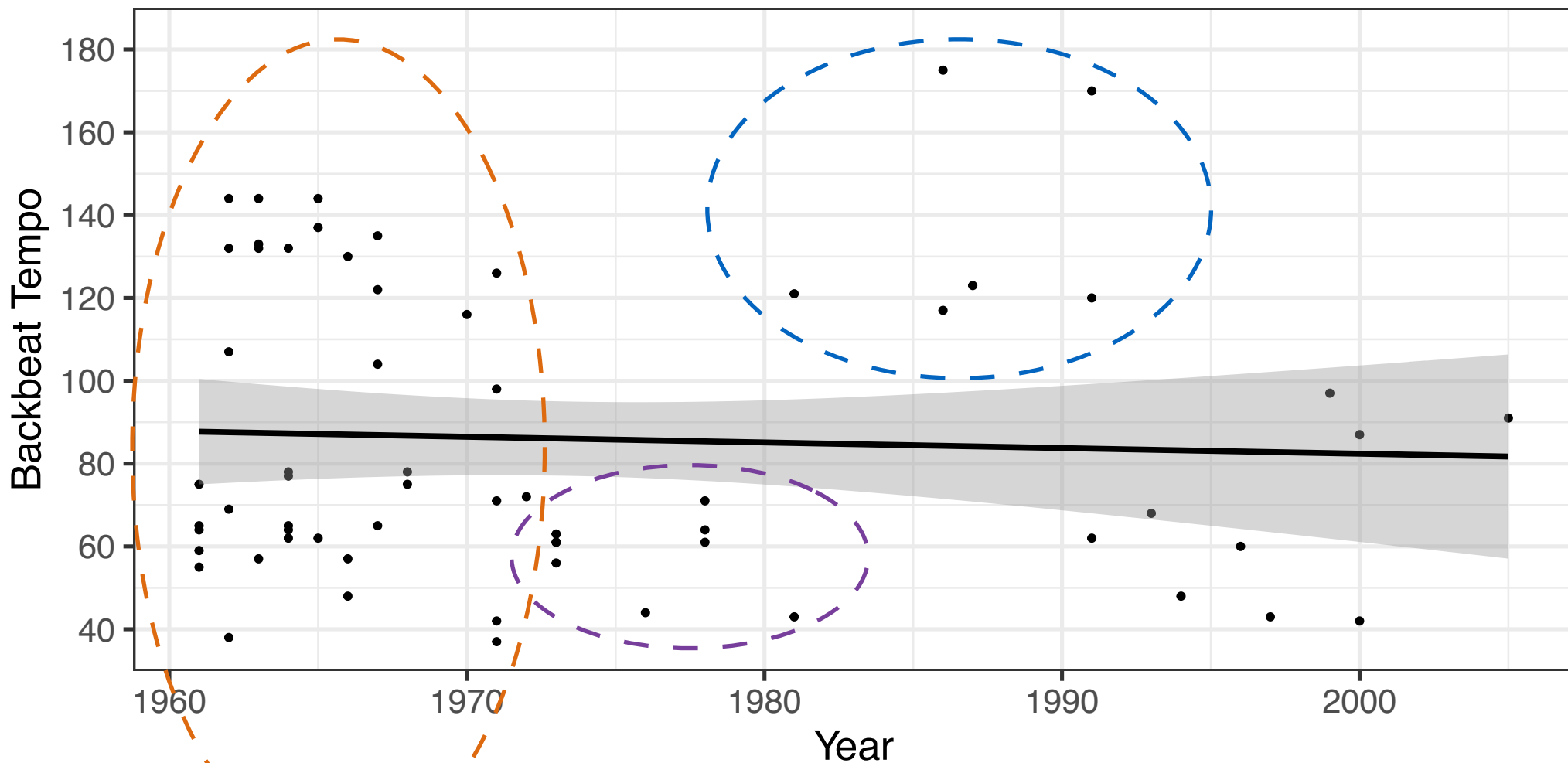
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# Average Kick-Snare Rates (in BPM) for songs **without** duple 8ths



