

# IRAN

**CAN ITS STORIES BE TOLD?**

Harvard's Nieman Reports presents  
a unique collection of articles by  
Iranian and Western journalists. [LEARN MORE »](#)

**Nieman Reports**  
Nieman Foundation  
for Journalism at Harvard

<http://www.nieman.harvard.edu/assets/reports/summer09.html>

tehranbureau  
**Election Alerts from Tehran**

<http://tehranbureau.com/2009/06/13/alerts-from-tehran/> (<http://tehranbureau.com/video-tehran-riots/>) (<http://www.twitter.com/tehranbureau>)



<http://tehranbureau.com/donations/>

UP TO THE MINUTE ELECTIONS COVERAGE  
**JOIN US ON TWITTER**

**TEHRAN BUREAU NEEDS YOUR SUPPORT**



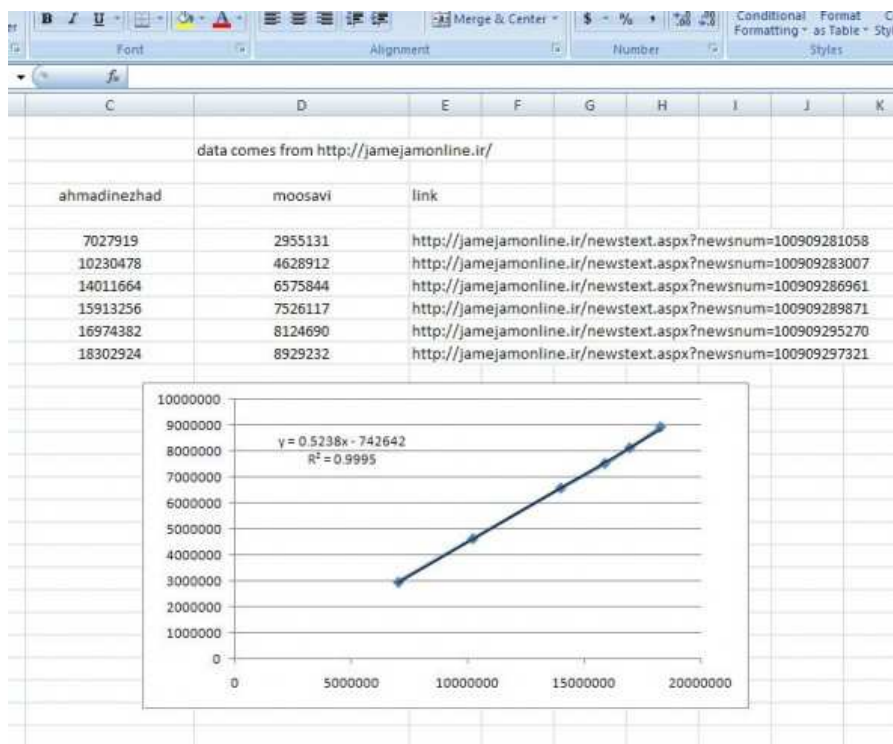
[categories](#) [pages](#) [subscribe](#) [contact](#) [search](#)

<http://tehranbureau.com/>

# tehranbureau

An independent source of news on Iran and the Iranian diaspora

## Faulty Election Data



By MUHAMMAD SAHIMI in Los Angeles | 13 June 2009

**[TEHRAN BUREAU]** Iran's Interior Ministry has declared President Mahmoud Ahmadinejad the winner of yesterday's election. This has been rejected by all the three opponents of Mr. Ahmadinejad, Messrs Mir Hossein Mousavi, Mahdi Karroubi, and Mohsen Rezaee.

The best evidence for the validity of the arguments of the three opponents of the President for rejecting the results declared by the Interior Ministry is the data the Ministry itself has issued. In the chart below, compiled based on the data released by the Ministry and announced by Iran's national television, a perfect linear relation between the votes received by the President and Mir Hossein Mousavi has been maintained, and the President's vote is always half of the President's. The vertical axis (y) shows Mr. Mousavi's votes, and the horizontal (x) the President's.  $R^2$  shows the correlation coefficient: the closer it is to 1.0, the more perfect is the fit, and it is 0.9995, as close to 1.0 as possible for any type of data.

