How gender affects immigrants' accent variation—An acoustic study on Hunan immigrants in Beijing

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ABSTRACT

This study examines accent variation among Hunan immigrants in Beijing with a focus on gender. Using the picture elicitation method, we compared the quantitative and acoustic differences of *er* suffixed words produced by immigrants of different genders in two production tasks. Our results show that female immigrants produce significantly more *er* suffixed words than male immigrants. Acoustically, female immigrants also differ from female Beijing locals in their retroflexion, as evidenced by lower F2 and F3 mean values of the same *er* suffix. We suggest that this accent shift may be due to the fact that female immigrants who are subject to social pressure from both their feminine and immigrant social status seek to assert themselves in the current patriarchal society by adopting the language of the place where they have immigrated. This study sheds light on the complex interplay of gender, social status, and language use in immigrant communities.

Keywords: *er* suffixation; gender; sociolinguistic; accent variation

1. INTRODUCTION

The inquiry into gender-related linguistic behaviours constitutes a salient and extensively debated topic within the field of sociolinguistics. Previous studies in sociolinguistics have posited that women exhibit a propensity for employing the prestigious variant of language, albeit lacking a cogent definition of what precisely constitutes "*prestigious form*". In order to comprehensively investigate the veracity of such claims and reveal the underlying drivers of potential accent shifts, this sociolinguistic study undertakes a focused production task of Hunan immigrants in Beijing. By analysing accent variation in words suffixed with "*er*" produced by immigrants of two genders through quantitative and acoustic analyses, this study endeavours to offer insights into the relationship between gender, language use, and sociocultural dynamics in the context of immigration and language contact.

2.LITERATURE REVIEW

2.1. Gender and the prestige form

Early studies on phonological gender differences have affirmed the tendency of women to be sensitive to the prestige form, and they shared the same conclusion that women are more conservative in their use of language and their usages are closer to the standard form which is used by the upper class in society.

Trudgill et al.[1] studied the use of *ng* in different classes in Norwich. The variable *ng* had two different phonologically free variants which are the prestige form [ŋ] and lower-class form [n]. The results showed that in formal contexts, women used the prestige form more than men, regardless of class. Also, when asked what form of speech they were using, women were more likely to report that they were using a form with more prestige attributes. Similar results were found in Macaulay [2] on different phonologically free variants of /i/ in Glasgow English. He found that people of lower social status had a more backward and lower tongue position when pronouncing the /i/ sound than people of higher social status. However, within the same social class, women pronounced it higher and more forward than men.

Both of the above studies provide evidence from the phonological perspective. Eisikovits' [3] studies about the speech of adolescents in Sydney provided us with evidence from grammar aspects. Eisikovits found that there were three ungrammatical usages in teenager speech, which were (1) Non-standard past tense form; (2) Multiple negations; (3) Invariable *don't*. Her results showed in each non-standard grammatical usage, a higher percentage was found in boys' speech in their daily lives than girls.

One can argue based on these results that it is the desire for being prestige that drives women to change their accents. However, some opposite linguistics strategies taken by females have been found in the literature.

Labov's [4] Philadelphia data showed that women lag in the use of variants that were widely used in the larger community. In order to explain this phenomenon, Labov proposed a higher level of the concept of prestige. He believed that two prestige forms should exist, a global prestige form on a larger scale, and a local prestige form confined to the local area. As the local culture fluctuated, some of the accents that were once popular and representing the standard may have become stigmatized in today's

society. And because the world's cultural mobility did not keep pace with local change, phonological forms that were considered backward at the level of local prestige were still compliant with global prestige. Nevertheless, the motivation where came from Philadelphia women used stigmatised variants also can be interpreted as not pursing the prestige form.

Other scholars have also offered their views by explaining that women's usage of stigmatised variants was motivated to gain more social benefits. For example, Eckert [5] suggested that not the prestige but the power is the most appropriate underlying sociological concept for the analysis of gender-based linguistic variation. Later in her long-term studies [6] she did show us a new way of thinking.

