tour/bullard_hji_louisville_tour.jpg)

- **November 9, 2017**. Presentation. "An Illustrative Calculation of $r^{\dagger}$ with Policy Implications," Federal Reserve Bank of St. Louis Central Bank Forecasting Conference, St. Louis, Mo.
  Presentation (pdf) (bullard_cb_forecasting_st_louis_9_november_2017pdf).
- **October 6, 2017**. Presentation. "Living Standards across U.S. Metropolitan Statistical Areas," Bi-State Development 2017 Annual Meeting, St. Louis, Mo.
  Presentation (pdf)
  (bullard_bistate_development_luncheon_6_october_2017pdf) | Press Release | MSA Data (xlsx)
  (bullard_bistate_development_luncheon_6_october_2017_msas_dataxlsx).

  Living Standards across U.S. Metropolitan Statistical Areas

  October 6, 2017

  [Presentation (pdf)](https://www.stlouisfed.org/-/media/project/frbstl/stlouisfed/files/pdfs/bullard/remarks/2017/bullard_bistate_development_luncheon_6_october_2017.pdf)* | [Press Release](https://www.stlouisfed.org/news-releases/2017/10/06/bullard-living-standards-us-metro-areas)| [MSA Data (xlsx)](https://www.stlouisfed.org/-/media/project/frbstl/stlouisfed/files/excel/bullard/bullard_bistate_development_luncheon_6_october_2017_msas_data.xlsx)

  St. Louis Fed President James Bullard drew on recent research from the St. Louis Fed and others to compare living standards across hundreds of metro areas in the U.S., just as living standards across countries have long been compared. He highlighted the importance of adjusting for price differences across MSAs when making such comparisons. In all, 381 MSAs in the U.S. were studied. Bullard noted that the St. Louis MSA ranked in the top 6 percent of these metro areas. This analysis may lead to other research on why some cities are more successful than others, he said. Bullard spoke at the Bi-State Development's annual meeting, in downtown St. Louis.

  * Please note the updated chart on slide 33 and the addition of slide 35,

“Bottom line on top 10 MSAs,” on Oct. 24, 2017.

Below is a transcript of Bullard's remarks, in addition to Q&A with the audience. This transcript has been lightly edited for clarity. A video of the event is also available.

James Bullard:Well, good afternoon, and what a great audience here. I'm really looking forward to the remarks here and to challenge this audience and also to a Q&A. I will take Q&A at the end if I can see any of you. These are bright lights up here, so I'm not really used to that. So we're going to need slides up here in order to do this. Here we are. Can we go back one? Good. Here we are. I wanted to start with this because, you know, I'm not going to talk about monetary policy here. [Laughter.] The audience breathed a sigh of relief.

I'm going to talk about something I think you'd be very interested in, which is living standards across U.S. metropolitan statistical areas, and this represents, as I'm going to outline here, some research and some ideas I've been thinking about and that I've talked with John about over the last year or so. So this is kind of testing out the research results. I'm anxious to hear what you guys think about it.

So this is going to draw on some recent research at the St. Louis Fed, but it will also be supplemented by additional recent research from outside the Bank. Some of you know that the St. Louis Fed has one of the top economic research departments in the Federal Reserve and in fact in the world, so we're trying to leverage that to attack this particular issue. For those that want to see recent comments on monetary policy, you can look at my talk at Truman State University last week, and also during the Q&A I'd be happy to entertain questions about monetary policy if you want to go in that direction.

The paper I'm going to talk about is by my colleagues, Cletus Coughlin, Chuck Gascon and Kevin Kliesen. It is available on our webpage. You can click on it. It's called "Living Standards in St. Louis and the Eighth Federal Reserve District: Let's Get Real." The things I'm going to talk about here in these slides are a little bit more preliminary than the published paper. And so I'm happy to take comments if you have any or you know other people

that have comments.

