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When can economic impact be positive? Nine conditions that explain why smaller sports can have bigger impacts

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Abstract

This explanatory research reviews the economic impact literature to identify the conditions that would theoretically allow any sport, large or small, to generate positive economic effects. Nine conditions are identified that, when present, could allow a community to experience a positive economic impact from a team or stadium. The nine conditions are then used to explain the discrepancy in known empirical outcomes in Major and Minor League Baseball. It appears as if major league teams are more likely to violate the conditions while minor league teams are not. This research finds theoretical support for previous suggestions that smaller teams and events may be beneficial to local economies. In doing so, it also explains previous empirical results that found some minor league baseball classifications are associated with positive gains in per capita income.

JEL Classification Codes: L83

Keywords: economic impact, minor league baseball, MLB, stadiums, efficiency

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Introduction

Despite the lofty perception that teams and professional sporting leagues are useful economic development tools, most academic research has failed to support this contention. *Ex post* analysis of professional sports teams on a variety of economic indicators imply almost entirely insignificant or negative effects (e.g. Baade, 1996; Baade & Sanderson, 1997; Coates & Humphreys, 1999, 2001, 2003; Lertwachara & Cochran, 2007; Miller, 2002).

Notwithstanding the weight of broad economic evidence on major league sports, some authors (Matheson, 2006; Seaman, 2004) have suggested that smaller teams and amateur events may have a greater propensity to positively affect local economies. Indeed, a recent empirical analysis of all 238 metropolitan areas that hosted a minor league team between 1985 and 2006 (Agha, 2013) found that AAA teams, A+ teams, AA stadiums, and rookie stadiums are associated with gains in local per capita income.

While Agha (2013) empirically answered Matheson's (2006) and Seaman's (2004) call for *ex post* research on smaller sporting entities, no research to date has explained why there are different effects between major and minor league teams. Thus, the purpose of this explanatory research is to review the economic impact literature to identify the conditions that would theoretically allow any sport, large or small, to generate positive economic effects. After identifying these conditions, they are applied to known empirical results on the economic impact of both Major League Baseball (MLB) and Minor League Baseball (MiLB) to explain why there are seemingly contradictory results. The outcome will be a more thorough understanding of economic impact and the conditions that are necessary for a team, large or small, to have an impact on its community.

In total, nine conditions are identified that, alone or in combination, could allow a community to experience a positive economic impact from a team. Table 1 summarizes these conditions.

Table 1: Nine Conditions that Affect Economic Impact

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1. New visitors
 2. Geographic isolation
 3. Locals change spending
 4. Locals stay locally
 5. Leakages
 6. Government spending
 7. New stadium
 8. Venue utilization
 9. Crowding out
-

When applied to MLB and MiLB, these nine conditions provide compelling explanations for the different economic impacts found in MLB and MiLB. More specifically, it appears as if minor league teams are more likely to be located in small markets with few alternative leisure

activities. In addition, minor league stadiums are more likely to have high utilization rates, thus increasing the opportunities to draw visitors and their associated spending into a local economy. Finally, the absence of substantial crowding out effects and low levels of leakages may be unique to small teams (or small markets). These fundamental structural differences between minor league and major league baseball are likely the cause of the differential impacts that are seen across the two leagues.

The differential economic impacts between large and small teams have implications for sport managers, city officials, and event organizers who believe that attracting a professional team will lead to certain gains. Evidence is beginning to show that smaller sports may be more successful in generating positive economic impacts.

We begin with a brief explanation of economic impact. Next, each of the nine conditions will be explained and then applied to our current state of knowledge in both major and minor league baseball. In some cases, considerable research has been conducted on a particular condition. In other cases, there is no research and we have only general statistics, anecdotes, and illustrative examples available. These cases contribute to a clear accounting of the gaps that exist in the academic literature in each of these nine areas. Throughout the application of the conditions to baseball we address the discrepancy between major and minor league results for each condition and in doing so explain why the differences exist. The paper is organized by each of the nine conditions with an investigation into each condition before moving onto the next one.

To be clear, despite a plethora of research on the economic impact of sporting events, we focus here on the case of sports teams, specifically Major League Baseball (MLB) and Minor League Baseball (MiLB).

Economic Impact

For decades economic impact studies have been commissioned from private consulting firms as tools to justify public expenditures for new stadiums, sway public opinion before elections, and help teams understand their value to communities. These studies are often performed incorrectly using inflated multipliers, misleading data, or overly optimistic projections (Crompton, 1995). Regardless of the truthfulness of economic impact studies, the reality is they are still conducted regularly for a variety of teams and events throughout the U.S. and the world.

