

# The Origins and Spatial Diffusion of Female Professional Soccer Players in the United States, 1991–2015: Geographical and Sociocultural Perspectives

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## **Abstract**

In the latter half of the twentieth century and especially in the last twenty-five years, soccer has grown exponentially in the United States. In particular, the women's game has exploded with interest all around the country. Studies on the origins of professional athletes from a geographic perspective are relatively isolated and demonstrate a tendency to favor males in American professional sports. This study contributes to filling this identified gender gap in geographic sports studies. Results reveal that the origins of most female professional soccer players can be connected to suburbanized middle- to upper-middle-class communities close to major cities, mainly in coastal regions. From a per capita perspective, the results also show that states in the West produce more players than states in the East. Sociocultural perspectives explain these patterns, supporting a common assumption that most female professional soccer players in the United States are white and come from areas of relative affluence. In addition, the findings from this study show a distinct contrast between the origins of professional male athletes and female soccer players.

## **Introduction**

SINCE THE EARLY TWENTIETH CENTURY, football, or “soccer” as it's popularly known in the United States, has grown and established itself as the leading and most popular sport in the world (Rooney 1974; Bale 1989; Goldblatt 2006; Wangerin 2008). From 1930, when the inaugural Fédération Internationale de Football Association (FIFA) Men's World Cup was hosted in Uruguay, the tournament (which is held every four years) has become the largest global sporting event (Goldblatt 2006; Springer 2010). From a geographic perspective, the FIFA World Cup has acted as a catalyst for the global diffusion of soccer, which has now gained the official membership of more than 200 states from FIFA, the world's governing body of soccer.

In 1991, the first major international women's soccer tournament was established by FIFA when China hosted the inaugural FIFA Women's World Cup. The United States won this tournament. This came as a surprise to the soccer world because of the U.S.'s long history of little or scarce following or consumption of the sport, both in the mainstream media and in public opinion. At that time, the U.S. was without any recognized professional soccer leagues, the mainstream sports community did not consider soccer as one of the most popular national sports, and the men's national team had failed to qualify for the World Cup for over four decades. So with all of these obstacles, how did this country manage to produce a winning team for the inaugural FIFA Women's World Cup? And where did these world-class athletes come from?

In 2015, the United States women's national soccer team won its third World Cup tournament, making their country the most successful in the history of women's soccer. This has significantly shaped the landscape of women's soccer in the U.S. Since these achievements within the past twenty-five years, the diffusion of women's soccer has extended to most states and has now established itself in the mainstream of United States sports. In countless communities, millions of young women now play the sport and aspire to follow in the footsteps of the great heroines from the national team (Coombs 2014). This will ultimately result in female professional soccer players being produced from all over the country. But in which areas did this diffusion begin? And is it continuing today?

This research is positioned at the crossroads of two areas of study: sports geography and sociocultural perspectives on soccer in the U.S. Previous studies have indicated that the top elite male athletes from westernized countries originate from regions of lesser affluence, lower social classes, and multi-ethnic backgrounds (Rooney 1974; Bale 1983; Woodcock and Burke 2013). To this date, no such studies exist on the geographic origins of professional female athletes. In summation, studies on soccer from a geographic perspective have been relatively isolated and have demonstrated a tendency to favor male professional athletes. These studies are relatively dated, and, since their publication, there have been significant changes in society and culture involving women in sports. This provides significant potential for further research.

Multiple studies from the field of social-cultural perspectives on soccer in the United States have made it clear that soccer has been lagging in the United States sports mainstream when compared to sports like the big three-and-

a-half: American football, basketball, baseball, and ice hockey (Foer 2006; Wangerin 2008; Seese 2014). These studies suggest that outside of minimal participation in school physical education, soccer was not adopted in the U.S. during times of global diffusion, which took place during the industrial revolution. Instead, the sport was marginalized by being culturally defined as "un-American" or a sport for immigrants (Keyes 2014). Through this marginalization, there have been studies that suggest that many of America's youth, including females, adopted this sport as part of their culture and even without the support of the traditional American sports community; thus American youth did manage to maintain soccer as part of their culture from the late 1960s until the present (Foer 2004; Wangerin 2008; Seese 2014; Keyes 2014; Duerr 2014; Dettmar 2014).

The common trend that exists is that this marginalization is what has enabled women to have a presence in soccer. Markovits and Hellerman (2001) illustrate this point when explaining that soccer is a space of exceptionalism. They argue that women would never have had the opportunity to break into the baseball or American football markets, just as women have struggled to break into the male-dominated soccer markets in Europe and/or Latin America.

These studies support a hypothesis that these professional female athletes originate from middle-class suburbs, contrasting with the origins of professional male athletes. As the sport of soccer rapidly establishes itself as part of the American cultural and national identity, this research is committed to reveal how female professional soccer players have contributed to this landscape. It is therefore the intent of this study to identify the areas of origin and spatial diffusion of women's professional soccer players in the United States. Using secondary quantitative data and GIS, this research will represent the origins of these athletes over a period of twenty-five years, from 1991 (the year of the first FIFA Women's World Cup) to 2015 (the year of the latest FIFA Women's World Cup). Using five-year intervals, the goal is to reveal geographical patterns in this diffusion and, following Bale's (1989) "S-Curve Theory," to check for the clustering of these areas. The research will seek explanations for these patterns and will test the common assumptions that female professional soccer players in the United States are white and come from the middle to upper classes and areas of affluence (Foer 2004; Dettmar 2014).

## Methodology

The methodology of this research employs quantitative data collection by means of analysis and visualization, as well as a more qualitative approach, through interpretation and explanation of the quantitative results.

### Quantitative Data Collection and Analysis

Following Rooney (1974) and Bale (1983), who both obtained quantitative data through athletic team rosters in their respective studies, this study replicated the same method by acquiring United States professional women's team rosters, or league draft archives, and extracting for each player the hometown information plus the year she made her professional debut. For the purpose of this study, athletes with hometown information outside the United States are excluded, as this information is irrelevant to this research. Additionally, this research project follows the guideline of recording the information of where an athlete "grew up" (or attended high school) as opposed to her birthplace, because most athletes are shown to develop their skills during their teen years (Woodcock and Burke 2013).

The data collected fell between 1991 and 2015. Because no recognized professional women's leagues existed between 1991 and 2000, this study assumed that every player who represented the United States national team at major tournaments during this period was considered a professional-level player. The rationale to support this assumption is that the national team was amongst the World Cup finalists in 1991 and 1999, winning both tournaments and also placing third in the 1995 tournament. Additionally, the team also won the Gold and Silver medals at the 1996 and 2000 Olympics, respectively. In addition to game records, the list of most of the players who have represented the national team at major tournaments is available online through the FIFA World Cup Archive.

In the history of United States sports, there have been three different attempts to form women's professional leagues: the Women's United Soccer Association (WUSA), 2001–2003; the Women's Professional Soccer (WPS), 2009–2011; and the National Women's Soccer League (NWSL), 2013–present. Draft history, which reveals the debut year for each player, and rosters for all the teams are available online and contain the hometown information for most players. The names of the athletes that debuted during the first two attempted leagues (WUSA and WPS) were easily obtained; however, almost 30 percent of these players' hometowns were not. This was because some of these professional rosters would list the college that the players graduated from instead of their hometown. To include the college an athlete graduated

from (versus the desired hometown) into the data collection would have led to inaccurate results. Overcoming this obstacle required manual searches on each individual player through her online college roster to discover this missing hometown information.

A spreadsheet was the primary tool to record the data (see Table 1). As shown in the table below, the following information was recorded: "Player Name," "Debut Year," "Club," "Town/City," "County," "State," "Latitude," and "Longitude."

Table 1.—Example of Data Collection.