I want to motivate this by—with the really large literature on international standards of living that is already out there. And in that literature we try to address—we economists try to address the question of which national economies are performing well and which national economies are performing less well for their citizens. And there's an established methodology for how to do that, and I'm going to copy that methodology.

And, again—you're just talking about whether the citizens are well-off in terms of material well-being. You're not trying to get at anything else. It's just sort of pure economics, material well-being. Some countries do very well and are considered rich countries, like the United States. Others do less well, and they're considered relatively poor on the world scale. So we would like to be able to make similar statements across metropolitan statistical areas in the U.S.

So if you look at this international literature, you'll get a picture like this. The vertical axis is some kind of measure of real per capita income across countries, and each bar on this represents one country. And the U.S. is called out there. It's on toward the left in this picture, which means it's a relatively high per capita income. GDP is the same as income. And China and India are relatively low on this.

And so we make statements that say, you know, U.S. is a relatively wealthy country or relatively rich country in terms of per capita income. And China and India have lower standards of living because they have lower per capita income. So we want to make exactly these kinds of statements across U.S. metropolitan statistical areas.

Now, I just want to stress to people that, just because you're the highest, or one of the highest standards of living in the world doesn't mean that we're the fastest-growing. It's well-known in particular China and India are faster-growing countries, but they have lower standards of living. And I think it's—you know, it's something where the statistics bear out actual experience. If you go to India, if you go to China, you'll see a very different country than what you see here, if you travel across the whole country.

So let me just talk about MSAs in the U.S. And I think some of you probably know this, but we've got the whole set of MSAs. An MSA is an area containing a large population center in adjacent counties with a high degree of integration with that center, as measured by commuting patterns. So there's some science behind this about how you do this and how you define this. And it provides a natural unit for what we want to talk about here, instead of artificial political boundaries, which are, you know, sort of dotted lines around certain areas.

We want to talk about the economic unit, and I think the MSA is designed to do that. And so we're going to do that. And, certainly, Bi-State Development is all about getting the whole region to work together. About 90 percent of U.S. GDP is produced in metropolitan statistical areas. We're going to look at the whole set here: 381 MSAs in the U.S., about 86 percent of the U.S. population lived in these places.

The smallest was Carson City, Nev., at 54,000 people. 50,000 is the cutoff here, so they won't define an MSA smaller than that. Largest is New York City, population 20 million. The median population, about 238,000; average population, 721,000. So this means these big cities are really big compared to the Carson City, Nevadas of the world. So you have a lot of skewness in the size distribution of cities.

So what we're going to do, because it's so skewed, is that we're also going to consider just a set of the very largest MSAs in the sample, having a population of at least 1 million. For that group, about 56 percent of the population lives in that group. There are 53 of these large MSAs. St. Louis is one of them. Tucson, Ariz., is the smallest, about 1 million. New York's the largest. Median population for this large set, 2.3 million; average population, 3.4 million. Those numbers are not too far from the St. Louis area. And so there's skewness even among the large MSAs, but it's not as extreme as for the whole set of MSAs. So we're going to report results for both sets.

And here's a picture that I love that our staff did to give you an idea about what we're talking about here. Those blue, darker blue, are the 53 large MSAs in the country. And, again, you're talking about half of GDP is in those blue,

darker blue blocks. If you add in the lighter blue blocks, you get the entire set of MSAs. You've got 90 percent of GDP being produced in those areas. So this is what we're talking about. And the question as I look at this map, where is the—which of these are performing the best and which are performing less well, based on per capita income?

Now, a key to this research is the idea of price levels by MSA. And those of you that know me and have heard me talk about this know where I'm going on this. Prices vary greatly across the U.S. And, certainly, we all have an intuitive sense that some places are wildly expensive and other places are very inexpensive.

And the good thing is that, recently, there's been more systematic accounting of this and better data has been developed on regional price level differences. And we're going to use this new data—that's what makes this really interesting to macroeconomic people like me—hey, this is some new data that we can use. But we're going to use this new data to calculate the real income per capita across these MSAs.