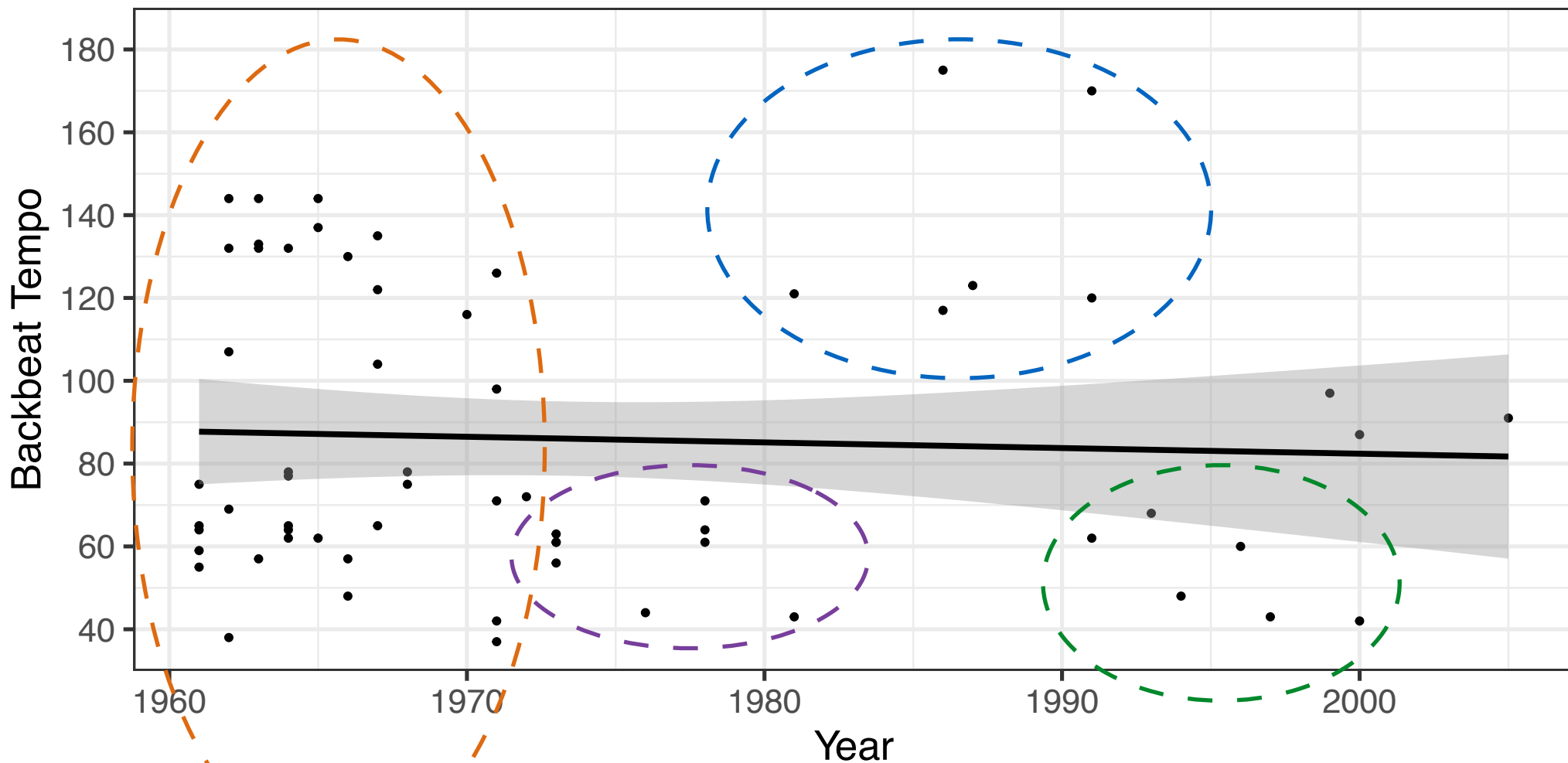
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# Average Kick-Snare Rates (in BPM) for songs **without** duple 8ths