At a high school in Detroit, Eckert studied the students' accents. The majority accent was still American English. However, Eckert noticed that two free phonological variants were developing. One was backing of front vowel, and the other was raising of low nuclei. Students in this high school could also be separated into two groups generally, 'jocks' and 'burnouts'. The jocks engaged in school activities passionately, aiming at getting into a good university, whereas the burnouts focused more on outer-school affairs and aimed at finding jobs after finishing high school education. It turned out that the usages of these two variants were polarised in two groups. There was a higher percentage of girls in jocks than boys using the prestige form while female burnouts tended to have a heavier non-standard accent than male burnouts.

Based on this, Eckert argued that woman may not always choose the prestige form of language. Then she tried to account for the polarised usage by arguing that females concerned more with category membership. Therefore, girls must rely more on symbolic manifestations for social membership than boys. This motivated girls to use more symbolic linguistics forms. This interpretation also can fit the situation in the study of Clader et al [7]. This study examined /s/ variation in two African-American (AA) communities: one was AAs as the majority, the other was not. The results indicated that there was no gender difference in /s/ articulation among AA majority area, but a gender pattern existed among AA minority community, with women being significantly more fronted than men.

As to why women are more concerned with the social category to which they belong. Eckert provided an explanation by introducing the concept Bourdieu's Linguistic Market [8]. Eckert speculated that it is the result of women's powerlessness within society that plays a role. She argued that because society denied women the opportunity to advance their power or status through the marketplace, they were forced to rely on their symbolic resources, including language, to enhance their social position. Linguistic market was defined as a symbolic market. It was the market that can legitimate all kinds of linguistic features. Diverse linguistic features were unequally contributed to this market. It was the social culture that determined each feature's value. The most valued features were at the central position of the market. And those who held legitimate linguistic features can benefit from the market.

So far as reviewed, women did not simply pursue for the prestige form. The choice of different accents was a self-empowerment strategy adopted by women on their path to power. We can see that the studies reviewed above on women's linguistic strategies mainly focused on natives', but how about the situation in an immigrant society? Would females take more actions to adopt the most beneficial linguistic form than males?

Mendoza-Denton [9] argued that speakers were able to negotiate an identity that transcends ethnicity and interacts with gender and place-based notions of identity. In an immigrant society, the language of the immigrated place can play a role of benefit form for all immigrants. Through mastering the language of the immigrated place, one can be treated like a native who comes with a number of advantages in life and respect for social status. In order to better observe how the accent of the immigrant is changed, Hunan immigrants in Beijing were recruited, as the native language of the immigrants, namely the Xiang dialect, differs significantly from the Beijing dialect. Moreover, a crucial difference between these two dialects laied in the use of *er* suffixation—while *er* suffixation seldom appeared in Xiang dialect, it was an outstanding characteristic in Beijing Mandarin.

Therefore, we assumed that compared to immigrant males, immigrant females are more likely to use words suffixed with "*er*" in their daily conversations.

3. METHODOLOGY

To elicit the participants' *er*-suffixation production in natural spontaneous speech, two "storytelling with pictures" tasks were designed. As word frequency affects the rate of speech, and the more familiar a word is, the faster it can be extracted from the mind Oldfield & Wingfield [10], we randomly selected 12 familiar words with *er*-suffixation from the 60 "required *er* suffixed words" mentioned in Peng [11] as our target words. The participants were expected to produce these target words when they described the pictures and completed the storytelling tasks.

3.1. Participants

Thirty participants (15 males and 15 females) were recruited and divided into three groups. Group A

consisted of ten subjects (5 males and 5 females) from Miluo, Hunan Province; Group B consisted of ten subjects (5 males and 5 females) from Miluo, Hunan Province, who immigrated to Beijing and have been living in Beijing for 6-7 years; Group C consisted of ten local Beijing locals (5 males and 5 females).

3.2. Production test

3.2.1. Task 1(See in Figure 1,Appendix)

Scenario: Two little cats are describing "Specialties in Beijing". There are five specialties listed in the pictures and each of the specialty contained an *er* suffixation word.