So these new data are called Regional Price Parities, RPPs. They measure the differences in price levels by MSA, across MSAs, in a given year. So it's annual data. This is done by the Bureau of Economic Analysis. These data started to be published in 2014. So in the world of research, that's just like yesterday. They just became available, and so we're starting to use them. They are available back to 2008, but here in this talk I'm mainly just going to focus on one particular year, the most recent year for which we have complete data, which is 2015.

These RPPs are expressed as a percentage of the national price level. So you'll see numbers like 90 or 110. That means 90 percent of the national price level or 110 percent of the national price level. And this covers all consumption goods and services and includes rents, and that's a key aspect of what I'm talking about here.

So a key issue here is, well, why do these prices differ across different parts of the country? If you think of something like gas stations, I can always go to the next gas station and it should be competitive with the last gas station that

I was at, and therefore the prices should be just about the same across the cities. But the reason prices differ is housing costs, and the housing differentials are huge.

I've got an example here from Zillow data. St. Louis median house is about 105 bucks per square foot, median home in San Francisco about $479 per square foot. That's a ratio of about five to one. And I think we know this intuitively, that these housing costs are so substantially different that it really affects your standard of living if you live in different places around the country.

So here's a picture—I've got two pictures like this—this is a 3D picture from metrocosm.com, and the basic message of this picture, yellow and orange means $200 to $500 per square foot for housing costs. The darker colors are less than $50 up to $100 or $150 per square foot. And the basic idea that you get from this picture is the East Coast—Boston, New York, D.C., South Florida—and especially the California coast and Hawaii—are extremely expensive on this measure, the middle part of the country much less expensive. Aspen, Colo., comes up to be the very highest here. I think this is by Zip code, not by MSA. Aspen isn't actually that big of a place.

This is another picture that shows the same kind of thing, the share of households that can afford payments on the median-priced single-family home. And dark green means three-quarters of the households could afford to buy the median house in that particular area. Red means that less than a third of the households could afford to buy even the median house in that particular area.

So you can see in this picture that the West Coast is all red. So that means it's very unaffordable even for most households to buy the median house in that area. I'm not talking about buying the very best house in the area, just the median house in the area, whereas the same can be said for the East Coast—Boston and New York, Florida—and then in the middle west part of the country, we get much more affordability, and you get things like two-thirds or three-quarters of the households can afford to buy the median house in that area.

So this is just another way to say what we already know, that housing costs are very different across the country. This affects your lifestyle. It affects your standard of living across the country. And it shows up in these RPPs, these Regional Price Parity numbers, for different parts of the country.

So the least expensive MSA is Beckley, W.Va. It has an RPP of about 80 percent, so about 80 percent of the national price level. So it's cheaper to live there. The most expensive is Honolulu, 125 percent. And St. Louis is a little over 90 percent of the national average.

OK. So we're ready to do our calculation. What is real income per capita across these MSAs? We're going to take real income per capita for each MSA and adjust it based on these regional price levels. And that's going to give us the standard of living as the average level of real income per person for a particular location analogous to the cross-country literature graph that I showed you at the beginning.

Now, I don't have median data here. I only have the average. And so this isn't going to take into account income inequality. You might be saying, OK, the MSA generates a certain amount of income. That's income per person. We're not really saying who's getting the income. That's income inequality. But I'm going to come back with a section later that's going to talk about income inequality, including for St. Louis. And we'll take a look at that at the end.

So the measure of real income is going to be per capita personal income adjusted for inflation, so this is real purchasing power. Another possibility would be to look at household income, and if you read the paper, they do look at household income. I think that's probably a less good way to look at it, but if you want to get into that, we can talk about it. And then if we divide by this RPP for that particular MSA, we're going to get this real income per capita, adjusted for regional price differentials. I'm going to focus on 2015 only here.