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# Average Kick-Snare Rates (in BPM) for songs **without** duple 8ths

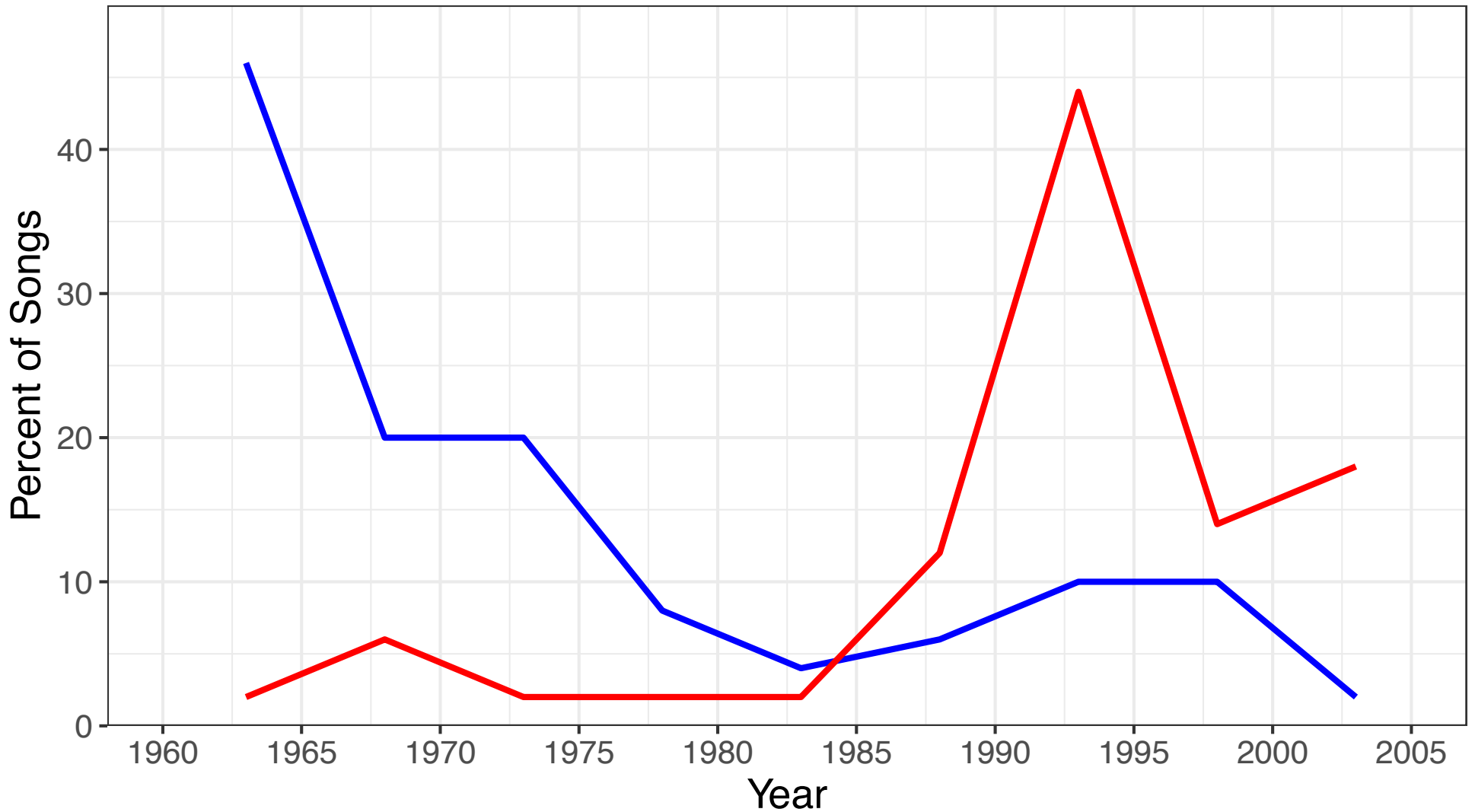


$$p = .71, r^2 = .002$$