But what is economic impact really trying to measure? Economic impact is the net economic change in a local economy resulting from spending attributed to a given activity. Theoretically, any activity or business has the potential to generate new spending that would not have occurred in its absence. In the sporting context, that activity can be a team, stadium, or an actual participatory or spectator event. These activities draw people to a given location who spend money on lodging, food, gas, and any number of other items. A net positive economic impact occurs when the amount of new spending in a local economy is greater than the amount of spending that left the local economy because of the activity or business. The local economy is also called the area of impact, a clearly defined area that determines the boundaries by which to measure inflows of new spending and outflows of spending (Brown, Rascher, Nagel, and McEvoy, 2010).

There are three distinct methods to determine the amount of economic impact generated by an activity. *Ex ante* studies use comparable events to forecast economic impact, concurrent studies measure impact at the time of the event by asking people how much they're spending, and *ex post* studies use measures of spending (like sales tax revenues, per capita income, employment, and output) to operationalize the impact after the impact occurs. While *ex ante* and

concurrent studies normally produce positive estimates of economic impact, *ex post* studies normally produce negative or neutral estimates of economic impact for major league teams (e.g. Baade & Dye, 1990; Baade, 1996; Coates & Depken, 2011; Coates & Humphreys, 1999, 2001, 2003; Lertwachara & Cochran, 2007; Matheson & Baade, 2005) although a few studies have found positive results (e.g. Santo, 2006). Less attention has been paid to minor league teams, but recent *ex post* estimates have shown metropolitan areas that have AAA teams, A+ teams, AA stadiums, or rookie stadiums exhibit a positive change in per capita income; an effect opposite to that of their major league counterparts (Agha, 2013).

In light of this research identifying positive impacts for some minor league teams, we have found it necessary to review the literature in search of those critical foundational conditions that must exist for the possibility of a positive impact to occur. We believe that clearly articulating those conditions will provide the basis by which to evaluate a sports team to determine whether it does or does not have the potential to generate a positive impact. Essentially, each activity or business is unique in its size, scope, and ability to draw visitors. In addition, every community has a different size, geographical layout, tourist infrastructure, and degree of competition with nearby communities. All of these features and conditions are what will ultimately determine if a specific activity or business has a positive impact. But in the broadest sense, the nine theoretical conditions will help explain the results that have been generated to date, especially the differing results between major and minor league baseball teams.

Conditions necessary for a positive effect to exist

This section describes the nine theoretical conditions that must exist in order for a positive effect to be present, and analyzes the evidence in the context of major and minor league baseball.

1. New Visitors

First and foremost, a team can spur economic impact to the degree that it exports its services outside of the local economy and new spending for the product derives from outside of the local economy by visitors who are drawn to the area that would not have spent their money there otherwise. For a team that plays anywhere from 36 (MiLB) to 81 (MLB) home games a year, each home game is an opportunity to draw new spending to an economy from the fans who travel from outside of the local economy to attend the game. To generate an impact, these fans must bring money from outside the economy and spend it locally on goods and services. Traditionally, new visitor spending is measured as new spending on food, lodging, rental cars, gas, and other consumer goods/services. While, on the surface, measuring new visitor spending seems clear cut, in practice it is much more difficult.

“Casuals” are visitors who visit the local economy for a reason besides the team and then decided to attend a game once they are in town. Typically, the new spending from these visitors is not included in the economic impact for the team because a casual visitor is drawn to the local economy for a reason besides the team. If for some reason the casual visitor spends more because of the team than he or she would have spent otherwise, then the incremental spending ought to be counted toward economic impact. However, the practical matter of determining the incremental spending is fraught with hazards so to be conservative, economic impact studies typically do not count any spending by casual visitors.

“Time switchers” are those visitors who were planning a trip to the local economy anyway and changed the timing of their trip to coincide with a game. They would have generated new spending in the economy without the game, so only the extra spending that occurred because of the game is attributable to the economic impact generated by the team. Similar to casual visitors, the spending by time switchers is usually not counted as part of economic impact in order to be conservative.

Casuals and time switchers are categories of visitors that can be differentiated only when new visitor spending is measured concurrently at an actual event. These types of studies are rare in academic literature (for an exception see Colclough, Daellenbach, & Sherony, 1994) and more common in private consulting reports of economic impact. Despite the lack of peer reviewed estimates of new visitors, in both the major and minor leagues there is ample evidence that games draw new visitor spending to the area.

MLB

In MLB, there is a large range in the percentage of visitors to a game (see Table 2). For example, Zipp (1996) reported 52% of Toronto Blue Jays attendees were from outside the local area while Baade and Matheson (2001) estimated the percentage for MLB teams to be as low as 5% (of course, it depends on the definition of the local geographic area).

Table 2: Percentage of MLB Visitors from Outside the Metropolitan Area

Author	Team	Percentage of visitors
Baade & Matheson, 2001	“typical” team	5% - 20%
Matheson & Baade 2005	St. Louis Cardinals	32%
Rosentraub & Swindell, 1991	Pittsburgh Pirates	38.7%
Zipp, 1996	Baltimore Orioles	46%
Zipp, 1996	Minnesota Twins	47%
Zipp, 1996	Toronto Blue Jays	52%

With an average 2012 attendance of 30,884 and 81 home games, the annual visitors drawn to the area because of a MLB team can range from 125,080 to 1,300,834. Even after accounting for casuals, time switchers, and day trippers there appears to be a considerable number of visitors to a metropolitan area because of a team.