So here's the result for the St. Louis MSA. We had an RPP adjusted real personal income per capita that was about 12 percent higher than the national average. Among the 53 largest MSAs, we ranked No. 7 in the nation. Among the complete set of 381 MSAs, St. Louis ranks about 20, which is in

the top 6 percent or so. So another way to say this is St. Louis' standard of living is higher than about 94 percent of the MSAs in the nation.

Another way to say this is, if I randomly reallocated all of you to other MSAs, you're probably going to be worse—and you're the average guy—you're probably going to be worse off going to one of those other MSAs than staying here in St. Louis. So this is a good set of numbers for St. Louis that I think highlights how well this region really does and brings into stark relief the high standard of living that exists in this part of the country.

So, what I'm going to do in the rest of the talk is show tables that expand on this result right here and talk about it in a variety of ways. So here's the picture analogous to the cross-country picture that we looked at at the beginning. So this is our measure of real per capita income. One would mean that you are the same as the national average in that particular MSA. Higher than that means you're higher than the national average.

And you can see that this is arranged—MSAs are arranged from highest to lowest, going from left to right in this picture. Each bar represents an MSA. We put St. Louis on here, and we put the three largest MSAs in the country—New York, Chicago and LA—that are all trailing us in standard of living.

You can see there's—this is an S-shaped curve, which I think is interesting. Some places do extremely well. The very highest bar there on the far left I believe is Midland, Texas, so something about oil boom going on there. And then things gradually trail off, and then some places are substantially lower in standard of living than the nation as a whole. But, basically, St. Louis does extremely well on this.

Now this is the whole set of 381 MSAs. We might also want to look at the very largest MSAs, and here they are. So these are the 53 largest ones. Again, we called out St. Louis and then the three largest ones, which are New York, Chicago and Los Angeles, which are trailing us. And I'm going to show you some pictures here in just a minute of the top 10 here, which we are in the top 10.

Now one thing about this picture and interpreting this, the ones on the far

left there are clearly doing something right, because they're much higher or substantially higher than the national average. And then when you get to St. Louis, we're at the high end, but the cities behind us are not too far behind us, so you've got a lot of more or less equal cities that are—the slope is very—not very steep there. And we're going to look at that also.

So, now what I'm going to do is just focus the rest of the time on the top 10 large MSAs—and we're No. 7 in that group—and just look at who they are. So this is a table that shows you how this came out. St. Louis is No. 7. We're about at—1.13 for us means about 13 percent above the national standard of living.

Our competitors are here in this top 10 list. We've got—the Bay Area does extremely well here. The tech boom has been going on for at least 20 years there, and it really shows in these numbers. They're No. 1 and 2, really the same place—San Jose, Calif., and San Francisco. Boston doing very well, Seattle also a tech hub. Seattle has Amazon and Microsoft. Then you get to Washington, D.C., and the other—the bottom five in this list out of the top 10. And they're very close to being equal. So there's not a huge difference between them, but we are in the top 10.

Now, some of these in this group have a high cost of living and some of them have a low cost of living. So one thing we could add to the list is, say, OK, among these that have a high standard of living, which are the low-cost areas and which are the high-cost areas? And we're going to do that here. And, as you might have surmised just looking through this list, it's only us and Nashville, Tenn., that have this lower cost of living. All the others in this list either have cost of living at the national average or considerably higher than the national average in the case of San Jose, Calif., and San Francisco or even Boston or even Seattle or Washington, D.C.

Now, I mean, these might just—you might just think, "Well, gee, Jim, these are just numbers on a table." But, you know, you think about what this means. You're talking about 90 percent here. You're talking about 110 percent in Boston. That's a 20 percent cost differential. You think about 121 in San Francisco or close to that in Washington, D.C. That's a 30 percent cost differential. So if you're a company and you're producing product here and

then shipping it around the country versus producing product in Washington, D.C., or San Francisco and trying to ship it around the country, those other guys have a 30 percent disadvantage in cost compared to St. Louis or Nashville. So those are huge differences.