# Percent of songs **with** duple 8ths but **without** duple 16ths



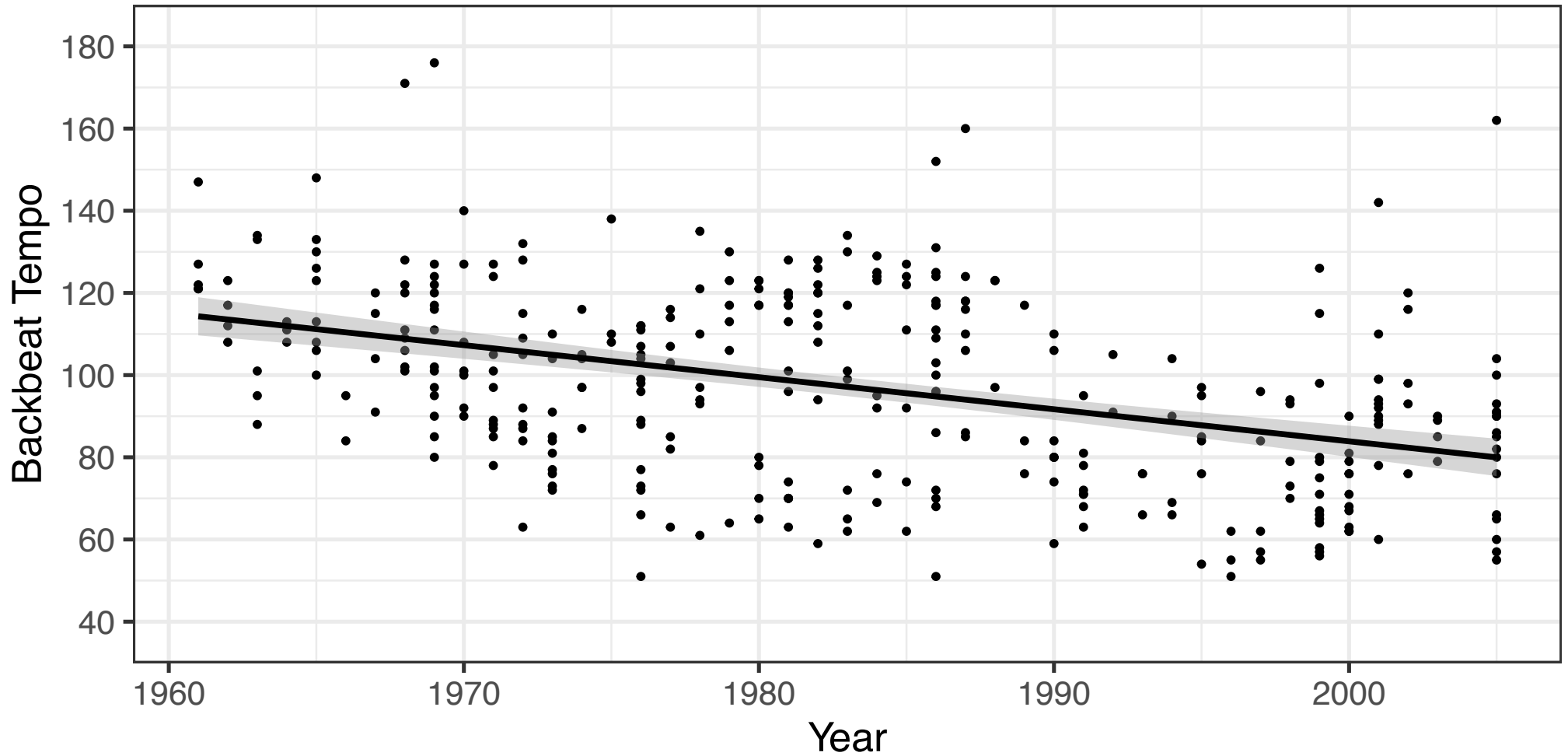
# Songs **without** simple 8ths VS. songs **with** simple 8ths but **without** simple 16ths