Player Name	Debut Year	Club	City/Town	County	State	Latitude	Longitude
Player A	1991	USA	Rancho Palos Verdes	Los Angeles	CA	33.744461	-118.387017
Player B	1991	USA	Mission Viejo	Orange	CA	33.600023	-117.671995
Player C	1991	USA	Huntington Beach	Orange	CA	33.660297	-117.999227

Following the same methodology as in Rooney (1974), hometown origins are divided into two categories: states and counties. GIS mapping software was the primary tool to represent the results of the data collection. The data are divided into five groups using equal intervals: 1991 to 1995, 1996 to 2000, 2001 to 2005, 2006 to 2010, and 2011 to 2015. A total representation of the entire study period is also included in the results section. By obtaining the year of the professional debut, each athlete can be placed into one of the five-year interval groups. The purpose of the interval groups is to reveal any changes or diffusion patterns of player origins during the study period. The GIS mapping software visualized these findings by generating maps that show the soccer-player production level of each state and county. It must be noted that no players are duplicated in any of the intervals.

Rooney (1974) and Bale (1983) discuss two types of representation in athlete production in a spatial sense: "pure production" and "production per capita." "Pure production" is simply the quantity of players produced in a specific area. For example, the state of California produced forty-four players during the 2001 to 2005 interval. "Per capita production" is slightly more complex and requires population census data and a mathematical calculation to express the result. One must divide the number of players produced (either by county or state during an interval) by the population number of that specific county or state. Rooney (1974) and Bale (1983) both took this

to the next level and offered “per capita index values” to represent the “per capita production.”

“Per capita index value” can be found using this formula:  $I = \frac{N}{P} \div n$

Here  $I$  is the per capita index value of player production,  $N$  is the number of the players produced in a given area,  $P$  is the population of the area, and  $n$  is the number of players per capita produced in the country as a whole. Bale writes:

The national per capita level of production is represented by an index of 1:00. A region or county with an index of 2:00 would be producing professional footballers at twice the national per capita norm, while one with an index of 0.5 would be producing at only half the national per capita level. (Bale 1983, 142)

Rooney (1974) and Bale (1983) both argue that “production per capita” provides a more accurate assessment for an area when it comes to the production of athletes. “Pure production” is still a necessity when analyzing the findings, which is discussed in the analysis section of this study. In this study, the “per capita index value” for all athlete producing states and counties was calculated.

Obtaining U.S. Census data from the 1990, 2000, and 2010 Censuses and an estimation for 2015 allowed the ranking of “production per capita” for all five intervals. In addition, calculating the population average between 1991 and 2015 also shows “per capita production” for the entire twenty-five-year study period. This was crucial when revealing the true hotbeds of professional female soccer talent in the United States.

According to Woodcock and Burke (2013), it is important to recognize that the birthplace and the area where an athlete developed skills can be different. For example, it is possible for a player to be born in Albany, New York, but at the age of fourteen relocate to Dallas, Texas, thus changing the defined hometown for that particular player. If the secondary data in an athlete’s record show only the birthplace, then this may result in some inaccuracies and inconsistencies.

As previously stated, there was a strong chance that not all player records would be available. If an athlete’s hometown information is not available, it cannot be included in the analysis of results. Fortunately, because of this, only five professional players out of 530 could not be included in this research.

A final issue is the absence of those American professional players who have never played in the United States. It is not realistic to search the rosters of every professional team in the world, and those athletes are also not included into this study.

### **Qualitative Interpretation and Explanation**

It is during this phase that the areas of professional player production will be identified. The statistics from the “pure production” and “per capita production” will allow a fair representation of the areas of the most talent during the study period. Census data, such as on population growth, median ages, household income, and ethnicity, are used in an attempt to answer the research questions, in particular, at the county level. It is not feasible to investigate the demographic information of every single county. Therefore, for the purpose of this study, the top eleven player-producing counties revealed during the data representation phase are examined to the greatest extent. Several of the least producing areas are also examined to provide some comparison.

## **Findings**

### **Production of Players 1991 to 2015 at State Level**

#### **Interval 1: 1991–1995**

Table 2 (below) shows that California produced the most players during the 1991-to-1995 interval, with nine in total. Washington also produced a greater number of players in comparison to other states. Four players from Washington were produced during this period; although this is less than half the total number from California, they produced the highest per capita ranking, with an index value of 6.85, which is almost seven times more than the national average (Table 2).

Table 2.—Interval 1: Professional Player Production by State (1991 to 1995).

Rank	State	Pure Production of Players	State Per Capita Index Value
1	California	9	2.61
2	Washington	4	6.85
3	Minnesota	2	3.96
4	Virginia	2	2.78
5	Texas	2	0.97
6	Oregon	1	2.94
7	Connecticut	1	2.75
8	Colorado	1	2.43
9	Maryland	1	1.83
10	Massachusetts	1	1.49
11	Georgia	1	1.26
12	New Jersey	1	1.14
13	Illinois	1	0.77

The findings from this interval suggest that most of the players are located on both East and West Coasts, with the West Coast demonstrating the strongest per capita production. In total, thirteen states produced at least one player, yielding twenty-seven players in total during the 1991-to-1995 interval. This suggests that the leading areas of origin for female professional players would be the states of California and Washington (Table 2 and Figure 1).

**Interval 2: 1996–2000**

The 1996-to-2000 period is characterized by declining numbers: a total of only fifteen players were produced, and there is a similar geographic pattern to the first interval, with the most players coming from coastal regions (Table 3). Again, California dominates by producing six times the total number of players from the nearest state, with a total of six. All other states did not produce more than one player. Washington, being one of these states, continues to maintain consistency with a high-ranking per capita index value. The continuing line of production of players from California indicates a clustering pattern.

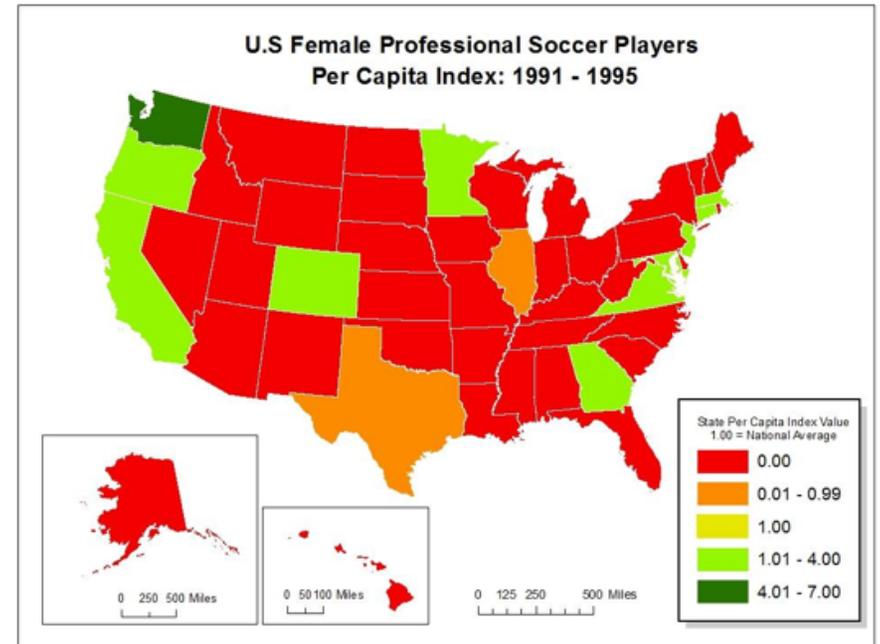


Figure 1.—Interval 1: Professional players per capita index map (1991 to 1995).

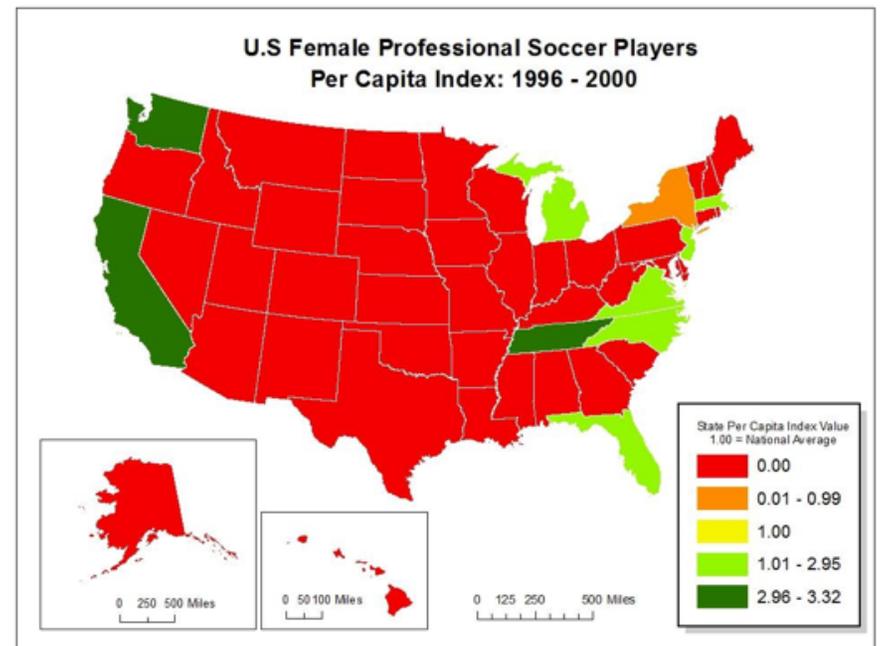


Figure 2.—Interval 2: Professional players per capita index map (1996 to 2000).