Could you imagine trying to run your business and your opponent has a 30 percent cost advantage on you? You're going to get killed. So I think this is one of the biggest things about St. Louis and Nashville on this list—Nashville's going to turn out to be basically identical to St. Louis in these numbers—is that we have tremendous cost advantage over our rivals among the cities that have the highest standard of living in the nation.

Now, just to keep perspective on what we're talking about here, the international income distribution is a lot more unequal than the U.S. income distribution. If you take the ratio of the 90th percentile to the 10th percentile across MSAs, you're going to get a number of 1.37. So what does that mean? That means that the average guy in the kind of the rich city is making about 35 percent, 37 percent more than the average guy in the poor city that's in the 10th percentile. So that's a difference of 35-40 percent across that spectrum.

If you do the same thing to the international data, you get a stunning number of 28. So that means that the guy in the 90th percentile of the rich countries is making 28 times what the guy in probably a Sub-Saharan African country is making. So the international income differentials are so staggering they make your jaw drop. And that remains true even if you focus on a more homogeneous set of countries. For instance, just European countries, you do the 90-10 ratio, you get 3.8. And if you do the OECD countries, you get 2.1.

So among—within the international context, that 1.37 is not a huge number. But when we think about competing across MSAs within the USA, 35 percent or 40 percent is a big number. So you've got to keep everything sort of in perspective when you're looking at this here.

So, now we're going to go to the income inequality idea within MSAs. Obviously, we're just averaging across all the people in the St. Louis MSA. Some are doing well. Some aren't doing very well. We'd like to be able to

account for that and get the idea of how much income inequality is there within these different MSAs. The data that I'm looking at does not account for the distribution of income. So I'm going to have to go to a different paper, and it's going to be the paper that's cited here by three authors that I don't know very well. But we're going to use their research. They have studied the issue of income inequality across MSAs.

It turns out that St. Louis is kind of average in terms of income inequality and some of our rivals on the top 10 list have very high income inequality, and we're going to look at that here. So here's the picture. This isn't per capita income anymore. This is a measure of income inequality, and the MSAs are along the horizontal as we had before, and the measure of inequality is on the vertical axis.

And the measure of inequality is the ratio of the average income of the guy in the top 1 percent versus the average income of the guy in the bottom 99 percent. And if you look at that ratio for New York, Los Angeles, Chicago, which are listed there, those numbers are all higher. St. Louis is down the list. I wouldn't say it's exactly low, but it's close to the middle of the distribution here as you go off to the right in this picture. You've got the one with the highest—the MSA with the highest inequality is Bridgeport, Conn. I don't know too much about that MSA, but the kind of rumor would be a lot of hedge fund type people like to live in Bridgeport, and it probably has also a poorer segment of its MSA, and that's creating a lot of inequality in that particular place.

But I think the main message of this is that the larger cities tend to be places where income inequality is quite a bit higher than it is for the rest of the MSAs. And this is all 380 of them in here.

So now we can put that extra column on our top 10 list here, so this is the same table that we had before with our measure of per capita income. We're No. 7 on the list. We've got our measure of cost of living and the RPP. We're low cost. And then we've got our measure of inequality in this last column. And I just want to focus on this for a minute, because some of these cities have pretty high inequality.

And what cities are they? They're the Bay Area cities that have inequality numbers around 30, Boston very high, Houston also quite high. But the other cities on this list are probably comparable to St. Louis, kind of in the middle. Nashville in particular is close to us, Minneapolis close to us. Seattle a little bit higher, but generally speaking close to us. Washington, D.C., actually comes up with relatively low inequality. I think the federal government there provides a kind of a lot of income across a very large swathe of the workforce there, and so it's kind of a different city from other places.

So the message I would like to take—and this talk's about over here, so you can wake up again. [Laughter.] The message I'd like you to take is that, among the top 10 places for standard of living in the U.S., there's only two that are low cost. That's us and Nashville. And then—and Nashville is really almost identical to us across the board here. And then, among the ones that do better than us on standard of living, some of them are high cost—they're higher-cost than us, but some of them also have quite a bit higher inequality than what we have here.