Statistically and mathematically, it is impossible to maintain such perfect linear relations between the votes of any two candidates in any election — and at all stages of vote counting. This is particularly true about Iran, a large country with a variety of ethnic groups who usually vote for a candidate who is ethnically one of their own. For example, in the present elections, Mr. Mousavi is an Azeri and speaks Turkish. The Azeris make up 1/4 of all the eligible voters in Iran and in his trips to Azerbaijan province, where most of the Azeri population lives, Mr. Mousavi had been greeted by huge rallies in support of his campaign. Likewise, Mr. Karroubi, the other reformist candidate, is a Lor. But according to the data released by Iran's Interior Ministry, in both cases, Mr. Ahmadinejad has far outdone both candidates in their own provinces of birth and among their own ethnic populations.

Copyright © 2009 Tehran Bureau

**Did you like this?** If so, please [bookmark it \(http://www.addthis.com/bookmark.php\)](http://www.addthis.com/bookmark.php), [tell a friend \(http://cdn.socialtwist.com/0000000000/script.js\)](http://cdn.socialtwist.com/0000000000/script.js) about it, and subscribe to the blog [RSS feed \(http://feeds2.feedburner.com/Tehranbureau\)](http://feeds2.feedburner.com/Tehranbureau).

216  
tweets

retweet

## ARCHIVES

[June 2009](#)

[\(http://tehranbureau.com/2009/06/\)](http://tehranbureau.com/2009/06/)

[May 2009](#)

[\(http://tehranbureau.com/2009/05/\)](http://tehranbureau.com/2009/05/)

[April 2009](#)

[\(http://tehranbureau.com/2009/04/\)](http://tehranbureau.com/2009/04/)

[March 2009](#)

[\(http://tehranbureau.com/2009/03/\)](http://tehranbureau.com/2009/03/)

[February 2009](#)

[\(http://tehranbureau.com/2009/02/\)](http://tehranbureau.com/2009/02/)

[January 2009](#)

[\(http://tehranbureau.com/2009/01/\)](http://tehranbureau.com/2009/01/)

[December 2008](#)

[\(http://tehranbureau.com/2008/12/\)](http://tehranbureau.com/2008/12/)

[November 2008](#)

[\(http://tehranbureau.com/2008/11/\)](http://tehranbureau.com/2008/11/)

This entry was posted on Saturday, June 13th, 2009 at 12:30 and is filed under [COMMENTARY \(http://tehranbureau.com/category/commentary/\)](http://tehranbureau.com/category/commentary/) and tagged with [Ahmadinejad \(http://tehranbureau.com/tag/ahmadinejad/\)](http://tehranbureau.com/tag/ahmadinejad/), [election coverage \(http://tehranbureau.com/tag/election-coverage/\)](http://tehranbureau.com/tag/election-coverage/), [iran 2009 elections \(http://tehranbureau.com/tag/iran-2009-elections/\)](http://tehranbureau.com/tag/iran-2009-elections/), [iranian elections \(http://tehranbureau.com/tag/iranian-elections/\)](http://tehranbureau.com/tag/iranian-elections/), [karroubi \(http://tehranbureau.com/tag/karroubi/\)](http://tehranbureau.com/tag/karroubi/), [Khamenei \(http://tehranbureau.com/tag/khamenei/\)](http://tehranbureau.com/tag/khamenei/), [khatemi \(http://tehranbureau.com/tag/khatemi/\)](http://tehranbureau.com/tag/khatemi/), [Mousavi \(http://tehranbureau.com/tag/mousavi/\)](http://tehranbureau.com/tag/mousavi/), [street riots \(http://tehranbureau.com/tag/street-riots/\)](http://tehranbureau.com/tag/street-riots/). You can follow any responses to this entry through the [RSS 2.0 \(http://tehranbureau.com/2009/06/13/faulty-election-data/feed/\)](http://tehranbureau.com/2009/06/13/faulty-election-data/feed/) feed.

[→ \(http://tehranbureau.com/2009/06/13/who-voted-for-ahmadinejad/\)](http://tehranbureau.com/2009/06/13/who-voted-for-ahmadinejad/)

## 31 Responses to “Faulty Election Data”

June 13, 2009 at 14:37 (<http://tehranbureau.com/2009/06/13/faulty-election-data/comment-page-1/#comment-295>)

**sources - Vote for Iran** (<http://www.voteforiran.com/2009/06/whats-happening-irans-elections-good-english-sources/>)

**says:**

[...] Tehran Bureau (Great job today you guys!): Faulty Election results Statistically and mathematically, it is impossible to maintain such perfect linear relations [...]