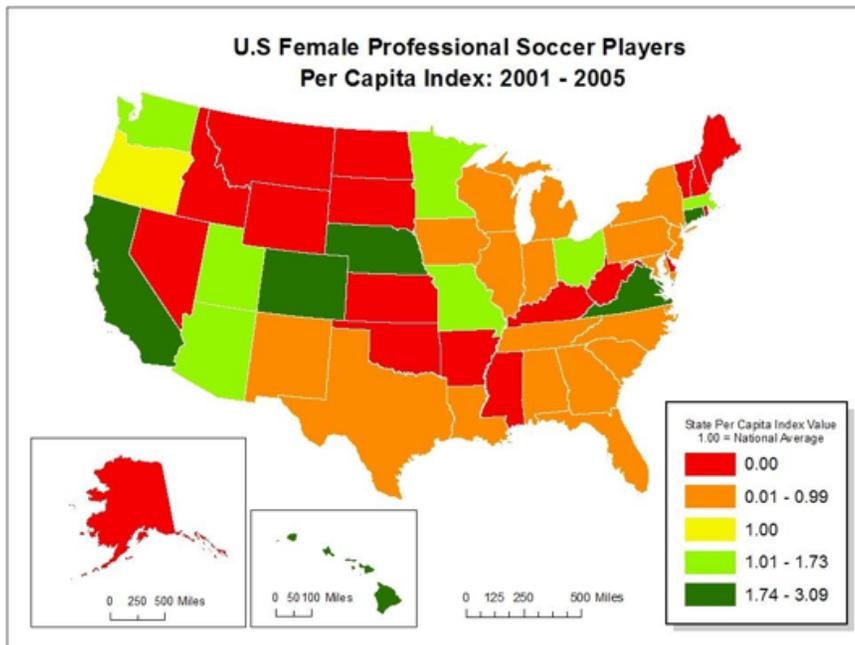


Figure 3.—Interval 3: Professional players per capita index map (2001 to 2005).

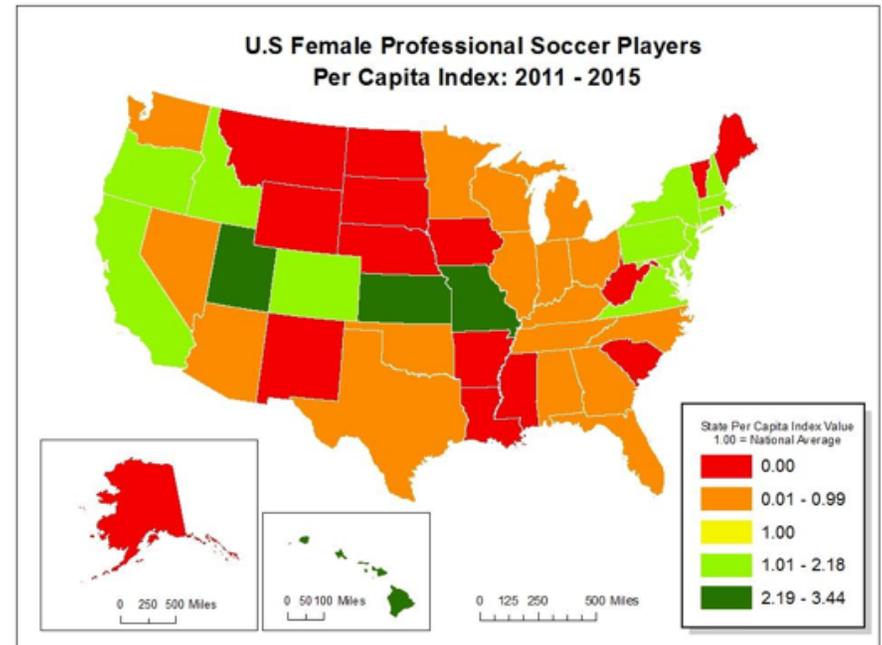


Figure 5.—Interval 5: Professional players per capita index map (2011 to 2015).

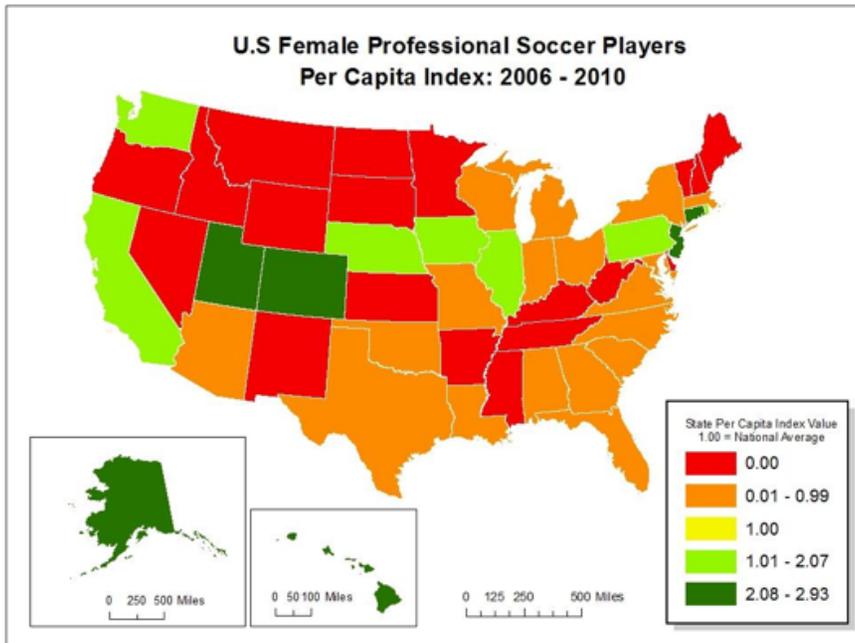


Figure 4.—Interval 4: Professional players per capita index map (2006 to 2010).

Table 3.—Interval 2: Professional Player Production by State (1996 to 2000).

Rank	State	Pure Production of Players	State Per Capita Index Value
1	California	6	3.32
2	Washington	1	3.18
3	Virginia	1	2.65
4	New Jersey	1	2.23
5	Massachusetts	1	2.95
6	New York	1	0.99
7	Florida	1	1.17
8	North Carolina	1	2.33
9	Michigan	1	1.89
10	Tennessee	1	3.30

There is a sign of diffusion with player production from Virginia into Tennessee to the west and North Carolina into the south (Figure 2). Diffusion is also seen from New Jersey and Massachusetts into New York. As previously stated in the methodology, due to the nonexistence of professional leagues