So I'm going to stop there. I think we're about done—oh, I've got one more thing. We often talk about economic growth, and I think a lot of the discussion that I've had with all of you we think of growth as being the measure of how well we're doing, whereas I'm talking about the level, the standard of living level that we're at. If we don't grow, then others will catch up to us and pass us in per capita income. But economic growth is not the same as standard of living.

Now in the cross-country literature it's well-understood that some of the poorer countries are also the fast-growing countries. And that's certainly happening with China and India. If you look at their growth rates, 6 percent to 7 percent per year, year in and year out—U.S. is growing at 2 percent a year, year in and year out—after a while they're going to catch up in per capita income if they continue to grow faster than us. However, the standard of living as of today is still low, you know, by a factor of 5 to 10, than it is in the U.S. So they have a relatively low standard of living, even though they're growing really fast.

You might say the same thing about MSAs, but I don't really have enough data here to get at this issue. And so we're going to have to defer that to a future day. Of course, it would be great to be growing fast, but I think the point here is that the level of per capita income is high in St. Louis.

OK. So let's conclude. If you want to think about these issues, you have to adjust for price differences across MSAs and housing prices in particular. Otherwise, you won't have meaningful comparison about the standard of living across MSAs. So I used some recent data that's become available on this issue. We use that to calculate per capita income across MSAs. And I'm hopeful that we can use this kind of data to keep perspective of where we are and what we have to do to get better and where our competition is in the U.S. going forward.

So I'm going to stop there and let you guys ask some questions. So thanks very much. You've been very attentive and very good. [Applause.] I think we have microphones over on this side and another one over on this side, so you're going to have to troop up to the microphone if you want to get a question. I prefer softball questions. [Laughter.]

Male:Sorry about that, no softball. Dr. Bullard, I don't think the data correlates with how most people in the region would feel about our success.

James Bullard:Yes. I'm trying to shock you into what's really going on here. This is what's really going on. These are the numbers. This is the data. Now from here you can go say all kinds of other things. [Laughter.]

Male:What do you think the reason is for that lack of correlation between what you're presenting and how probably most of us feel? Humbleness?

James Bullard:There is a Midwestern humbleness, I would say that. But some of the other places—it's not just St. Louis. It's that the cultural story has become very popular in the last 20 years, and I think that's mostly because of the tech boom. And the tech boom is a great story, and these tech companies are coming to dominate the U.S. economy, and that makes places like Seattle and the Bay Area look very, very good. And they look good in this data as well.

But then you forget about, well, what about Minneapolis—forget about St. Louis. But what about Minneapolis? What about Nashville? What about Houston? Are those also places with a high standard of living? And they are, according to these data. So, I think—the idea that everyone has got to scramble up to San Francisco to get into the tech boom I always think is a little bit funny. I mean, you could do that from anywhere. You don't have to be out there paying 30 percent more than what you're paying here. Please?

Male:OK. Since we're here in a transit agency, I thought I'd ask a transit-related question. How did your data compensate for the difference in utility and private car ownership versus the availability of mass transit? In other words, dense areas would obviously have higher property costs, but also much higher costs of owning cars.

The flipside of that and something that came out in the Ferguson Commission is the affordability of mass transit. If you are living in a high-cost area and you have good mass transit and you compare that, how do you compare that to living in perhaps a low-cost area which has car ownership as a prerequisite to working?

James Bullard:Well, I think that's a great question, and the answer is this data does not address that question. [Laughter.]

So, what I wanted to get at is this international comparison literature. So when we're saying Switzerland has a high standard of living, U.S. has a high standard of living, U.K. has a high standard of living, we're not telling stories about the transportation network in those countries. We're not telling—there are a whole host of things that are going to be a lot better in those three countries than they're going to be in Latin America or Sub-Saharan Africa. There's going to be dramatic differences in all kinds of dimensions between those kinds of countries on the international scale.

