

*In the Spring 2006 issue of **Monitoring Wisconsin**, the Institute for Survey and Policy Research (ISPR) of the University of Wisconsin-Milwaukee (UWM) presents a summary of work in progress by Dr. Scott Drewianka of the UW-Milwaukee, Department of Economics and his student Dain Johnson. The views expressed in this article are the authors' and not necessarily those of ISPR. Any questions should be directed to sdrewian@uwm.edu*

Wal-Mart and Local Labor Markets

By

Scott Drewianka and Dain Johnson¹

Wal-Mart is unquestionably one of the most successful corporations in the U.S. It is the nation's largest employer, its largest retailer, and its largest grocer, and the firm accounts for over two percent of the nation's gross domestic product. At present, the Wal-Mart Corporation owns 5,400 discount retail stores in 16 countries, including 3,800 stores scattered across all 50 states. In Wisconsin alone, there are 77 Wal-Mart stores, 11 additional Sam's Club stores, two distribution centers, and nearly 30,000 Wal-Mart employees.

Perhaps because it is such a successful and familiar corporation, Wal-Mart is also quite controversial. In many communities, Wal-Mart is praised for promoting economic development, creating jobs, and offering a wide array of products at a low price. Consistent with this view, recent economic research indicates that price reductions associated with Wal-Mart's entry into the grocery market created very large improvements in consumer welfare, especially among low-income households.² On the other hand, many people fear that Wal-Mart drives other stores out of business, reduces employment levels, and lowers wages.

In order to assess these claims, our research attempts to measure Wal-Mart's effects on local labor markets. In particular, we ask how the entry of a Wal-Mart store affects the number of firms, employment levels, and average weekly wages in counties across the United States. Unlike previous studies, our analysis is disaggregated by retail subsectors in order to obtain a more de-

¹ Assistant professor of economics and student (respectively), University of Wisconsin-Milwaukee. This survey draws heavily upon Johnson's undergraduate thesis, "How Does Wal-Mart Affect Local Labor Markets? Evidence from Retail Subsectors," which was closely supervised by Drewianka.

² Jerry Hausman and Ephraim Leibtag, "Consumer Benefits from Increased Competition in Shopping Outlets: Measuring the Effect of Wal-Mart." *National Bureau of Economic Research Working Paper Series*, number 11809, December 2005.

tailed portrait of Wal-Mart's effects across industries.

At least initially, it might seem straightforward to measure these effects. For example, one might consider simply measuring Wal-Mart's effect on employment as the change in a sector's employment after a Wal-Mart store opens. However, since the overall labor force is growing across the U.S., some employment growth would be expected even if Wal-Mart had no effect on employment. A common practice to address such concerns is to subtract from that measure the average employment growth over the same period in counties that do not have a Wal-Mart store, yielding what is called a "difference-in-differences" estimate.

While the difference-in-differences technique is commonly used, there is nevertheless a good reason to expect that it may overestimate the true effect in this case. It is not hard to imagine that Wal-Mart—or indeed any firm that hopes to earn profits—would prefer to open a store in a place that is growing more rapidly. If so, we would expect to find that employment levels increase in places where Wal-Mart opens a store even if Wal-Mart actually had no effect on employment. In other words, it is possible that employment grows more quickly in counties where Wal-Mart builds a new store, not because Wal-Mart created jobs, but because Wal-Mart prefers to expand where there are growing numbers of consumers.

To confront this concern, we use a modified version of a difference-in-differences estimator that is careful to distinguish between those county-specific trends in employment (or firms or wages) and the true effect of Wal-Mart. In particular, we run a regression of the form

$$Y_{it} = \alpha_0 + \alpha_i + \alpha_t + \beta * W_{it} + \theta_i * t + \delta_i * t^2 + e_{it},$$

where Y_{it} is the dependent variable, W_{it} indicates how many Wal-Mart stores of each type were open in county i at time t , α_t represents period-specific fluctuations in supply and demand that are common across locations, $(\alpha_i + \theta_i * t + \delta_i * t^2)$ is a county-specific quadratic time trend, and e_{it} is the unexplained portion. We are interested in measuring β , the amount by which a new Wal-Mart store affects the dependent variable. If one wanted to construct an ordinary difference-in-differences estimate, one would just use the first four terms of this expression. By adding the $(\theta_i * t + \delta_i * t^2)$ terms, we adjust our estimates to account for each county's individual trend and the change in that trend. Accordingly, the Wal-Mart effect is estimated as a jump in employment after a store opens, relative to the local level and trend and to contemporaneous changes in employment in other counties.