■ Songs **without** simple 8ths

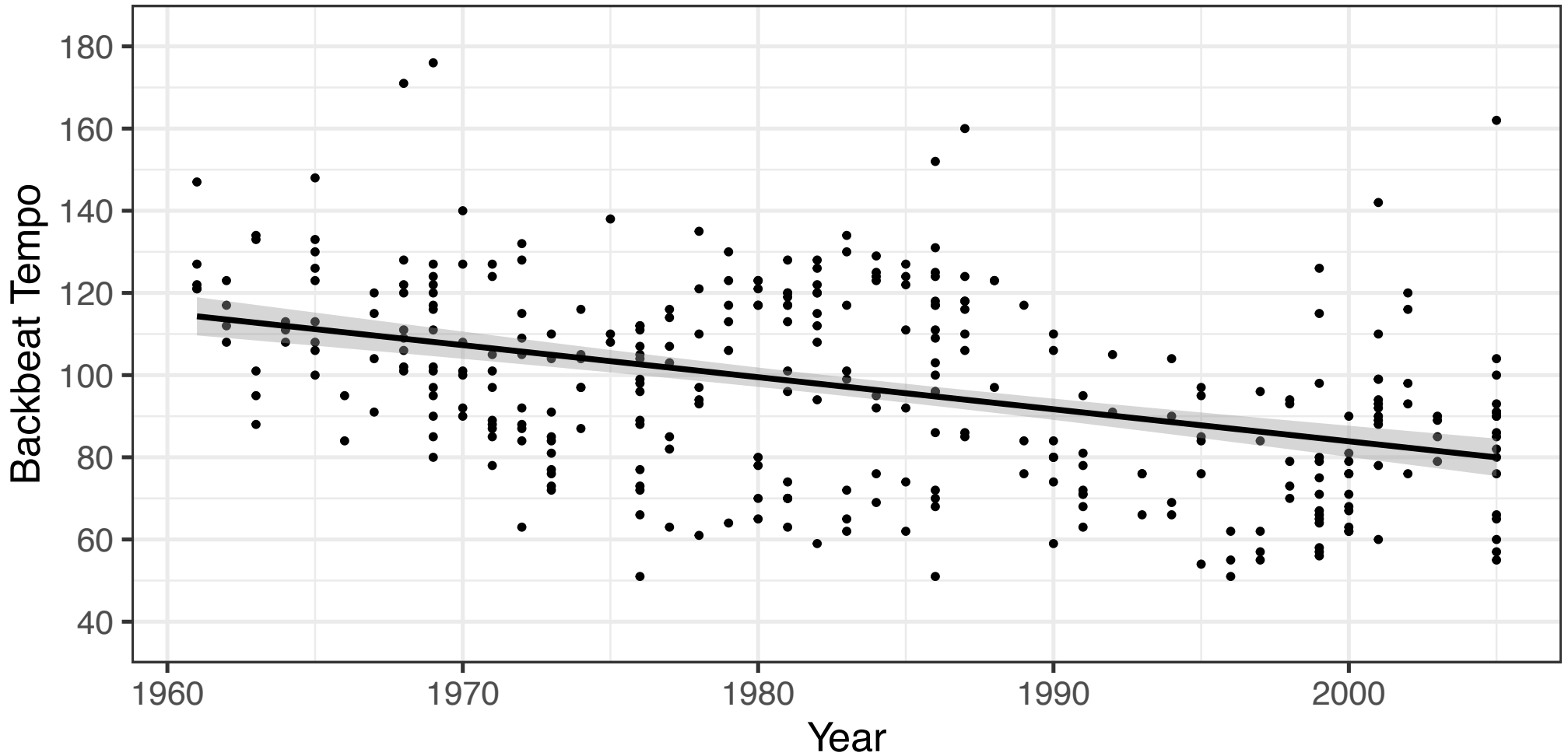
■ Songs **with** simple 8ths but **without** simple 16ths