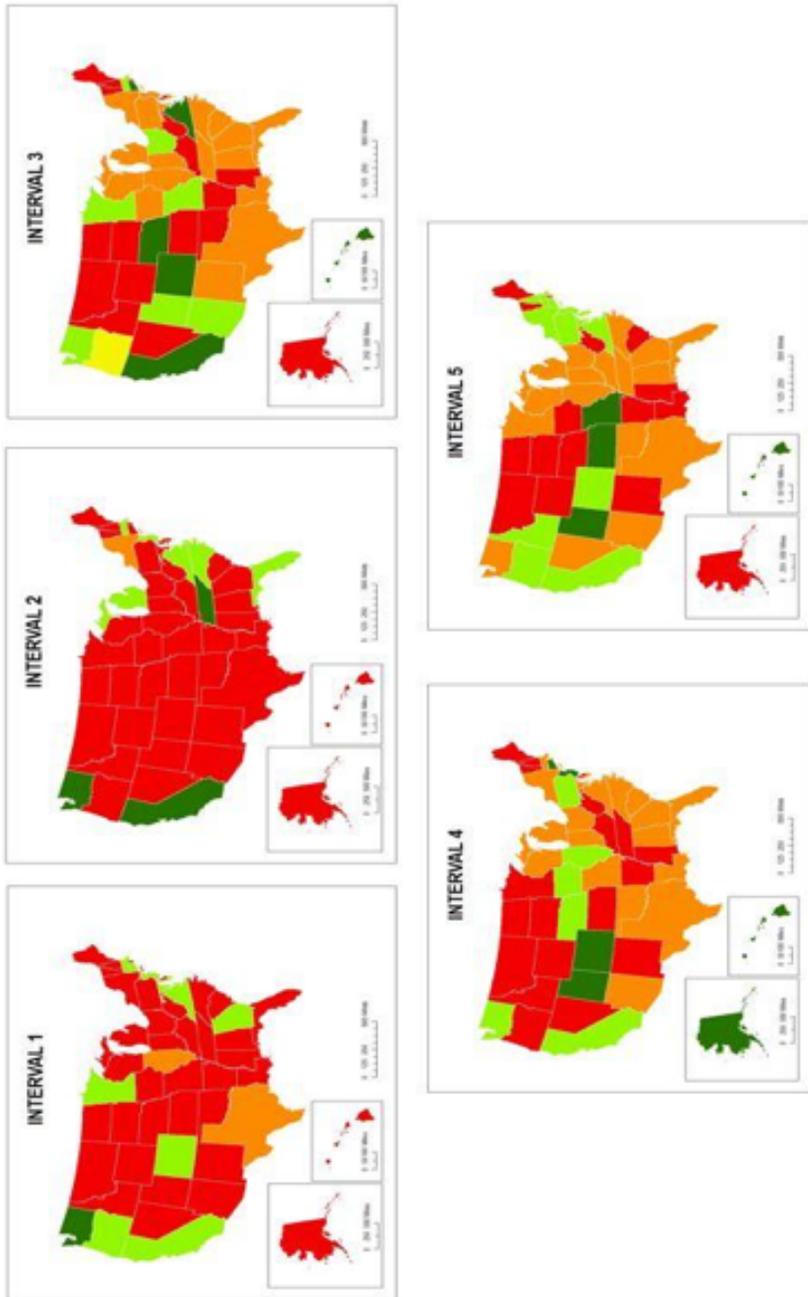


Figure 6. — Diffusion map of professional player production (1991 to 2015).

between 1991 and 2000, these are the players who represented the national team during the 1991, 1995, and 1999 FIFA Women’s World Cups, and the 1996 and 2000 Olympic Games. In total, forty-two players were considered professional-level players during this ten-year period.

### Interval 3: 2001 to 2005

Results from the 2001-to-2005 interval (Table 4) show an exponential increase, with a total of 162 players. The creation of the first-ever women’s professional soccer league explains this growth, with fourteen states showing production for the first time. This significant change in the sport was not only the reason for the increase in players, but also the catalyst for their diffusion from the East and West Coasts, to the interior of the country (Figures 3 and 6). These diffusion patterns are consistent with Bale’s (1989) hierarchical innovation diffusion theory.

Following the trend from the previous two intervals, California leads the way with a total of forty-four players, which is four times the number of players from Texas, which holds the second-place slot with eleven players. Table 4 shows all of the states (thirty-two in total) that produced one or more players during this interval. Texas, New York, and Florida (all ranked among the top five for “pure production”) are actually producing lower than the national per capita index value of 1.00 (Table 4).

Colorado and Connecticut are the highest per capita producing states in the top ten (scoring 2.71 and 2.62, respectively). Not ranked highly in pure production, Nebraska (3.09) and Hawaii (2.89) both scored highly on the per capita index (which also were the highest-ranking per capita scores). With the exception of Nebraska, all of the states in the Midwest region did not score highly with their respective per capita index scores (Table 4 and Figure 3).

Similar results for this period are seen in the South. A common trend is that every state scored under 1.00 in the per capita index values, meaning that the entire region was producing below the national average (Figure 3).

Table 4.—Interval 3: Professional Player Production by State (2001 to 2005).

Rank	State	Pure Production of Players	State Per Capita Index Value
1	California	44	2.23
2	Texas	11	0.87
3	New York	10	0.95
4	Virginia	9	2.18
5	Florida	8	0.84
6	Colorado	7	2.71
7	Ohio	7	1.11
8	Washington	6	1.73
9	Massachusetts	6	1.69
10	Connecticut	5	2.62
11	Arizona	5	1.54
12	Pennsylvania	5	0.73
13	Missouri	4	1.26
14	North Carolina	3	0.62
15	Minnesota	3	1.07
16	Nebraska	3	3.09
17	Indiana	3	0.87
18	New Jersey	2	0.42
19	Michigan	2	0.36
20	Illinois	2	0.29
21	Oregon	2	1.00
22	Georgia	2	0.40
23	Utah	2	1.44
24	Hawaii	2	2.89
25	South Carolina	2	0.84
26	Tennessee	1	0.30
27	Maryland	1	0.33
28	Alabama	1	0.40
29	Wisconsin	1	0.33
30	Iowa	1	0.61
31	New Mexico	1	0.93
32	Louisiana	1	0.41

In contrast to both the Midwest and the South, the West shows greater per capita index (Table 4 and Figure 3). With the exception of New Mexico (0.93, just below the national average), each player-producing state scored at least 1.00 or greater. In the East (along with the previously mentioned Connecticut), Massachusetts and Virginia are the highest performing states (Table 4 and Figure 3). These findings indicate that the East and West regions of the country are better producers of female professional soccer players than the Midwest and the South.

#### Interval 4: 2006 to 2010

The fourth interval, between the years of 2006 to 2010 (Table 5), shows a spike in production from the states of Illinois and New Jersey, with a total of thirteen and eleven players, respectively; both produced only two players in the previous interval. California, Colorado, Connecticut, Texas, New York, and Washington all appear in the top ten of pure production for a second successive interval, yielding similar results in both pure production and per capita production. Most other states also show either a slight increase or decrease of one or two players. There is a notable decrease in production of three players or more from Florida, Massachusetts, Minnesota, Ohio, and Virginia. There is also first-time production from Alaska, Oklahoma, and Rhode Island, taking player production diffusion from thirty-two states up to thirty-five. Colorado, Hawaii, and New Jersey are the top three in per capita production, while Connecticut appears in the top five for the third time in the past four intervals. One hundred sixty-five players in total were produced during 2006–2010, making this the highest-producing interval (Table 5).

Observations of the map from this period do not show any notable changes from the third interval (Figure 4). The West and East regions continue to show higher areas of per capita production, with the Midwest still inconsistent and the South remaining the lowest.

Table 5.—Interval 4: Professional Player Production by State (2006 to 2010).

Rank	State	Pure Production of Players	State Per Capita Index Value
1	California	42	2.07
2	New Jersey	13	2.76
3	Illinois	11	1.57
4	Texas	10	0.74
5	New York	10	0.96
6	Colorado	8	2.93
7	Pennsylvania	7	1.04
8	Washington	6	1.66
9	Florida	5	0.49
10	Connecticut	5	2.65
11	Virginia	4	0.94
12	Georgia	4	0.75
13	Utah	4	2.63
14	Ohio	3	0.48
15	Massachusetts	3	0.86
16	Arizona	3	0.83
17	Missouri	3	0.94
18	North Carolina	3	0.59
19	Maryland	3	0.98
20	Wisconsin	3	0.98
21	Indiana	2	0.58
22	Hawaii	2	2.86
23	Alabama	2	0.79
24	Iowa	2	1.22
25	Nebraska	1	1.03
26	Michigan	1	0.19
27	South Carolina	1	0.40
28	Louisiana	1	0.42
29	Alaska	1	2.69
30	Rhode Island	1	1.77
31	Oklahoma	1	0.50

Interval 5: 2011 to 2015

The last interval, 2011 to 2015, contains the most player-producing states from the entire study period, with thirty-four in total (Table 6). The total number of players produced was 156, which is the lowest in the last three intervals. These findings follow the “S-Curve Theory” (Bale 1989). The first two intervals are the incubation period, where the production of players is slow and steady. The third interval indicates the middle phase, where there is a dramatic spike in production. Production in intervals four and five demonstrate the saturation phase, where the production of players is similar to the end of the middle-spiking phase.