The data to which this procedure was applied came from the Quarterly Census of Employment and Wages (QCEW). Gathered

(continued on page 2).

by the Bureau of Labor Statistics, this data set contains quarterly observations on the number of establishments, employment, and average weekly wages for narrowly defined industries in each U.S. county since 1990. This is an enormous data set, with over 19 million observations on county-quarter-industries, but we have narrowed the focus to nine specific retail sub-sectors in which Wal-Mart is expected to have a large impact. Three of those nine sectors seem most relevant because Wal-Mart would appear to compete most directly in those sectors: Discount Department Stores, Supermarkets and Other Grocers, and Warehouse Clubs and Supercenters.

The analysis also requires that we know the location of Wal-Mart stores and when they opened. The Wal-Mart Corporation graciously provided us with this information, as well as information about the type of each store. There are three types of stores in the Wal-Mart brand, and their effects likely differ because they sell different products. The first type consists of regular Wal-Mart stores, which are retail outlets that do not have a full grocery store. The second type contains Supercenters, which combine a retail store with a full grocery store. The remaining stores are called Neighborhood Markets, and they primarily sell groceries. Our data cover about 1,200 ordinary Wal-Mart stores and 1,900 Supercenters, but only 89 Neighborhood Markets (which are also almost exclusively located in a few southern states), so the emphasis should be on the first two types of stores.

The results of the analysis are summarized in Table 1. For each industry, the reported numbers are the estimated effects of a new Wal-Mart or Supercenter on each of the dependent variables. For establishments, the estimates indicate the effect on the number of stores in each retail subsector. For instance, the first number in the table implies that a new Wal-Mart store is associated with an average increase of 0.235 stores in a county's discount department store sector. For wages and employment, the procedure was run using the natural logarithm of the dependent variables, so the estimates can be interpreted at percentage changes. Thus, the second

number in the first row of the table indicates that a new Wal-Mart store is associated with a 3.5 percent decrease in employment in a county's discount department store sector.

Several patterns clearly emerge from this table. First of all, there is virtually no evidence that competition from Wal-Mart has any meaningful effect on wages in any of these sectors. The largest estimate corresponds to a 0.7 percent change in wages, which amounts to only \$1.99 per week for workers in that sector (supermarkets and grocery stores). All of the other estimates are smaller, some are positive, and many are not statistically distinguishable from zero. In short, it appears that Wal-Mart has very little effect on prevailing wage rates³. This is even true in the sectors to which Wal-Mart belongs, suggesting that the firm does not behave as a monopsonist in the labor market.

The evidence also indicates that Wal-Mart often, but not always, has a relatively small negative effect on the number of retail establishments that serve a county. In nearly half of the subsectors, the estimated effects represent a reduction of about five percent, but in the other cases the effects are positive and/or statistically insignificant. If the estimated effects are added up across these nine retail subsectors (which is not an exhaustive list), the results imply that a regular Wal-Mart store reduces the number of retail establishments by a bit less than one store (0.5 percent), and a Supercenter causes a reduction of about six stores (3.3 percent). While such reductions are not to be dismissed out of hand, it seems unlikely that they represent a large decrease in competition. Nor do these estimates necessarily mean that existing stores went out of business after Wal-Mart arrived; if new Wal-Mart stores are indeed located in growing counties, it is perhaps more likely that the effect represents a reduction in the rate at which new establishments open.

In contrast, the results consistently indicate that Wal-Mart is associated with a 5-12 percent decrease in employment in these subsectors. The effect is a bit smaller in the discount department store sectors when a standard Wal-Mart store opens, but this is to be expected considering that the new store's employees are counted in

³ The QCEW does not contain data on non-wage benefits, so we cannot determine whether Wal-Mart has any effect on other components of compensation.