June 13, 2009 at 15:04 (<http://tehranbureau.com/2009/06/13/faulty-election-data/comment-page-1/#comment-300>)

(<http://mkaihani.wordpress.com/2009/06/13/unrest-in-iran/>)

**says:**

[...] Tehran Bureau: Faulty election data [...]

June 13, 2009 at 15:17 (<http://tehranbureau.com/2009/06/13/faulty-election-data/comment-page-1/#comment-303>)

**/2009/06/13/fraude-no-ira) says:**

[...] – Aos matemáticos de plantão, mais uma explicação a respeito dos votos. Dar um parecer definitivo a respeito deste gráfico está além das minhas [...]

June 13, 2009 at 15:21 (<http://tehranbureau.com/2009/06/13/faulty-election-data/comment-page-1/#comment-304>)

**/wordpress/?p=520) says:**

[...] am flatly amazed by the audacity of the election fraud going down in Iran — and the incompetence. I could make up more [...]

June 13, 2009 at 15:35 (<http://tehranbureau.com/2009/06/13/faulty-election-data/comment-page-1/#comment-305>)

**Sargasso (<http://sargasso.nl/archief/2009/06/13/rellen-in-iran-na-uitslag-verkiezingen/>) says:**

[...] Demonstraties en rellen in Iran na uitslag verkiezingen | Meer foto's | Video demonstratie | Statistiek doet fraude vermoeden | En nog meer foto's Iran, Verkiezingen, Waan v/d Dag Terug naar het [...]

June 13, 2009 at 16:01 (<http://tehranbureau.com/2009/06/13/faulty-election-data/comment-page-1/#comment-309>)

**Election Results - The Lede Blog - NYTimes.com**

(<http://thelede.blogs.nytimes.com/2009/06/13/landslide-or-fraud-the-debate-online-over-irans-election-results/>) says:

[...] | 3:53 p.m. Several readers have pointed to this mathematical analysis charting the share of the vote for Mr. Ahmadinejad and Mr. Moussavi as it was announced by the interior ministry — which [...]

June 13, 2009 at 16:08 (<http://tehranbureau.com/2009/06/13/faulty-election-data/comment-page-1/#comment-310>)



Nice work! Am going to Email this to some people. Math is always so excellent.

June 13, 2009 at 16:09 (<http://tehranbureau.com/2009/06/13/faulty-election-data/comment-page-1/#comment-311>)

**Blog on the Run: Reloaded**

(<http://blogontherun.wordpress.com/2009/06/13/the-question-is-what-are-we-going-to-do-about-it/>) says:

[...] – Muhammad Sahimi, Tehran Bureau [...]

June 13, 2009 at 16:10 (<http://tehranbureau.com/2009/06/13/faulty-election-data/comment-page-1/#comment-312>)



Sorry, this doesn't seem unusual at all.

Actual vote-share fluctuates from 67.2% to 70.4%. This isn't unusual at all, considering that 20% of returns had already come in. It's almost on the high side of variance.

There could still be fraud, but, Benford's law is a better way to go about showing it.

June 13, 2009 at 16:32 (<http://tehranbureau.com/2009/06/13/faulty-election-data/comment-page-1/#comment-314>)

**in Iran ([http://blog.zeit.de/joerglau/2009/06/13/klare-beweise-fur-wahlbetrug-in-iran\\_2567](http://blog.zeit.de/joerglau/2009/06/13/klare-beweise-fur-wahlbetrug-in-iran_2567)) says:**

[...] Und dies ist die Conclusio der unabhängigen Website Tehranbureau: [...]

June 13, 2009 at 16:34 (<http://tehranbureau.com/2009/06/13/faulty-election-data/comment-page-1/#comment-315>)

(<http://ugualiamori.wordpress.com/2009/06/13/tanto-per-dire/>)

**says:**

[...] 2009 Fatti nostri 0 Commenti Tags: domani chissà, iran, iran oggi Che se uno vuole falsificare le elezioni, ci [...]

June 13, 2009 at 16:34 (<http://tehranbureau.com/2009/06/13/faulty-election-data/comment-page-1/#comment-316>)



This chart is interesting, but missing one bit: Just exactly /how/ unlikely is it?