California shows a dramatic decrease from the previous interval, dropping from forty-two players to twenty-eight. This suggests that, although the number of players being produced nationally has not declined, the distribution of players has spread to different areas (Table 6).

Texas and New York return to the top three for pure production, though their performances remain consistent for the third successive interval. Missouri increased its production from three players to seven, resulting in a relatively high per capita index score of 2.37. Kansas produced four players, the only players produced throughout the study period. Kansas (along with Hawaii, Missouri, and Utah) is in the top four per capita ranking in this interval. Colorado and Connecticut both dropped by three players to move out of the top five per capita ranking for the first time in three intervals; however, they still show high scores of 1.89 and 1.15, respectively (Table 6). New Jersey and Illinois show regression in their production after their large spikes in the third interval. Notably, Pennsylvania and Utah show small but consistent increases over a fifteen-year period (Tables 4, 5, and 6).

Table 6.—Interval 5: Professional Player Production by State (2011 to 2015).

Rank	State	Pure Production of Players	State Per Capita Index Value
1	California	28	1.48
2	New York	12	1.25
3	Texas	11	0.82
4	New Jersey	9	2.07
5	Florida	9	0.91
6	Pennsylvania	8	1.29
7	Missouri	7	2.37
8	Illinois	6	0.96
9	Virginia	6	1.47
10	Massachusetts	6	1.82
11	Colorado	5	1.89
12	Utah	5	3.44
13	Maryland	4	1.37
14	Kansas	4	2.83
15	Washington	3	0.86
16	Ohio	3	0.53
17	Arizona	3	0.91
18	Michigan	3	0.62
19	Connecticut	2	1.15
20	Georgia	2	0.40
21	North Carolina	2	0.41
22	Wisconsin	2	0.71
23	Hawaii	2	2.89
24	Alabama	2	0.85
25	Minnesota	2	0.75
26	Oregon	2	1.02
27	Indiana	1	0.31
28	Oklahoma	1	0.53
29	Tennessee	1	0.31
30	Delaware	1	2.18
31	New Hampshire	1	1.55
32	Idaho	1	1.24
33	Nevada	1	0.71
34	Kentucky	1	0.46

## Summary: Production of Players 1991 to 2015 at State Level

Table 7 presents the data from all five intervals. A total of 525 players hailing from forty-one states played professional soccer from 1991 to 2015. With a total of 129 players, California ranks the highest in pure production, which is almost 25 percent of female professional players. Only sixteen of the forty-one states entered into double figures throughout the entire study period 1991 to 2015 (Table 7). This indicates that although player production has diffused to most parts of the country, just over a third of these producing states have developed players at a larger and more consistent level. These higher-producing states indicate clustering of their production.

Alaska, Delaware, New Hampshire, Idaho, Nevada, Kentucky, Rhode Island, and New Mexico were the eight states that yielded only one player from all five intervals. Most of these states produced that player in the last interval. This indicates that the production of players in these states is either an outlier or they are in the early phase of their development, meaning they may produce more players in the future.

California, Massachusetts, New Jersey, Virginia, and Washington are the only five states that produced at least one player in all five intervals, all of which rank inside the top ten and all scored above the 1.00 national average per capita index, with the exception of Massachusetts, which scored 0.98. All of these states are located in coastal regions, demonstrating that these could be the origin and clustering areas of production (Table 7 and Figure 7).

The West ranks the highest in per capita production. Colorado (1.89), Utah (1.85), and Hawaii (1.79) were the top three. The top East representatives were Connecticut (1.36), New Jersey (1.16), and Virginia (1.15). In the Midwest, Missouri (with a below-national-average score of 0.93) was the highest, which still ranks inside the top ten. The highest-ranking state in the South was Florida (with a per capita score of 0.54), which is almost half of the national average, suggesting that the South is the lowest-producing region for professional players. Only eight of forty-one states are producing above the 1.00 national average per capita index (Table 7 and Figure 7).

Table 7.—Total Professional Player Production by State (1991 to 2015).

Rank	State	Pure Production of Players 1991–2015	State Per Capita Index Value
1	Colorado	21	1.89
2	Utah	11	1.85
3	Hawaii	6	1.79
4	California	129	1.42
5	Connecticut	13	1.39
6	Washington	20	1.28
7	New Jersey	26	1.16
8	Virginia	22	1.15
9	Massachusetts	17	0.98
10	Missouri	14	0.93
11	Nebraska	4	0.86
12	Arizona	11	0.84
13	New York	33	0.64
14	Maryland	9	0.63
15	Illinois	20	0.61
16	Texas	34	0.60
17	Pennsylvania	20	0.59
18	Alaska	1	0.59
19	Oregon	5	0.56
20	Kansas	4	0.55
21	Florida	23	0.54
22	Minnesota	7	0.53
23	Delaware	1	0.48
24	Ohio	13	0.42
25	Georgia	9	0.42
26	Alabama	5	0.42
27	North Carolina	9	0.42
28	Wisconsin	6	0.42
29	Iowa	3	0.38
30	Indiana	6	0.37

Table 7.—Continued.

Rank	State	Pure Production of Players 1991-2015	State Per Capita Index Value
31	Rhode Island	1	0.35
32	New Hampshire	1	0.31
33	Idaho	1	0.30
34	South Carolina	3	0.27
35	Michigan	7	0.27
36	Oklahoma	2	0.21
37	New Mexico	1	0.21
38	Nevada	1	0.21
39	Tennessee	3	0.20
40	Louisiana	2	0.17
41	Kentucky	1	0.09

In summary, the key findings at the state level suggest that the spread of production of female professional soccer players begins and clusters on the East and West Coasts. Player production from these places of origin then diffuse to the interior states, as well as to Alaska and Hawaii (Figures 1–7). Typically, the Midwest and Southern states have been identified as prime hotbeds for male athletes (Rooney 1974). These findings support the hypothesis that the geographic origins of male and female athletes are different. Colorado, Utah, and Hawaii are respectively ranked as the top three producing states in terms of per capita production. This finding is significant because these three states’ consistent productions did not begin until the third interval (Figures 3 and 6). This is evidence that these states are areas where diffusion spreads to, as opposed to the areas of origin or “origin points.” These states are also in close proximity to California, which has shown evidence of being a state of origin for female professional players. Therefore, an argument can be made that these states are the areas of diffusion from the California origin core. These findings suggest that the West region of the country is the strongest producer of female professional players.

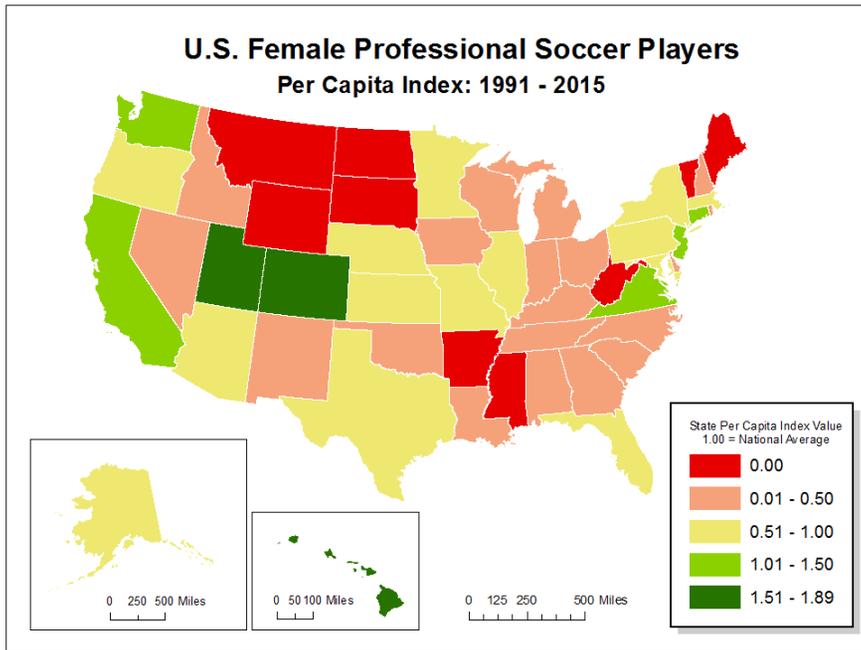


Figure 7.—Total professional player production per capita index map (1991 to 2015).