Sector	"Regular" Wal-Mart Stores			Supercenters		
	number of establishments	log employment	log weekly wages	number of establishments	log employment	log weekly wages
Discount Department Stores	0.235	-0.035	0.001	-0.250	-0.121	-0.002
Supermarkets and Other Grocers	-0.308	-0.081	0.003	-1.635	-0.126	-0.007
Warehouse Clubs and Supercenters	-0.227	-0.104	-0.004	0.000	-0.113	0.001
Health and Personal Care Stores	-0.047	-0.050	0.001	-0.357	-0.046	-0.001
Cosmetics, Beauty Supplies, and Perfume Stores	-0.409	-0.064	-0.003	0.131	-0.018	0.000
Sporting Goods, Hobby, Book, and Music Stores	-0.124	-0.067	-0.001	-1.263	-0.059	0.000
General Merchandise Stores	0.785	-0.066	-0.005	-1.436	-0.065	0.005
Department Stores	0.142	-0.107	0.002	-0.701	-0.092	-0.003
Office Supplies, Stationary, and Gift Stores	-0.894	-0.067	-0.004	-0.230	-0.051	-0.001

Notes: Estimates use the procedure described in the text. Numbers in bold are statistically significant at the 5% level.

that category. Interestingly enough, we find similar reductions in employment even if we compare counties that have the same number of establishments in a subsector. This means that the decreased employment is primarily due to decreases in the number of employees per establishment, and not to decreases in the number of establishments.

It is not especially strange that we find relatively large employment losses alongside negligible changes in wages. The skills possessed by retail workers are also needed in many other sectors of the economy, so they are likely able to find suitable employment elsewhere if there are fewer than expected jobs in retail. In economists' jargon, the results above indicate that the supply of labor to these subsectors is rather elastic.

We have also tested whether these effects vary with the amount of time that a Wal-Mart store has been open. In nearly every sector, the evidence indicates that the effects are roughly constant over time. However, in the supermarket sector it appears that effects on establishments and employment grow over time. After a Supercenter has been open for 10 years, the number of grocery stores falls by three (11 percent), and employment falls by 24 percent. Such large and growing effects may help to explain why 27 of the 31 grocers that filed for bankruptcy protection during the 1990's cited competition from Wal-Mart as an important factor.

Still, on the whole, our evidence seems to suggest that Wal-Mart is a relatively benign force in local labor markets. There is nothing to indicate that it is a labor market monopsonist, nor is there much indication that it is a corporate predator (although we would need data on prices to be absolutely sure). The only major effect we find is a large reduction in retail employment. Since that effect has less to do with changes in the number of employers and more to do with the number of workers hired by each employer, and since we find that the same pattern holds even in subsectors in which Wal-Mart does not directly participate, we conclude that Wal-Mart has a substantial influence on the way in which its competitors conduct their businesses.

The most optimistic interpretation of that conclusion is that competition from Wal-Mart spurs firms to use labor more efficiently. An alternative possibility is that those firms decide to cut back on the services offered to customers in order to reduce costs and match Wal-Mart's low prices. Even in that case, although consumers would undoubtedly lament the loss of services, they may well be willing to accept it if it means paying lower prices. Thus, even if the reductions in employment represent reduced services rather than increased productivity, it appears that they are ultimately a concession to consumers' preferences. ■

Table 2
Wisconsin Employment Data (in Thousands)

	1995	2000	2001	2002	2003	2004	2005.1	2005.2	2005.3	2005.4
Labor Force	2,881.2	2,992.3	3,032.1	3,037.9	3,068.7	3,032.8	3,042.4	3,039.2	3,042.3	3,042.0
Total Employment	2,773.6	2,891.2	2,898.9	2,877.0	2,896.7	2,891.0	2,894.4	2,897.2	2,898.7	2,899.6
Total Nonfarm	2,558.6	2,833.8	2,813.9	2,782.4	2,775.3	2,801.4	2,768.5	2,854.4	2,860.0	2,875.3
Natural Resources and Mining	4.2	4.0	3.9	3.8	3.8	3.9	3.4	4.1	4.3	4.1
Construction	101.7	124.8	125.4	124.1	124.1	124.6	111.1	132.1	139.6	134.5
Manufacturing	566.6	594.1	560.3	528.3	504.0	546.7	498.3	505.4	514.2	508.1
Trade, Trans. & Utilities	502.4	552.9	547.7	536.7	536.3	543.4	529.2	540.2	541.8	548.8
Information	45.2	53.6	53.3	51.2	50.3	52.1	49.4	49.9	49.4	49.1
Financial Activities	134.3	149.1	151.8	153.8	156.9	152.9	158.0	159.5	159.7	157.2
Professional & Business Services	206.9	247.0	238.5	239.8	244.3	242.4	252.0	262.3	265.8	263.7
Educational & Health Services	280.4	339.6	349.6	357.2	364.6	352.8	378.8	383.5	385.3	394.8
Leisure and Hospitality	217.9	236.7	238.6	240.4	245.5	240.3	235.1	260.5	275.9	257.4
Other Services	120.3	126.3	131.3	132.2	132.7	130.6	134.7	136.8	135.6	133.9
Government	378.7	405.6	413.7	414.8	412.9	411.8	418.4	420.3	388.2	423.7