I'm pretty sure that it is possible to calculate the likelihood that the graph over various steps of reporting the polls is near linear. It probably would also somewhat depend on what is know about the differences between voting behavior in different districts, but I

could imagine that there's some statistical analysis to work with making only a few minimal assumptions (say, assuming that the poll data has the same variance as in the elections before). Based on that it should be possible to calculate the chance for the data being like that. Please note, I agree with your argument, it is very unlikely data, it would just be nice to know /how unlikely exactly/ it is.

---

June 13, 2009 at 16:43 (<http://tehranbureau.com/2009/06/13/faulty-election-data/comment-page-1/#comment-317>)

(<http://tiedtothemast.wordpress.com/2009/06/13/voter-fraud-in-iran/>) says:

[...] V: Check out the NYT's lede blog: Several readers have pointed to this mathematical analysis charting the share of the vote for Mr. Ahmadinejad and Mr. Moussavi as it was announced by the interior ministry — which seems [...]

---

June 13, 2009 at 16:55 (<http://tehranbureau.com/2009/06/13/faulty-election-data/comment-page-1/#comment-318>)



As much as I'm sure the Iranian elections are bullshit rigged. The mathematical analysis in this post is flawed. For a very neat explanation of why this is the case, visit

<http://www.fivethirtyeight.com/> (<http://www.fivethirtyeight.com/>) where Nate Silver links to this post and explains the problem.

As usual (speaking as a Sociologist), the problem isn't the mathematical analysis of the data, but an inappropriate understanding of causation (i.e. there is a third factor which leads to this kind of correlation holding true whether the election was rigged or not.)

---

June 13, 2009 at 16:55 (<http://tehranbureau.com/2009/06/13/faulty-election-data/comment-page-1/#comment-319>)



STUPID Engineering!

---

June 13, 2009 at 17:47 (<http://tehranbureau.com/2009/06/13/faulty-election-data/comment-page-1/#comment-326>)



It's strange. I'm looking at this data. It's pretty clear that, while it's almost perfectly linear, that there are three problems:

1. We don't understand WHY the relationship is linear.
2. The ratio isn't two to one at each of these points in the election. It's 2.38... then 2.21... then 2.13... then 2.11... then 2.09... then 2.05. So that's not 2:1 at all. Not at any point. I find it amazing that the article claims that two-to-one ratio, because the numbers are right there.

If the correlation were truly 1, then I'd say that there were some major question marks. However, when you graph this, it's NOT linear at all. It's close. Or it LOOKS close. Close is incredibly far.

I'm looking at this right now. I'm no stats guru, but I looked at the mean and calculated standard deviation. It's around .119 (give or take.)

I'm trying to find out what that actually means. As one fellow who posted here said... we need to understand causation here.

Even if my stats approach makes no sense, what I DO know is that it's awfully strange, in that I asked a cousin who is an international election monitor whether this made sense. He said, "Absolutely not. The vote in Iran, from everything we know, reports in such a way that there would be frequent swings."

So there you have it.

---

June 13, 2009 at 17:53 (<http://tehranbureau.com/2009/06/13/faulty-election-data/comment-page-1/#comment-327>)

**clashes, a "political coup" « News from Iran**  
(<http://newsfromiran.wordpress.com/2009/06/13/updates-from-iran-faulty-election-data-widespread-clashes-a-political->

**coup) says:**

[...] Tehran Bureau: Faulty Election Data The best evidence for the validity of the arguments of the three opponents of the President for rejecting the results declared by the Interior Ministry is the data the Ministry itself has issued. In the chart below, compiled based on the data released by the Ministry and announced by Iran's national television, a perfect linear relation between the votes received by the President and Mir Hossein Mousavi has been maintained, and the President's vote is always half of the President's.... [...]

June 13, 2009 at 18:43 (<http://tehranbureau.com/2009/06/13/faulty-election-data/comment-page-1/#comment-335>)

(<http://rightwingnuthouse.com/archives/2009/06/13/why-did-khamenei-do-it/>) **says:**

[...] from Tehranbureau appears to make fraud a pretty much an open and shut [...]

June 13, 2009 at 19:05 (<http://tehranbureau.com/2009/06/13/faulty-election-data/comment-page-1/#comment-337>)



Great to see all of the statistics-illiterate people defending this data.

What did the regime do to earn this loyalty?