### Summary: Production of Players 1991 to 2015 at County Level

Examination of player production at the state level can reveal the origins and diffusion patterns; however, a more specific examination at the county level can also reveal more details for understanding why certain socio-demographic areas produce more players than others.

A total of 203 counties were responsible for producing 525 players over the twenty-five-year study period. Table 8 shows the top eleven counties from all five intervals. The ranking from this table is based on counties that produced the most players (at least eight), and are sorted based on per capita index scores. These counties, with the exception of Maricopa, Arizona (the lowest-ranked in this table), are located in coastal regions. Of these ten coastal counties, seven are from the West and three from the East.

Table 8.—Top 11 Counties in Professional Player Production (1991 to 2015).

County Name	Abrv	Pure Production of Players 1991-2015	County Per Capita Index Value 1991-2015
Santa Clara	CA	19	5.94
Fairfax	VA	10	5.44
Orange	CA	25	4.62
Nassau	NY	11	4.47
Contra Costa	CA	8	4.37
King	WA	12	3.59
Suffolk	NY	8	3.00
San Diego	CA	16	2.96
San Bernardino	CA	8	2.36
Los Angeles	CA	23	1.27
Maricopa	AZ	8	1.26

From the West region, six of these counties are from California. Santa Clara County, California, which did not perform as strongly in the last two intervals, is the strongest producer of female professional soccer players, based on the per capita index. It produced a relatively high number of players, but what is remarkable is the per capita index score of 5.94, which is almost six times the national average (Table 8).

Figure 8 below shows the location of players produced in the metropolitan area of San Francisco. The players are mostly located in the suburbs of San Jose, California. Figure 8 also shows the distribution of players from the New York metropolitan area, again showing a concentration in suburban areas, most notably in Long Island, New York. The maps show a comparative examination of two large metropolitan areas (San Francisco and New York) and indicate that with the exception of Oakland, California (it produced only three players), virtually no players come from the inner city areas. This feature underscores the point that most players come from the suburbs of major cities in these coastal regions (Figure 8)

Orange County, in Southern California, produced twenty-five players, which was more than any other county, and has a relatively high per capita index score of 4.62, which is over four-and-a-half times the national average. Orange County is also, arguably, the most consistent producing county nationwide. Below is another comparative map of two large metropolitan areas:

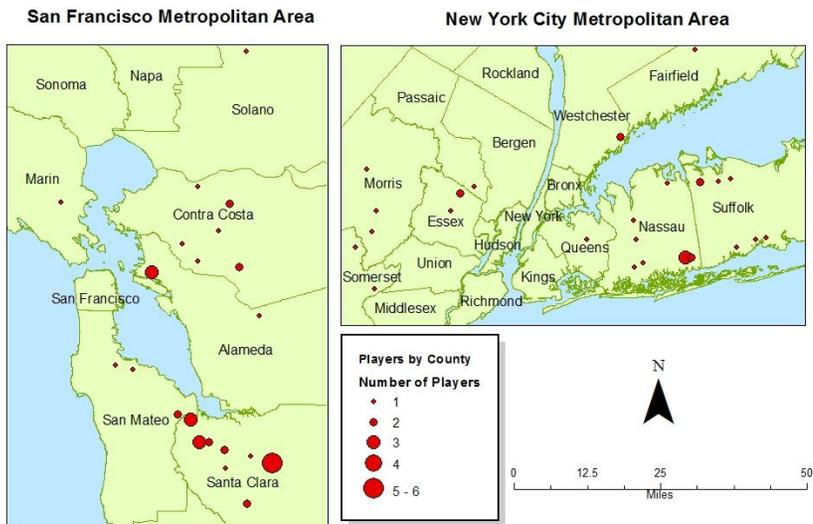


Figure 8.—Total professional players: San Francisco and New York areas (1991 to 2015).

Chicago, Illinois, and Los Angeles, California. Figure 9 shows the location of players in Orange County, in proximity with the city of Los Angeles, known for many suburban areas within its city limits. The map of Los Angeles, the largest-producing part of the country, shows that most of the players are from the suburban areas. Collectively, the state of Illinois produced a relatively

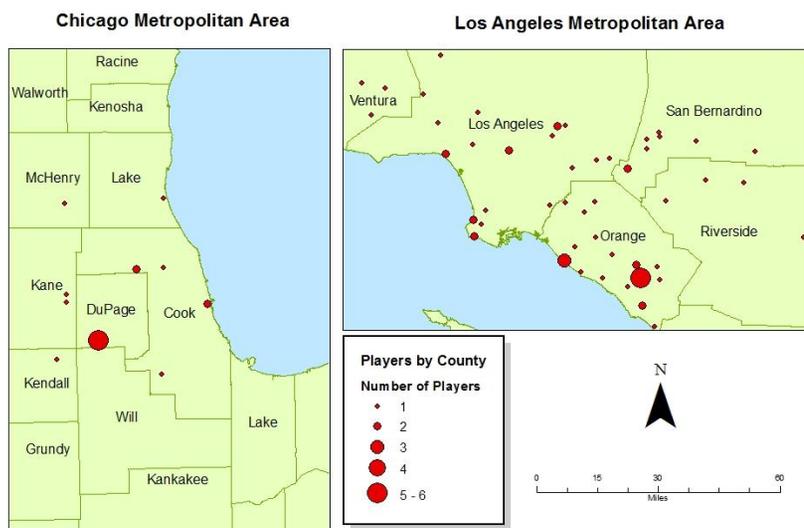


Figure 9.—Total professional players: Los Angeles and Chicago Areas (1991 to 2015).

high number of players (twenty in total), and most of these players come from the suburbs of Chicago. This is evidence to support a claim that most players come from suburban areas close to major cities (Figure 9).

Contra Costa County, California, and San Bernardino County, California, both produced eight players. Contra Costa was ranked higher in terms of the per capita index, producing more than one and a half times the players produced by San Bernardino. A similarity between both Contra Costa and San Bernardino Counties demonstrates that their greatest production occurs in the later intervals, which would support a hierarchical diffusion theory (Bale 1989).

The counties of Los Angeles and San Diego produced twenty-three and sixteen players, respectively. Los Angeles, which produced players in four of the five intervals, scored 1.27 on the per capita index. Although this was relatively low in the top ten ranking, it still maintains a score above the national average. San Diego produced at a stronger rate than Los Angeles; as one of the five counties that produced players in all five intervals, it scored 2.96 in the per capita index, which is almost three times the national average. Interestingly, the exact locations of the players in these counties (Figure 9 for Los Angeles), suggest that the players came from suburban areas, as opposed to the core urban areas.

Fairfax County, Virginia, which was one of the five counties to produce at least a single player in all five intervals, had just over half of Santa Clara's total, but scored 5.44 on the per capita index. Geographically, Fairfax is a suburb outside of Washington, D.C. The other two eastern counties in this top ten ranking are Nassau, New York, and Suffolk, New York, which are neighboring counties on Long Island, New York. Both of these counties are suburbs of New York City, further providing evidence that the top producing areas are in suburban areas located near major cities (Figure 8).

King County, Washington, which is also located on the West Coast, produced twelve players in total, with a score of 3.59, which is over three and a half times the national average (Table 8). The county was also one of the five to produce players in all five intervals consistently. The individual locations of these players suggest that they are close to the city of Seattle, Washington; however, they still tend to follow the trend of being located in suburban areas. Maricopa County, Arizona, which contains the city of Phoenix, produced eight players, with a per capita score of 1.26. This was the lowest per capita score of the top eleven, and, as previously stated, the only county in this list that is not located in a coastal region. The county also follows a pattern

similar to that of King, though, whereby players are in close proximity to the major city but are still produced in the suburban areas.