# Average Kick-Snare Rates (in BPM) for songs with duple 8ths and with duple 16ths



$p < .001, r^2 = .175$

# Average Kick-Snare Rates (in BPM) for songs with duple 8ths and with duple 16ths

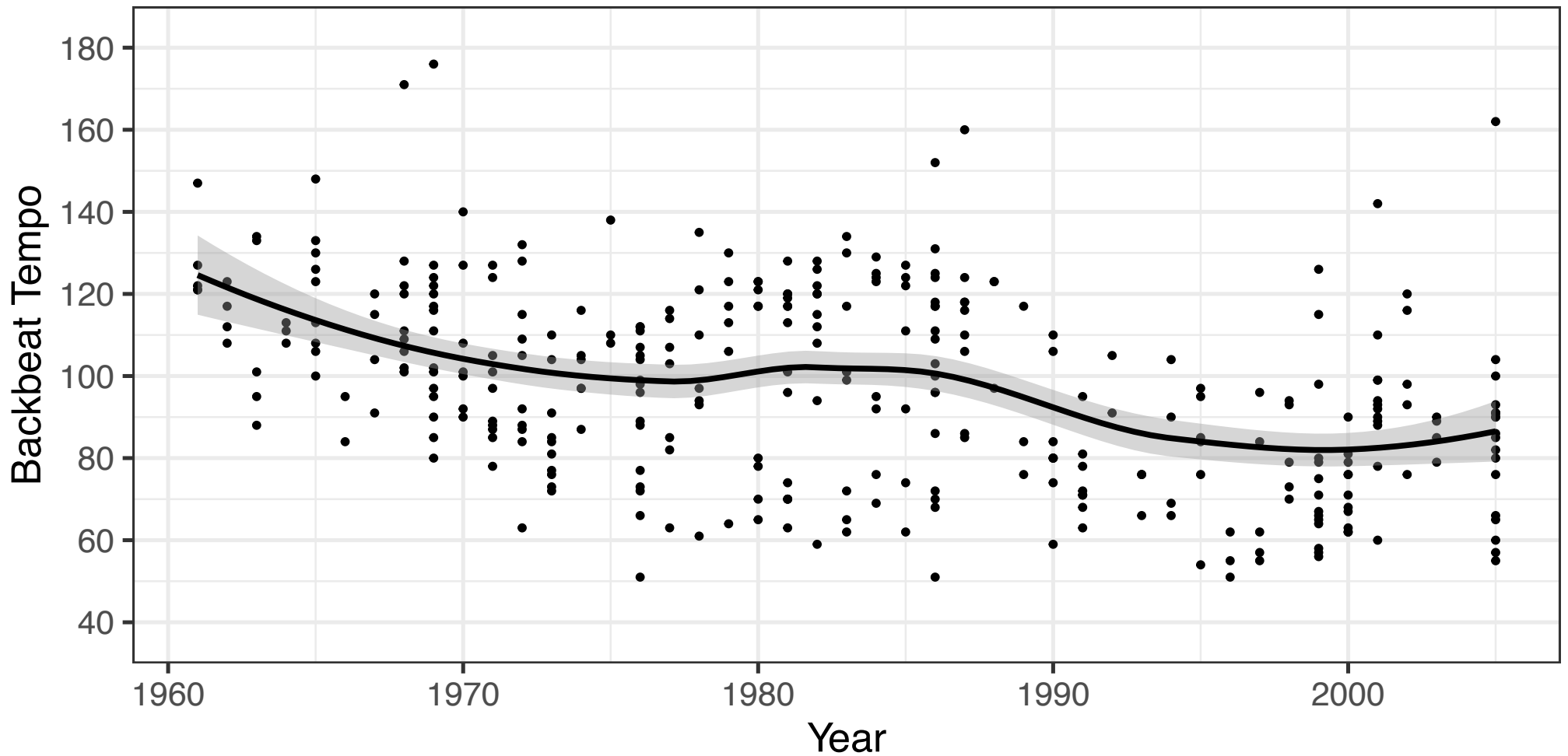


$$p < .001, r^2 = .175$$

similar results as Schellenberg and von Scheve (2012)