Target words: 猫儿（catty) [mɑɚ]; 胡同儿 (HuTong) [tʰũɚ]; 吹糖人儿(suger-made people) [ɹəɚ]; 豆汁儿(soybean juice) [tʂəɚ]; 捏面人儿(rice cracker-made people)[ɹəɚ]; 四合院儿(SiHeyuan) [yəɚ]

3.2.2. Task 2（See in Figue 2 , Appendix)

Scenario: A little girl was crying under a tree because her schoolbag was hanging on a branch when a little boy came with a long pole to help her get her schoolbag down from the tree.

Target words: 孩儿(kid) [xaɚ]; 枝儿(branch) [tʂəɚ]; 包儿(bag) [pauɚ]; 杆儿(stick)[kaɚ]; 曲儿 (song) [tɕʰyɚ]; 鸟儿(bird) [njɑɚ]

3.3. Occurrence Er suffixation counting and acoustically analysis

To count the *er*-suffixed word, each occurrence of an *er*-suffixed word was assigned a score of one point. In cases where an *er*-suffixed word occurred multiple times within a subject's production, only one score was assigned. It should be noted that words containing the same *er*-suffixation root with different preceding modifiers were considered as different tokens for the purposes of scoring.

For the acoustic analysis of *er*-suffixed words, we chose the top 3 most frequently occurring words in the production of female speakers from Group B, ensuring a sufficient number of tokens for robust analysis. These preeminent *er*-suffixed words were [xaɚ] (little kid) (10 times), [ɹəɚ] (people) (6 times), and [tʂəɚ] (juice) (5 times). We annotated each token of these three words produced by the female speakers in Group B in Praat. Subsequently, for each token, the F2 and F3 formants at 11 equidistant points across their temporal span were extracted. The mean F2 and F3 values for each *er*-suffixed word were obtained by calculating the mean of the group data, and their values were utilised to graphically plot the final formants of females in Group B for subsequent intergroup contrasts. Similar procedures were replicated for females production in Group C where the three most frequently produced words were [xaɚ] 10 times, [ɹəɚ] 10 times, and [tʂəɚ] 5 times. Furthermore, we conducted T-tests to see if statistically significant differences between the groups could be found, using mean F2 and F3 values from Group B and Group C.

4. RESULTS

4.1. Statistical analysis of *er* suffixation

Group A achieved a total score of 15, indicating that the participants produced 15 valid tokens of er-suffixation words. Among Group A members, males scored a total of 11 with an average of 2.2, while females scored a total of 4 with an average of 0.8. In Group B, the total score was 43. The male participants in Group B scored a total of 4 with an average of 0.8, whereas females scored a total of 39 with an average of 7.8. Group C had a total score of 122. In Group C, men scored a total of 58 with an average of 11.6, while women scored a total of 64 with an average of 12.8. (*See Figure 3 & 4, Appendix*)

To investigate whether significant differences existed between various groups, we conducted a one-way ANOVA, which yielded a p-value of <0.01 (F=45.637). Based on this, we can confirm that there were notable disparities in scores across the groups. Subsequently, we performed a post hoc test using multiple comparisons, and the analysis revealed that while the difference in scores between group A and group B was significant (p=0.011), it was not as dramatic as the differences observed between Group C and A (p<0.01), as well as between Group C and B (p<0.01). These findings imply that Hunan immigrants in Beijing tend to employ more *er*-suffixed words in their daily speech than those who have never been to Beijing, likely due to the influence of the Beijing dialect on their accent. However, the number of *er*-suffixed words that Hunan immigrants in Beijing use still falls well short of the figure among the locals, indicating that other factors, such as length of residency in Beijing, might play a role. Overall, we can infer that the accent of Hunan immigrants in Beijing is influenced by the Beijing dialect, but this effect appears to be subject to certain constraints, leading to a nonnative-like performance in *er* suffixation production among this immigrant group. These findings will be further discussed in the subsequent sections.

In terms of within-group differences by gender, only Group B yielded a very significance (F=55.682, p<0.01). It indicated that although the accent of both male and female Hunan immigrants in Beijing is influenced by Beijing dialect, female immigrants are more affected by Beijing accent. Moreover, there is no significant difference in the number of *er* suffixed

words produced by male participants between Group A and Group B (F=1.2, p=0.305>0.05), which revealed the truth that the accent of male Hunan immigrants in Beijing is less influenced by Beijing dialect as compared to the accent of males who have never been to Beijing.