The summary of results indicates that most female professional soccer players' place of origin can be located in coastal regions favoring the western side of the United States and in suburban areas of counties that are in close proximity to major cities.

## Analysis and Discussion

Finding a single reason why the suburbs that are in the proximity of major coastal cities identify as both the origins and leading producers of professional female players is likely not possible. Rather, a series of reasons or explanations is needed.

The heavy influence of suburban places of origin is a good starting point for this explanation. As Keyes (2014) explains, the mass post-Second World War expansion to the suburbs created an emergent middle class. What was also created is a different landscape that affected the culture of youth activities. In urban or inner-city neighborhoods, it is common to see children playing sports out in the streets with their friends. The definitions of these activities would vary, but none more so than the ones influenced by favorite national professional sports. Notably, most of these children were male, as it was not socially acceptable for girls to play “rough” sports (Young 1990). Children would idolize their sporting heroes, organize and officiate their own games, and in most cases even keep their own scores and records. With the emergence of the suburbs in the United States, this culture drastically changed, especially in the late 1960s and throughout the 1970s and 1980s. The geography of the suburbs meant that the larger distances in neighborhoods was one of the main factors that did not logistically allow children to continue this culture. Transportation was required, which meant the involvement of parents (Keyes 2014). In this new suburban culture, middle-class parents could supervise their daughters and, therefore, feel safe with them participating in activities. This was a significant factor in the introduction of soccer to young females.

The fact that soccer was chosen as a sport for young females to participate in can be traced to the differences in social class. Simply put, the working classes have never really promoted the inclusion of females in sports. This has been represented in the global history of sports that are dominated by the working classes. This sexist exclusion of women, together with the exclusion of soccer in the United States, formed a unique partnership between the sport

and females—a partnership that was adopted, nurtured, and developed by the middle class. This introduction of soccer as a key part of youth in the suburbs offers an explanation for the large number of female professional players that have been produced in these areas.

The state of California is the leading producer of female professional soccer players. Keyes (2014) points out that the transformation of soccer as an Americanized sport started in Los Angeles in the late 1960s with the creation of the American Youth Soccer Organization (AYSO). It was responsible for branding and promoting the marginalized sport of soccer, by making it family-friendly and tagging it with a “safe” image. This organization quickly spread into most suburban areas of California and then into other parts of the country. The organization turned out to be, and still is, a big influence for the growth of the sport in middle-class youth culture. This would perhaps explain why California dominates the production of female soccer players. As many as six different counties in California are the leading producers of female soccer players.

The innovative role of an organization like AYSO could suggest that the origins of women's soccer started in this part of the country, and therefore, following Rooney's (1974) ideas about sporting legacy, would explain why these places demonstrate clustering rather than hollowing by diffusion. However, the creation of AYSO is not enough to explain the vast numbers of players who have been produced in this state; there are several additional explanations. California has large, heavily populated suburban areas, which are similar in size to small cities. Rooney (1974) discusses the importance of the size of places for team sports. He argues that a city that is too big would impact the popularity of a team sport by limiting the number of opportunities to play. This is an important observation from the time of Rooney's (1974) writing, when high schools were the main institutions offering competitive soccer for teenage children. However, regardless of the size of the school, there usually was only one team that athletes could try out for, meaning that the competition for places would be too high and that athletes would lose interest. Rooney (1974) also discussed the disadvantage that comes with places that are too small: there simply are not enough players to make a competitive team. Suburban areas such as Orange County and Santa Clara County have relatively medium- to large-sized populations which, according to Rooney (1974), is a positive factor in producing competitive athletic teams.

The identified and highlighted California hotbed of female soccer talent boasts fair climates that enable soccer to be played outdoors all twelve months

of the year. This is a huge advantage over states in New England, much of the East Coast, and large parts of the Midwest, which cannot offer the same desirable climate. This would be an advantage for developing skills in longer periods of time. It may also explain why many of the northern states with harsh, cold climates and some southern states that experience excessively hot and humid climates, produced very few (if any) players. This difference in climate could also explain why the findings show that the West edges the East in the production of professional female soccer players.

California is also well-known as a melting pot of different cultures of innovative, progressive, educated, and modern people, such as the founders of AYSO, who came up with the innovations of balanced teams and every child participating. An argument can be made that progressive and modern parents of young females would be supportive and encouraging to see them succeed as professional athletes. This is perhaps a striking contrast to a part of the country (such as the South or the Midwest) that hosts cultures with more traditionalistic and conservative values, especially when it comes to the role of women in modern society. It is this argument that may explain why the South and the Midwest were some of the lesser producers of female professional soccer players. This finding is significant because the Midwest and South regions are typically hotbeds of elite male talent and would therefore disprove any assumption that there is no significant difference in the distribution of male and female athletes' origin areas.

California's case may also explain why there are strong performances of states in the West (such as Colorado, Utah, and Hawaii), which were ranked as the top three per capita producers in the country. By examining the timelines of the results, one can see that these three states did not start significant player production until the third and fourth intervals, which suggests hierarchical diffusion (Bale 1989). This study identifies California as an "origin point" for female professional soccer players, with significant player production in all five intervals. Therefore, this study argues that hierarchical diffusion of female professional soccer players in the West started in California and continued into the states of Colorado, Utah, and Hawaii. Unlike both New York and California, the production of players comes from concentrated areas in these states, which suggests that diffusion resulted in certain clustering. Washington demonstrates a pattern similar to these "smaller states," where production of their players is mostly in one concentrated area. A notable difference between the state of Washington and the states of Colorado, Utah, and Hawaii is that Washington can be considered an "origin point" because the state has demonstrated significant player production in all five inter-

vals. This is also a characteristic of the state of Virginia, on the East Coast. Therefore, this study concludes that, because of their most significant and consistent production, the origin areas of female professional soccer players in the United States are the states of California, Virginia, and Washington.

Comparisons between the leading California counties (Orange and Santa Clara) and the leading East Coast counties (Fairfax, Virginia; Nassau and Suffolk in New York) show strikingly similar demographics and other characteristics. All five of those counties are the suburbs of major cities, near the coastlines, and have similar population sizes. Another interesting observation is that these counties all voted liberal-left in the 2016 United States presidential election (*Politico* 2016), including Orange, which is usually not as liberal or progressive, further supporting the claim that female soccer players often come from the progressive middle classes.

The United States Census shows that these top-rated counties are all ranked in the top 100 of the wealthiest counties in the nation. Wealth in American youth soccer is a key and crucial factor for development of elite-level soccer. Youth soccer in the United States is an organized professional institution. In other words, it is a business. Families have reported spending in the area of \$2,000 to \$10,000 a year for their children to play at a competitive club level (Keegan and Santichen 2015). The families that spend the most are usually represented in highly skilled teams with the most qualified and experienced coaches and with state-of-the-art training facilities. Some players begin playing at the age of eight to secure the opportunity of landing a spot on a top team. Some players will also continue to play for up to ten years, which, if one calculates the approximate annual cost of playing soccer (Keegan and Santichen 2015) multiplied by ten, can amount to anywhere between \$20,000 and \$100,000. It is easy to see why a working-class family without a significantly high household income would be unable to place their child in top-level soccer education. It is worth discussing the existence of competitiveness in these suburban communities. The old saying "keeping up with the Joneses" applies here, meaning that a culture of measuring wealth and success exists in these suburban areas. This could be applied to which soccer team a child plays on. It may be trendy to have a kid on the best club team, which can also translate to the most expensive team, and this can be seen symbolically as a sign of wealth or a form of conspicuous consumption. It is this wealth that would explain why there is clustering, or "(class)tering" in areas of the country that can afford to pay for the very best soccer education. The term "(class)tering" implies a certain nexus between geographical clustering in certain suburbs and the dominance of a single sociocultural

cohort, the middle to upper class that has occupied the command position and grown the largest within the space of this sport. This would explain why the characteristics of the areas that produce the most female professional players are almost identical from a geographic and sociocultural perspective. It is also not surprising that some of the most successful youth soccer clubs in the nation are located in these areas. With the exception of Orange County, these “(class)tering” counties are also often liberal and progressive places. In contrast to more-conservative and -traditionalistic places, this plays an important role in the development of female athletes because liberal areas would clearly be more supportive of this development. We can also examine the states that failed to produce any players as a comparison to the “(class)tering” cases. Mississippi and West Virginia are good examples of states that have the climate and population numbers to play soccer, but due to the lack of wealthy communities (the 2010 Census shows they are the two poorest states, with median incomes of around \$20,000 to \$25,000) many families there simply cannot support a top-notch soccer education. These points may explain the assumption that female soccer players are from the middle and upper-middle classes.

