The 2000 U.S. Presidential Election

The 2000 presidential election---between Republican George W. Bush, Democrat Al Gore, and other third-party candidates---was one of the closest in American history. The election came down to one state, Florida, which Bush won by just 537 votes (out of nearly 6,000,000 votes cast in the state).

After Election Day, Democrats claimed that the "butterfly ballot" that was used in Palm Beach County confused Gore voters into voting for Reform Party candidate Pat Buchanan. The ballot in question is shown below. To vote for Gore, who is listed second on the left, a voter actually had to punch the third hole (because the second hole is actually a vote for Buchanan, who is listed first on the right).

In this lab, you will evaluate this. The data file `florida.csv` contains county-level information about:

- the number of votes for Gore, Bush, Buchanan (and a few other candidates) in the 2000 presidential election
- the number of votes for Clinton (Democrat), Dole (Republican), and Perot (Reform) in the 1996 presidential election
- the number of votes for Buchanan in the 1996 primary
- the number of registered Reform voters and the total number of registered voters

Using this data, evaluate the claim that many voters in Palm Beach County voted for Buchanan when they intended to vote for Gore. (*Hint:* You should check whether Palm Beach County fits the general pattern of the other counties in Florida. Visualizations will likely be more helpful than summary statistics.) Then, craft a story that guides the reader through your discoveries. Your story should contain both figures and explanations.

In [1]:

```python
# YOUR CODE HERE
%matplotlib inline
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt

df = pd.read_csv("florida.csv")
df.head()
```

Out[1]:

	county	buchanan2000	gore2000	bush2000	nader2000	browne2000	total2000	clinton96
0	ALACHUA	262	47,300	34,062	3,215	658	85,235	40,144
1	BAKER	73	2,392	5,610	53	17	8,072	2,273
2	BAY	248	18,850	38,637	828	171	58,486	17,020
3	BRADFORD	65	3,072	5,413	84	28	8,597	3,356
4	BREVARD	570	97,318	115,185	4,470	643	217,616	80,416

Total votes between buchanan2000 and gore2000 in Palm Beach:

In [2]:

```
palmBuch2000 = df.iloc[66].buchanan2000
print("Votes for Buchanan in Palm Beach: ", palmBuch2000)

palmGore2000 = df.iloc[66].gore2000
print("Votes for Gore in Palm Beach: ", palmGore2000)
```

```
Votes for Buchanan in Palm Beach:  3,407
Votes for Gore in Palm Beach:  268,945
```
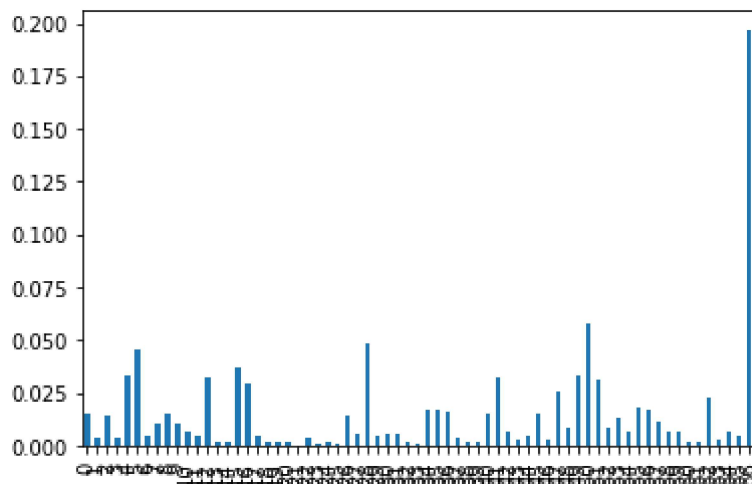
Distribution of Votes for Buchanan2000 by county:

In [3]:

```
data1 = df['buchanan2000'] = df['buchanan2000'].replace('[\,]', '', regex=True).astype(int
)
data1 = df['buchanan2000'] / df['buchanan2000'].sum()

(data1.T).plot.bar(stacked=True)
```

Out[3]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x7fdb6ec87320>
```
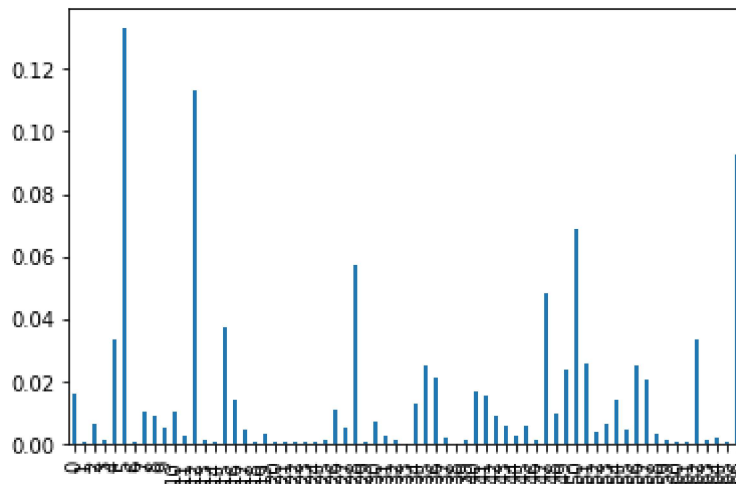

Distribution of Votes for Gore2000 by county:

In [4]:

```
data2 = df['gore2000'] = df['gore2000'].replace('[\,]', '', regex=True).astype(int)
data2 = df['gore2000'] / df['gore2000'].sum()

(data2.T).plot.bar(stacked=True)
```

Out[4]:

```
<matplotlib.axes._subplots.AxesSubplot at 0x7fdb6c378e10>
```


YOUR EXPLANATION HERE (You may need to add new cells as necessary.)

From gathering the data, I discovered Gore had more votes in Palm beach than Buchanan. However, by creating two distibution charts of votes by county for Buchanan and Gore. There seems to an inconsistent pattern with 'Votes for Buchanan2000 by county' than 'Votes for Gore2000 by county'. There is a higher ratio of votes for Buchanan in Palm Beach compared to the other votes for Buchanan in other counties. In 'Votes for Gore 2000 by county', the ratio of votes for Gore in Palm Beach seems consistent with the other votes for Gore in other counties by the pattern of distribution. Therefore, the claim that many voters in Palm Beach County voted for Buchanan when they intended to vote for Gore is consistent with the analyzed data.

Submission Instructions

Once you are finished, follow these steps:

1. Restart the kernel and re-run this notebook from beginning to end by going to `Kernel > Restart Kernel and Run All Cells`.
2. If this process stops halfway through, that means there was an error. Correct the error and repeat Step 1 until the notebook runs from beginning to end.
3. Double check that there is a number next to each code cell and that these numbers are in order.

Then, submit your lab as follows:

1. Go to `File > Export Notebook As > PDF`.
2. Double check that the entire notebook, from beginning to end, is in this PDF file. (If the notebook is cut off, try first exporting the notebook to HTML and printing to PDF.)
3. Upload the PDF and Notebook to iLearn.