4.2. Acoustic analysis

For [tʂəɚ], there was no significant difference between Group B's F2 and Group C's F2 (t= -0.883, p=0.3>0.05), nor was there a statistically significant difference between Group B's F3 and Group C's F3 (t=0.245, p>0.8>0.05). For [ɹəɚ], both F2 and F3 in Group B were statistically significantly different from F2 and F3 in Group C (t=6.16, p<0.01; t=3.12, p<0.01). For [xaɚ] the results were similar to those for [ɹəɚ], with both F2 and F3 in Group B being statistically significantly different from those in group C (t=2.91, p<0.01; t=2.33, p<0.01).

The reason for the lack of significant difference between Groups B and C for [tʂəɚ] may be because the "soybean juice (豆汁儿)" is a local Beijing word, and for immigrants who have acquired Beijing as a second language, the *er* suffixation is part of the word and not learnt as an affix but an impartible part of it. Therefore, when it comes to the production of [tʂəɚ], immigrants would pronounce it with *er* suffixation unconsciously. Moreover, the better production performance of it may due to the consonant-vowel harmony. Since /tʂ/ itself is a retroflex consonant. (*See Figure 5 in Appendix*)

But why does Group B perform so differently from Group C in [ɹəɚ] but not so different in [tʂəɚ] given that they both contain a retroflex consonant initial? Here we offer two possible reasons for this contrast. Firstly, the absence of /ɹ/ in the consonants inventory of the Miluo dialect itself has a certain impact on the pronunciation for Group B, which was why they pronounced the consonant part of /ɹ/ not as smoothly and natural as /tʂ/. Secondly, in [ɹəɚ], the values of F2 and F3 are consistently lower in Group C than in Group B. This is probably due to the higher degree of retroflexion in Group C. This difference in the degree of retroflexion is hard to perceive, so it created more obstacles for Group B to truly acquire the pronunciation if they simply imitate what they hear.(*See Figure 6 in Appendix*)

For [xaɚ], the spectrum (Figure 7) shows that a sharp drop in F3 in Group C begins earlier than in group B, and the values for both F2 and F3 are lower than in Group B. This indicates that *er* suffixation process begins earlier in the native Beijing locals, and that the retroflexion begins almost as soon as the pronunciation of the initial consonant ends. Moreover, there is no significant difference between the two groups in the pronunciation of the initial consonant, and the significant difference between Groups B and C begins at the moment of vocalisation of the rhymes. The reason for this difference in the pronunciation of the *er* suffixation of the rhymes would be consistent with the results about the acquisition of the *er* suffixation of [ɹəɚ] mentioned earlier.

5. DISCUSSION

The results showed that, quantitatively, there is a large difference between male and female migrants in terms of the number of *er* suffixed words produced. Female immigrants produced more *er* suffixed words (up to one-third of the number of *er* suffixed words produced by native Beijingers), while male immigrants produced almost no *er* suffixed words. This suggested that female immigrants are more likely to take the immigrated place's accents than male immigrants. Acoustically, there is also a large difference in terms of the same *er* suffixed words produced by female immigrants and that produced by native female Beijing locals. Beijing females have a higher degree of retroflex by showing lower F2 and F3 mean values. This also indicated that more efforts were needed for female immigrants to acquire the same manner of articulation about *er* suffixation.

Findings in this study made it clear that the gender differences in immigrants' accent variation do exist. Female immigrants were more likely to use migrated area's dialect as an approach to empowering themselves. This is in line with Eckert's [4] suggestion that women are in an insecure social position in a patriarchal society and therefore use all means possible to enhance their social position. Females in immigrant societies are more motivated to change their accent than males in general societies because they are under pressure from both their immigrant status and famine status. We can use the linguistic market to explain this phenomena: the more native linguistic features and the more masculine linguistic features all participate simultaneously in the linguistic market. A distinction between these two is that the more native linguistic identity has a higher value in this market. As a result, female migrants change their accents in order to gain more capital to retain and enhance their social status. After all, benefits brought up by changing accents come more obviously than talking in the way which males do. Most importantly, the case of *er*-suffixed words we have observed in an immigrant society substantiates the assertion that women, deprived of access to real power, must claim their social status through the use of symbolic features.