And you want to think of the MSA in the same way. Different MSAs are going to have different transportation network needs. I think the coastal cities in particular seem to—at least from afar seem to be extremely congested because they're limited in what they can do with their geography, and this

creates a lot of complications about getting around. I mean, New York City, who thought of the idea of putting 20 million people on that island? I mean, that was like the stupidest thing we ever did. [Laughter.]

So I think what the advantage of the Midwest is—Minneapolis, Indianapolis, Dallas, Houston—you've got areas where you can spread out. And if you can build a realistic transportation network, you can keep this cost of housing more competitive than what you see in these coastal communities. And that just provides tremendous cost advantage in the Midwest compared to the coast.

So I think that's what's going on in spades and it seems to be getting even—you know, the prices are increasing more and more. If you look internationally at these cities, the housing prices are increasing more and more. In the sort of glam cities or coast cities, people seem to want to pay a lot for their housing. So I think the Midwest has a great advantage on it.

Now, being in the Midwest all by itself, even with a cost advantage, doesn't mean it would be a great MSA. You also have to have the jobs in the city that are good enough or that are going to provide a high standard of living. So not all the cities on this list are in the Midwest. And so it's kind of that you're competing against a rival that has other—that might have other advantages. But cost is not one of them. And I think we're doing very well against the list here. Please?

Male:Comparison to international comparisons was interesting. For the international one, people can't move between countries. But for cities, people can move. So you're saying the living standards are 20, 50 percent different, and people aren't apparently moving given migration statistics. Is it because of cost or is it because of amenities you don't measure?

If it's amenities, it might be interesting to compare the differences in things like public transportation like the previous speaker said or the things that might suggest more investment in bi-state regional development. If these are amenities they control, they explain why we don't see migration moving in the direction you suggest.

James Bullard:Yep.

Male:Maybe there are other things that can be done.

James Bullard:Brilliant, brilliant question. So if the standard of living is better somewhere else, then you would think people would say, "Hey, I'm going to move to the somewhere else," if you're the average guy. We're talking about the average guy here, too. We're not talking about the rich people. They can fly wherever they want. But the average person might say, "Gee, my life would be a lot better if I go over from the poor country to the rich country, and therefore I'm going to move to the rich country."

And that does happen internationally in spades, I would say. But if you talk to people from poor countries, they complain about brain drain. They complain about their most talented people wanting to be in Europe or the U.S. And so that happens. It doesn't happen on a grand scale because of immigration restrictions across countries. And, therefore, what you see across countries is a lot of inequality across countries internationally.

Now when I show you the MSA distribution, it's way flatter. So I think that process has gone on over the last 50 years or 100 years in the U.S., and people have moved to places where they thought the economic opportunity was bigger and where they can do better. And in order to get that process to work appropriately, people have to have the right perception about where the economic opportunity really is. To a young person, this would say that places like San Francisco and Boston are good. But it would also say places like Minneapolis and Nashville are also good and St. Louis also good.

So the fact that labor does not move internationally means that that distribution is not getting equalized the same way that it has in the U.S. It has become—it's much more equal in the U.S. across places, but not completely where you still have a 35 percent or 40 percent differential between the 90th percentile MSA and the 10th percentile MSA.

OK, I think I've exhausted you. Well, it's a pleasure to be here. What a great audience. [Applause.]

St. Louis Fed's Bullard Discusses Living Standards across U.S. Metro Areas

ST. LOUIS – Federal Reserve Bank of St. Louis President James Bullard discussed ["Living Standards across U.S. Metropolitan Statistical Areas"](https://www.stlouisfed.org/-/media/project/frbstl/stlouisfed/files/pdfs/bullard/remarks/2017/bullard_bistate_development_luncheon_6_october_2017.pdf)at Bi-State Development's 2017 annual meeting on Friday.