# Average Kick-Snare Rates (in BPM) for songs with duple 8ths and with duple 16ths



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**“Touch”** (Johnny Gill, 1996)

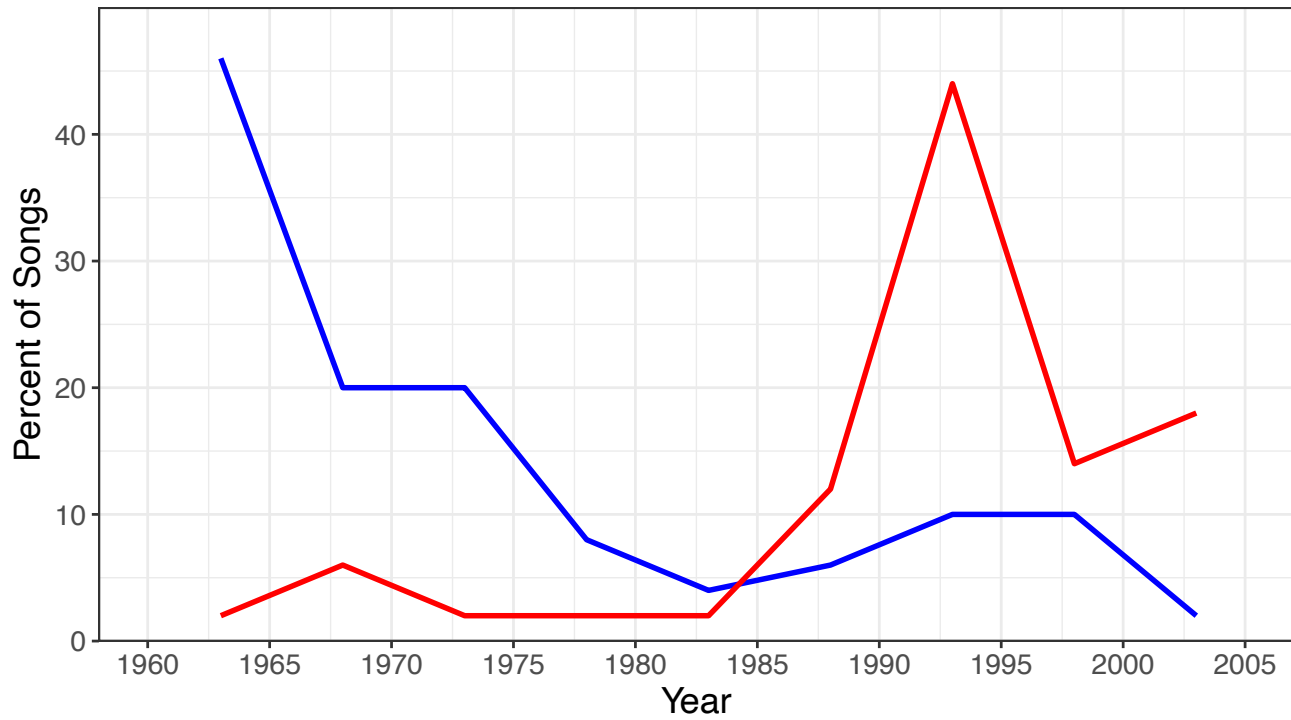
# “Touch” (Johnny Gill, 1996)