6. REFERENCES

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7. APPENDIX

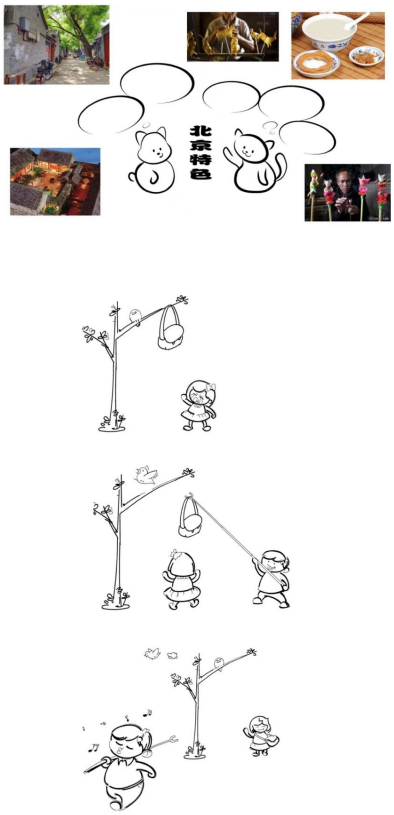


Figure 1&2 : Task pictures

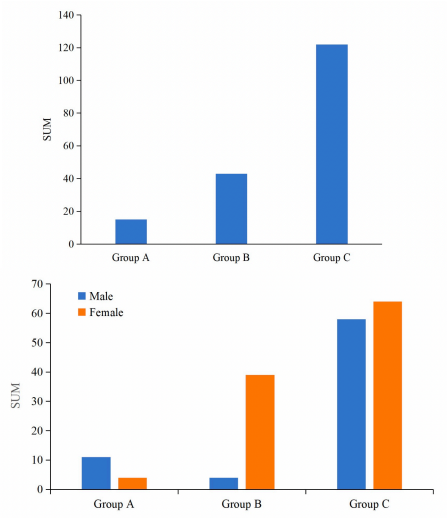
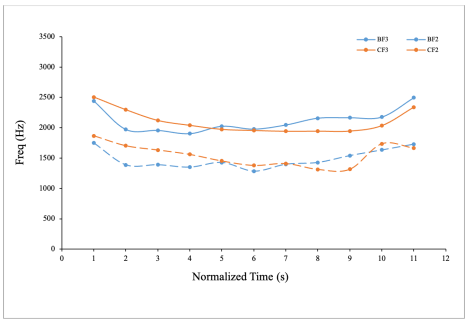
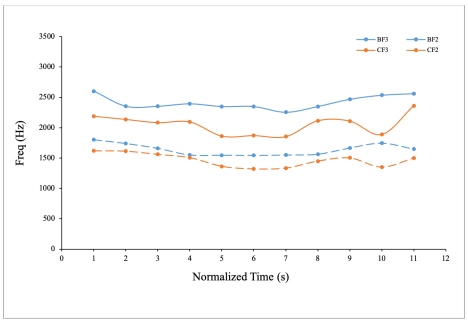


Figure 4&5: Group differences of results





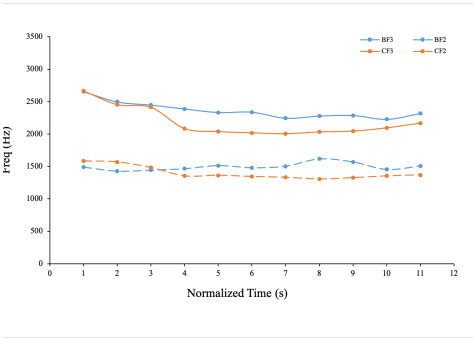


Figure 5, 6 &7: The F2 and F3 of [tʂəɚ]; [ɹəɚ]; [xaɚ]