June 13, 2009 at 19:19 (<http://tehranbureau.com/2009/06/13/faulty-election-data/comment-page-1/#comment-340>)

**Roohani** (<http://micheleroohani.com/blog/2009/06/13/1979-all-over-again-is-this-tehran-or-beirut/>) **says:**

[...] I've been glued to my computer and the TV to follow what is happening—I am amazed by the Iranian government's audacity (read stupidity) of forging the election results. Read a great analysis here. [...]

June 13, 2009 at 19:24 (<http://tehranbureau.com/2009/06/13/faulty-election-data/comment-page-1/#comment-342>)

(<http://forums.netphoria.org/politics-forum/166934-iranian-protests.html#post3499877>) **says:**

[...] Faulty Election Data – tehranbureau "The best evidence for the validity of the arguments of the three opponents of the President for [...]

June 13, 2009 at 20:14 (<http://tehranbureau.com/2009/06/13/faulty-election-data/comment-page-1/#comment-349>)

**RightSideRedux's blog - RedState**

(<http://www.redstate.com/rightsidereduct/2009/06/13/did-dan-rather-certify-irans-election-results/>) **says:**

[...] Here's the graphic which they post here: [...]

June 13, 2009 at 22:01 (<http://tehranbureau.com/2009/06/13/faulty-election-data/comment-page-1/#comment-365>)



Math is powerful, and it allows others to prove things for themselves. When you wrote "Statistically and mathematically, it is impossible ..." I thought that was an amazing analysis that could end all debate. I forwarded your message on to others.

Unfortunately, your math appears to be wrong. As another reader pointed out, the famous statistician Nate Silver used math to show yours is faulty. See <http://bit.ly/2UnFu> (<http://bit.ly/2UnFu>) for his analysis.

This doesn't say anything about the election. It just proves that in all honesty, you should issue a retraction for your math error. Or else, maybe you can crunch other numbers and come up with something solid. Pass them by Nate. I'm sure he would be supportive if they are correct.

I certainly hope Iran's election is resolved in peace and the people get what they want.

June 13, 2009 at 22:05 (<http://tehranbureau.com/2009/06/13/faulty-election-data/comment-page-1/#comment-366>)

**Other Controversies - Page 2 - City-Data Forum**

(http://www.city-data.com/forum/politics-other-controversies

/675427-ahmadinejad-re-elected-protests-flare-

**2.html#post9281117) says:**

[...] the election was falsified, mathematically the statistics don't add up. Faulty Election Data – tehranbureau Another coup for the Hardliners – tehranbureau Turn of Events – tehranbureau protest [...]

June 13, 2009 at 23:13 (http://tehranbureau.com/2009/06/13/faulty-election-data/comment-page-1/#comment-377)



It's not at all unlikely. Statistics is a black art – and it is completely impossible to say one thing or another about it unless you know the sampling method and the calculation method to create the samples. Just another example of statistics and peoples' ignorance of means and methods to manipulate. No conclusions can be drawn from this without knowing what deviations were applied etc...

June 14, 2009 at 00:04 (http://tehranbureau.com/2009/06/13/faulty-election-data/comment-page-1/#comment-387)



This linear correlation say nothing about the validity of the election. Nate Silver covers why here: <http://www.fivethirtyeight.com/2009/06/statistical-evidence-does-not-prove.html> (http://www.fivethirtyeight.com/2009/06/statistical-evidence-does-not-prove.html)

Basically, what is said is that most elections do follow a linear relationship, especially since this data was based on time, not by geographical location (where more discrepancies might occur). Consider that if you look at the recent US election between Obama and McCain by the same metric, you get a linear relationship as well, with an r-squared of .9959. This linear behavior is inherent in all elections when based by time. This is not to say that there is nothing wrong with the elections – I believe that there was manipulation of the votes. I am only saying that this graph proves nothing.

June 14, 2009 at 01:34 (http://tehranbureau.com/2009/06/13/faulty-election-data/comment-page-1/#comment-392)

**Zeitgeist** (http://alexlobov.wordpress.com/2009/06/14/iran-election-aftermath-protests-more/) **says:**

[...] favour of the fraud are pretty damning. Check out this comprehensive assessment from Juan Cole or this graph prepared by the Tehran Bureau that seems to suggest an impossible [...]