Source: U.S. Department of Labor, Bureau of Labor Statistics

About ISPR:

The Institute for Survey & Policy Research (ISPR), a premier institute dedicated to high quality surveys and policy research, was established in 1968. It is a major resource for the University of Wisconsin-Milwaukee (UWM), the greater Milwaukee area, and the State of Wisconsin. Its services include the following:

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- **The Wisconsin Poll** – semiannual cost-shared survey of public opinion in the State of Wisconsin.
- **Monitoring Wisconsin** – quarterly review of the Wisconsin economy. It includes an analysis of a prominent sector of the economy, forecasts by sector using the latest techniques, and reports by UWM faculty on their Wisconsin-based research.
- **Survey Research** – survey research, program evaluation, needs assessment, policy research.
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- **Data Archive**—US Census Data, ICPSR data, economic data, demographic data.

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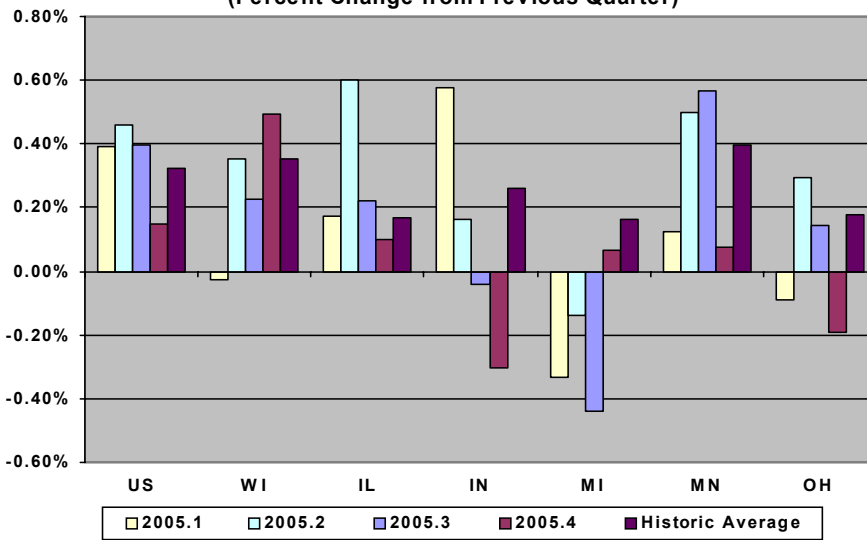
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Milwaukee, WI 53201-0413
 PO Box 413
 Bolton Hall 874
 Institute for Survey & Policy Research



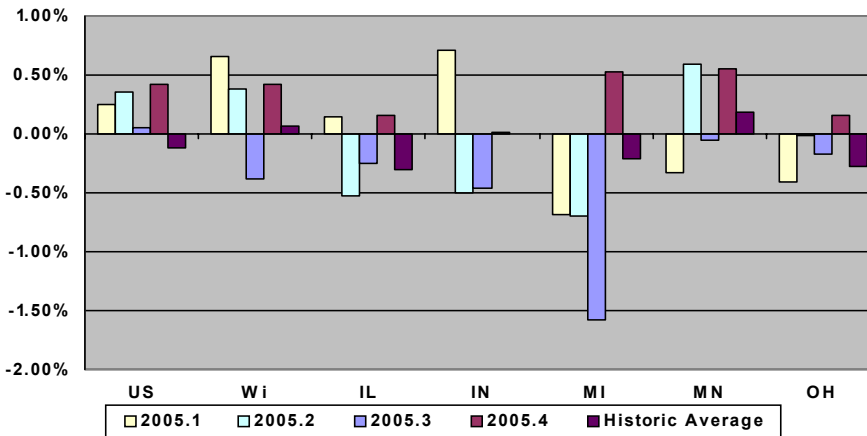
Nonfarm Employment (Percent Change from Previous Quarter)