In comparing living standards across metropolitan statistical areas (MSAs), he drew on [recent research at the St. Louis Fed](https://research.stlouisfed.org/publications/review/2017/10/04/living-standards-in-st-louis-and-the-eighth-federal-reserve-district-lets-get-real/)as well as additional research from outside the St. Louis Fed. He said that the motivation for his talk is the literature on international standards of living, which tries to determine which countries are performing relatively well and which are performing less well for their citizens, as well as what makes some countries relatively well-off in terms of material well-being and what makes others relatively poor.

He explained that this literature typically uses real per capita income (i.e., total real income produced in the economy divided by the population) as the measure of "standard of living." Based on this measure, he noted that the U.S. standard of living is relatively high, while the standard of living in many other countries is lower. He also pointed out that countries with a high standard of living are not necessarily the fastest-growing countries.

For this talk, Bullard applied this international framework to MSAs in the U.S. However, he noted that prices can vary greatly across the country, in part due to differences in housing costs. "Adjusting for price differences across MSAs is essential for generating meaningful comparisons of living standards across MSAs," he said.

Price Levels by MSA
"We all have an intuitive sense that some places are expensive locations to

live and other places are inexpensive," Bullard said. "Recently, more systematic data have been developed that account for these differences in prices across the country."

Bullard explained that these regional price level data—called Regional Price Parities (RPPs)—measure the differences across MSAs for a given year. RPPs, which are published by the Bureau of Economic Analysis, are expressed as a percentage of the national price level.

Among the 381 MSAs that Bullard examined, 59 MSAs were more expensive than the nation at large (meaning their RPPs were larger than 100 percent) in 2015. The median and average (population weighted) RPPs were 93 percent and 101.7 percent, respectively. St. Louis had an RPP of 90.6 percent.

Real Income Per Capita across MSAs

Next, Bullard discussed adjusting real income per capita for each MSA based on the regional level of prices for that MSA. "This type of calculation gives the standard of living as the average level of real income per person for a particular location, analogous to the cross-country literature," he said.

Specifically, he used per capita personal income in 2009 chained dollars for each MSA, divided by the MSA's RPP. Based on this measure, he noted that in 2015 St. Louis ranked No. 20 out of the 381 MSAs, which is within the top 6 percent. "Said differently, 94 percent of all MSAs have a lower standard of living than St. Louis," he said.

He also examined the 53 MSAs with a population of at least 1 million, which he referred to as the large MSAs. St. Louis ranked No. 7 among this group in 2015.

Of the top 10 large MSAs in terms of RPP-adjusted real per capita personal income, Bullard pointed out that some have a high cost of living while others have a low cost of living. "Just two cities in the top 10, St. Louis and Nashville, have a cost of living less than the national average," he said.

Bullard noted that when considering living standards across MSAs, there is

also the question of income inequality within an MSA. Although the per capita concept he used doesn't account for income distribution within an MSA, he drew on other research that has studied income inequality across MSAs. According to this research, he said, the St. Louis MSA's income inequality is near the average, but some other top 10 MSAs in real per capita income have higher-than-average income inequality. 1

Bullard concluded by reiterating the importance of adjusting for price differences in comparing living standards across MSAs. In addition, he said, "The facts uncovered through this analysis may provide the basis for future research on why some cities are more successful than others."

1Inequality is measured by the ratio of the average household income of the top 1 percent to the average household income of the bottom 99 percent.

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  Presentation (pdf) (bullard_kirksville_mo_27_september_2017pdf) | Press Release | Photos of Tour of Northern Part of District.

  Three Questions for U.S. Monetary Policy

  September 27-28, 2017

  [Presentation (pdf)](https://www.stlouisfed.org/-/media/project/frbstl/stlouisfed/files/pdfs/bullard/remarks/2017/bullard_kirksville_mo_27_september_2017.pdf)| [Press Release](https://www.stlouisfed.org/news-releases/2017/09/27/bullard-three-questions-for-us-monetary-policy)| [Photos of Tour of Northern Part of District (below)](https://www.stlouisfed.org#photos)