**4**  
**4** ♪ = 61 BPM  
**SWING 16THS**

# “Touch” (Johnny Gill, 1996)

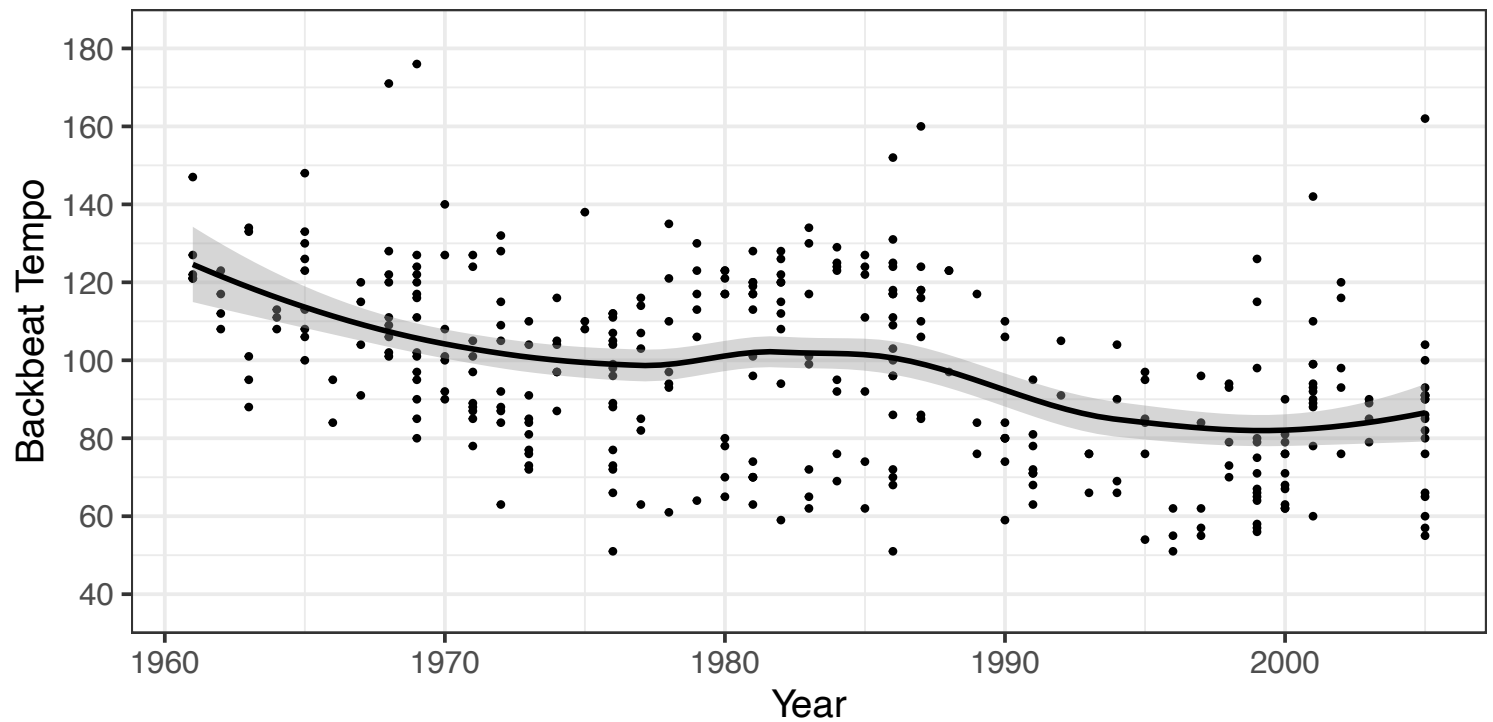
**4**  
**4** ♪ = 61 BPM  
**SWING 16THS**

**4**  
**4** ♪ = 122 BPM  
**HALF-TIME FEEL**  
**SWING 8THS**



**Songs without simple 8ths**

**Songs with simple 8ths but without simple 16ths**



# THANK YOU!

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