Seasonally-Adjusted, Non-Farm Employment (Thousands)

Quarter	WI	US
2005.2	2,825.0	133,429.3
2005.3	2,831.3	133,961.0
2005.4	2,845.3	134,159.7
2006.1 (forecast)	2,847.6	134,311.8
Average (1990-present)	2,625.6	122,215.4

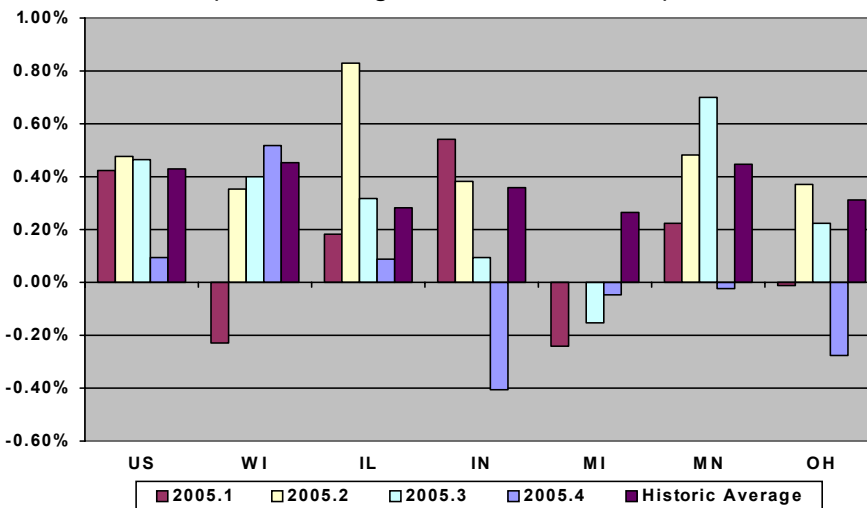
Goods-Producing Employment (Percent Change from Previous Quarter)



Seasonally-Adjusted, Goods-Producing Employment (Thousands)

Quarter	WI	US
2005.2	639.6	22,134.0
2005.3	637.2	22,146.3
2005.4	639.9	22,238.7
2006.1 (forecast)	640.9	22,346.0
Average (1990-present)	660.0	23,100.1

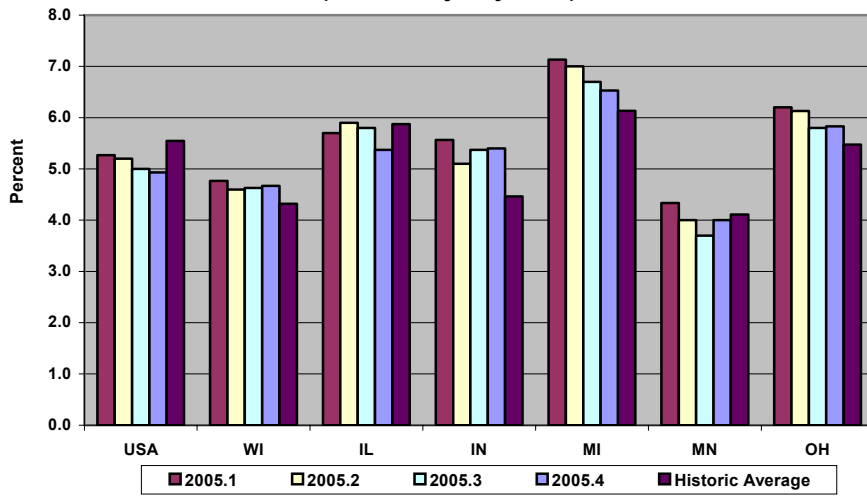
Service Providing Employment (Percent Change from Previous Quarter)



Seasonally-Adjusted, Service-Providing Employment (Thousands)