June 14, 2009 at 01:34 (http://tehranbureau.com/2009/06/13/faulty-election-data/comment-page-1/#comment-393)



First off... the ratio is not 2:1 at all points. Do the division for yourself. Look at the ratios of Ahmadinejad's votes to Mousavi's votes at points a, b, c, d, e and f:

- a. 2.37:1
- b. 2.21:1
- c. 2.13:1
- d. 2.11:1
- e. 2.09:1
- f. 2.05:1

Think about it.

The ratio actually gets progressively smaller at each point, until it arrives at the final ratio. The difference initially CAN be a lot higher because there are fewer votes. The percentages, for example, in the first ten votes can be totally different than the ultimate result. 9 votes for Mousavi; 1 vote for Ahmadinejad. That's a tiny sample of the overall vote. n is extremely small relative to N. The sampling error here is ridiculous.

Basic stats: Sampling error decreases with a larger sample. When the sample finally is N, there is no sampling error at all (obviously.)

If there is a monotonic relationship between two variables, then the correlation can get

pretty darn high (e.g., the 'rank-order correlation' is perfect).

We don't need to know anything else. This is how elections are. The farther along that they are, the more that the percentages start to look like the final result.

HOWEVER:

This is still a BS election. The problem is really the polls. Unless a poll isn't a random sample... or unless the sample size is so small that the sampling error is massive... or both... the poll shouldn't be off by more than a few percent. When it's off by 10%, it's a ridiculously terrible poll. Beyond that, either the pollster is a total amateur

Until mid May, Ahmadinejad consistently led in the polls. It was around that time that the numbers began to change. 14 of 20 polls had Mousavi winning... and in 7, it was a landslide. 3 had Ahmadinejad cleaning Mousavi's clock.

The bigger problem, from where I'm sitting, is the fact that the voter participation in this election went from around 45% to 85% (rough figures.) That additional 40%... let me ask you... do you think that "status quo" people get galvanized by elections?!? Think about it. These were students... women... people who wanted reform. The turnout probably increased among the status quo folks, too... as a reaction to a reformist threat.

There is no way in Hell that Ahmadinejad won by that spread. It's almost a joke. It's almost like someone is "taking the piss." It makes educated Iranians look like they've been taking. I can only imagine their grief at seeing their democracy slip away.

By the way... the Iranian people are wonderful: educated, plugged in, nice... just wonderful. They don't deserve this shit.

---

June 14, 2009 at 01:36 (<http://tehranbureau.com/2009/06/13/faulty-election-data/comment-page-1/#comment-394>)

**Facebook | Vancouver Secrets**

(<http://theseecretsofvancouver.com/wordpress/iran-shuts-down-cell-phones-twitter-youtube-and-facebook/activists>)

**says:**

[...] election data from Iran's Interior Ministry shows a perfectly linear relationship between President Mahmoud [...]

---

June 14, 2009 at 01:55 (<http://tehranbureau.com/2009/06/13/faulty-election-data/comment-page-1/#comment-400>)



For reference, Nate Silver's post was deeply flawed. He randomly selected states for his graph, which is a completely bogus way to simulate Iran's results, which would have been returned regionally.

Read some of the comments on his post for an explanation.

---

June 14, 2009 at 04:08 (<http://tehranbureau.com/2009/06/13/faulty-election-data/comment-page-1/#comment-408>)

(<http://aliqapoo.wordpress.com/2009/06/14/fraudulent-reporting/>) **says:**

[...] the link to <http://www.tehranbureau.com/2009/06/13/faulty-election-data/> (<http://www.tehranbureau.com/2009/06/13/faulty-election-data/>) is presently broken, this analysis is of course nonsense. It cannot prove that the Iranian [...]

---

## Leave a Reply

Name (required)

Mail (will not be published) (required)

Website

**Submit Comment**

**CREDITS**

Tehran Bureau [tehran.bureau \(http://tehranbureau.com\)](http://tehranbureau.com)

Design by [derooted creative agency \(http://derooted.com\)](http://derooted.com)

[Subscribe to entries \(http://tehranbureau.com/feed/\)](http://tehranbureau.com/feed/)

[Subscribe to comments \(http://tehranbureau.com/comments/feed/\)](http://tehranbureau.com/comments/feed/)

All content © 2009 by tehranbureau

Tehran Bureau Email  
subscription

Delivered by Tehranbureau.com



<http://www.facebook.com/pages/IRAN/18297877889>



<http://twitter.com/TehranBureau>



<http://derooted.com>

Cancel