An interesting factor in all of this is Markovits and Albertson’s (2012) research on female fandom. Their work has established that most females participate in soccer not by following the sport, but by playing it. They argue that females do not recreate the typical sports cultures of following professional teams, studying statistics, or engaging in “sports talk.” In other words, they do not consume sports like men do. The fact that male professional soccer is more popular than female professional soccer would be the obvious argument in this case. But it is not. Quite simply, females tend not to follow what happens in the game outside the boundaries of the field that they are competing on. The fact that the sport has grown in these identified areas of origin without the typical sports culture is truly remarkable. Title IX can offer some explanation for this. Title IX was a change in legislation that forced universities to offer equal funding to both male and female student athletes. This led to a dramatic increase in university programs offering soccer and, more importantly, offering scholarships to play collegiate sports. This ultimately led to the creation of the national women’s team and its unrivaled success at the international level. The argument that exists here is that Title IX enabled more participation for women in sports, specifically in soccer, and replaced the typical sports culture of “following” that exists in male sports culture with a platform for women to remain in the sport and progress to a professional level.

To summarize, over the twenty-five year period of this study, origin and diffusion patterns reveal that 525 players hail from all but nine states. Based on the hierarchical innovation diffusion model (Bale 1989), the origin cores of these players have been traced to larger metropolitan areas on the East and West Coasts, with a spread into smaller surrounding periphery in the interior of the country. Most of these players come from the West Coast, particularly California. There are five counties that managed to produce players in all interval periods. An examination of these counties reveal striking similarities. All five were located within coastal regions in the proximity of a major city. All were wealthy, white suburban, and often liberal communities. The South and Midwest regions of the country were relatively the weakest at producing female professional players, which is in polar contrast to the production of elite male athletes.

## Conclusion

This research addresses a deficiency in sports geography by identifying female professional soccer-player origin areas and revealing diffusion patterns over a twenty-five year period. Key findings of this study reveal that most female players come from suburban, middle to upper-middle class, high-income communities close to major cities that are mainly in coastal regions. From a per capita perspective, the results show that states in the West produce more players than states in the East. Results also indicate that the South and Midwest regions are the weakest-producing areas.

The results of this study reveal the professional female athlete origin areas and conclude that these are different from those of professional male athletes. This invites future research into identifying the origin areas of female athletes in other countries, especially those that are somewhat similar to the United States. The timing of this type of research for many sports geographers is fortunate due to the large interest in and growth of professional women’s soccer, particularly in Europe, which now has many countries beginning to offer professional women’s leagues. Research on women in individual and other team sports often lacks a geographic perspective. An opportunity to look at other professional sports and their organizations, such as golf and the Ladies Professional Golf Association (LPGA), or basketball and the Women’s National Basketball Association (WNBA), seems to be especially promising, perhaps in comparing the origin areas of these athletes with those of professional women soccer players.

From a sociocultural perspective, perhaps research into the motivations of females pursuing their goals of becoming professional soccer players (versus

the motivation of males) is very appealing. With the giant gap in financial rewards and limited social mobility opportunities, research into this topic may reveal some interesting findings.

Another potential future research topic from this study could be identifying the origin areas of male soccer players in the United States and comparing them to the origin areas of female soccer players and other American male athletes. Due to the marginalization of soccer in the American sports landscape, there is a low perception of upward social-mobility opportunities in soccer. This perception could perhaps repel high-level American athletes, especially from lower classes, from pursuing a career as a professional soccer player and provide more opportunities to players from different backgrounds. The findings from this study indicate that there is a strong chance that the origins of these United States male soccer players could be similar if not identical to those of United States female players.

Finally, due to the chronological structure of the methodology of this study, there is a potential for revisiting this research in the future and examining whether the origin and diffusion areas that were identified experience any changes. The push for this may come if soccer continues to gain popularity and, more importantly, financial support, which could potentially provide greater opportunities for females from the lower social classes to become professionals.

## References

Allison, R. 2014. Gender and the organization of women's professional soccer. Ph.D. diss., University of Illinois at Chicago.

Bale, J. 1982. *Sport and place: The geography of sport in England, Scotland and Wales*. London: Hurst.

———. 1983. Changing regional occupations: The case of professional footballers 1950 & 1980. *Geography* 68 (2):140–148.

———. 1989. *Sports geography*. New York: E. & F. N. Spon.

Coombs, D. S. 2014. Pitch perfect: How the U.S. women's national soccer team brought the game home. In *Soccer culture in America: Essays on the world's sport in red, white and blue*, ed. Y. Kiuchi, 160–178. Jefferson, North Carolina: McFarland & Company.

Dettmar, B. J. 2014. "Fast kicking, low scoring and ties": How popular culture can help the global game become America's game. In *Soccer culture in America: Essays on the world's sport in red, white and blue*, ed. Y. Kiuchi, 95–119. Jefferson, North Carolina: McFarland & Company.

Duerr, G. 2014. Becoming apple pie: Soccer as the fifth major team sport in the United States. In *Soccer culture in America: Essays on the world's sport in red, white and blue*, ed. Y. Kiuchi, 143–159. Jefferson, North Carolina: McFarland & Company.

Foer, F. 2004. *How soccer explains the world: An unlikely theory of globalization*. New York: HarperCollins.

Goldblatt, D. 2006. *The ball is round: A global history of football*. New York: Riverhead Books.

Guttmann, A. 1994. *Games and empires: Modern sports and cultural imperialism*. New York: Columbia University Press.

Hill, J. S., J. Vincent, and M. Curtner-Smith. 2014. Worldwide diffusion of football: Temporal and spatial perspectives. *Global Business Sports Journal* 2 (2):1–27.

Johnston, R. 2009. Sport, geography of. In *The Dictionary of human geography*, ed. D. Gregory, R. Johnston, G. Pratt, M. Watts, S. Whatmore. 718. 5<sup>th</sup> ed. Oxford: Wiley-Blackwell.

Keegan, P., and K. Santichen. 2015. How soccer bills devoured this family's budget. *Time* 28 September.

Keyes, D. 2014. Making the mainstream: The domestication of American soccer. In *Soccer culture in America: Essays on the world's sport in red, white and blue*, ed. Y. Kiuchi, 9–24. Jefferson, North Carolina: McFarland & Company.

Ladda, S. 1995. The history of intercollegiate women's soccer in the United States. Ed.D. diss., Columbia University Teachers College.

Markovits, A. S., and E. K. Albertson. 2012. *Sportista: Female fandom in the United States*. Philadelphia: Temple University Press.

Markovits, A. S., and S. Hellerman. 2001. *Offside: Soccer and American exceptionalism*. Princeton, New Jersey: Princeton University Press.

Politico. 2016. 2016 California presidential election results. <http://www.politico.com/2016-election/results/map/president/california/> [last accessed 15 December 2016].

Rooney, J. 1974. *The geography of American sport: From Cabin Creek to Anaheim*. Reading, Massachusetts: Addison-Wesley Publishing.

Seese, D. J. 2014. New traditionalists: The emergence of modern America and the birth of the MLS coalition. In *Soccer culture in America: Essays on the world's sport in red, white and blue*, ed. Y. Kiuchi, 43–70. Jefferson, NC: McFarland & Company.

Springer, K. A. 2010. Gooooooooooooooooo!! A geography of the World Cup: How the FIFA World Cup is the catalyst for the growth of soccer worldwide. MSc Thesis, Oklahoma State University.

- Wangerin, D. 2008. *Soccer in a football world*. Philadelphia: Temple University Press.
- Woodcock, G., and M. Burke. 2013. Measuring spatial variations in sports talent development: The approach, methods and measures of 'talent tracker'. *Australian Geographer* 44 (1):23–39.
- Young, I. M. 1990. *Throwing like a girl and other essays in feminist philosophy and social theory*. Bloomington: Indiana University Press.