Quarter	WI	US
2005.2	2,185.4	111,295.3
2005.3	2,194.1	111,814.7
2005.4	2,205.4	111,921.0
2006.1 (forecast)	2,207.3	111,992.7
Average (1990-present)	1,965.7	99,115.5

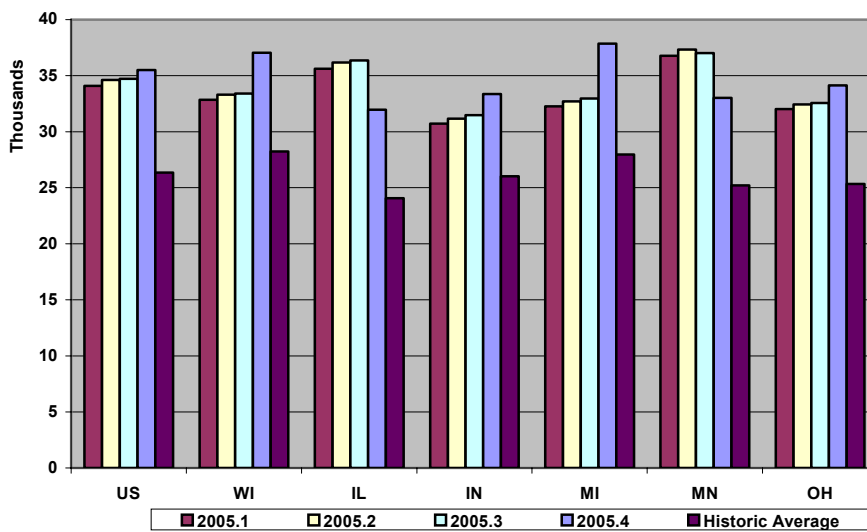
Unemployment Rate (Seasonally Adjusted)



Unemployment Rate Seasonally-Adjusted

Quarter	WI	US
2005.2	4.6	5.2
2005.3	4.6	5.0
2005.4	4.7	4.9
2006.1 (forecast)	4.7	4.9
Average (1990-present)	4.3	5.5

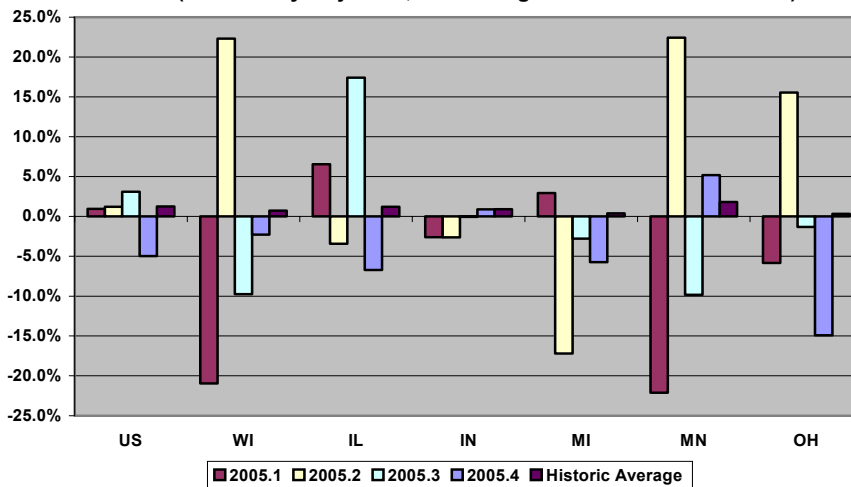
Personal Income Per Capita (Seasonally Adjusted)



Per Capita Personal Income Seasonally-Adjusted

Quarter	WI	US
2005.2	33,294.5	34,604.8
2005.3	33,394.4	34,722.4
2005.4 (forecast)	33,376.4	34,764.2
2006.1 (forecast)	33,366.4	34,771.2
Average (1990-present)	25,200.0	26,205.5

Housing Units Authorized (Seasonally Adjusted, Pct Change from Previous Quarter)



Housing Units Authorized, Seasonally-Adjusted (Thousands)

Quarter	WI	US
2005.2	3,239	176,087
2005.3	2,923	181,513
2005.4	2,856	172,515
2006.1 (forecast)	2,923	171,995
Average (1995-present)	2,720	140,331