MiLB

Similar to the major leagues, minor league teams report substantial numbers of visitors to each game. For example, Rosentraub and Swindell (1991) report the percentages of out-of-area attendees as 20% for the Class-A South Bend White Sox and 60% for the AAA Indianapolis, IN minor league baseball teams. Using 1992 attendance figures for these teams results in 42,790 and 199,764 visitors, respectively, each year.

With MLB visitor spending appearing higher than that in MiLB, why might *ex post* empirical estimates of MiLB economic impact be positive, while most studies using similar methods for MLB show no impact?

One possible explanation is that MLB markets are so large compared to the possible impact of the local MLB team that any true impact gets swallowed up by other changes in the economy (Baade, Baumann, & Matheson, 2008). In smaller MiLB markets the lower impact

from a MiLB team may be more visible in the data although Table 3 shows that this is not always the case in MiLB as teams increasingly move to large markets.

Another explanation could be that new professional stadiums are built to capture an increasing share of visitor spending. Stadiums now include a variety of full service restaurants and sports bars in addition to concession stands. Teams often have sprawling stores that sell merchandise. For example, after the new Yankee stadium was built there were numerous reports that merchants outside of the stadium saw decreases in sales of as much as 50% (e.g. McGeehan, 2009). Expenditures made in the stadium are captured by the team and are subject to lower multipliers than expenditures made outside of the stadium (see 5. Leakages, below).

Stadiums in the minor leagues are older than the majors (Agha, 2013) and are less adept at capturing visitor spending. With more new visitor spending taking place outside of the ballpark, there is a greater likelihood that positive effects will be generated. To the extent that major league stadiums are newer and are more successful at capturing any local spending, this may explain why the overall economic effect at the major league level is predominately neutral or negative and the effect at the minor league level is positive. Thus, while MLB reports generally more visitors each year to local economies than MiLB, the ability of MLB teams to effectively capture the bulk of new visitor spending could explain why lower *ex post* impacts are seen in MLB cities than in MiLB cities.

2. Geographic Isolation

Zipp (1996) points out that because professional franchises are clustered in roughly the 30 largest cities in the U.S. and most all other industries are nationally distributed, the real impact of a team should be felt locally. In support of this, some research shows that sports have a more pronounced effect on more geographically isolated cities. Baade and Sanderson (1997) proposed that the more a city is geographically isolated (those cities in the West as opposed to the population-dense Northeast) the more export revenues will be generated simply because there are few locations in the region that host professional sports franchises. In a geographically isolated area, any person wishing to consume a live game will, by definition, have to travel to a city that does have a professional team. This implies that teams located in more isolated locations have an increased propensity to generate positive economic impact through both new visitor spending (see 1., above) and the increased likelihood for locals to stay locally (see 4., below).

MLB

Winfrey, McCluskey, Mittlehammer, and Fort (2004) empirically tested the effect of distance between MLB teams and found that teams that are further apart have higher individual attendance than teams that are closer together. In addition, expansion teams further reduced the attendance of nearby teams. Clearly, MLB fans travel to games and when the option is available, they travel to teams that are closer. Thus, teams that are more geographically isolated, such as the Colorado Rockies, pull new visitor spending from a much larger area than any team located on the eastern seaboard. Further, residents of cities like Denver may be more inclined to stay locally to watch MLB games because there are no regional alternatives.

MiLB

Minor league teams tend to be located in smaller cities than major league teams. For example, Table 3 presents the median population of minor league baseball teams, by

classification. Although the maximum and minimum populations indicate that there are minor league teams located in the suburbs and fringe cities of large metropolitan areas, the median population indicates the majority of minor league clubs are still located in secondary markets.

Table 3: Characteristics of Minor League Metropolitan Statistical Areas (MSAs) in 2006, by Classification

	Median MSA Population*	Minimum MSA Population	Maximum MSA Population	Average years in an MSA
MLB	4,164,463	1,540,525	18,782,715	24.1
All Affiliated	494,831	48,247	18,782,715	16.1
AAA	1,175,937	469,196	3,262,445	17.2
AA	461,502	81,655	5,982,787	13.6
A+	519,414	57,079	5,810,834	18.8
A	371,571	48,247	18,782,715	15.6
A-	379,862	58,418	18,782,715	15.1
Rookie	110,850	65,437	503,820	16.9
Ind	426,718	75,155	18,782,715	4.6

Note. Because some A, A-, and Independent teams are located in metropolitan areas with MSA populations over 18 million the median values reported here are more representative of the actual market size in each classification than the average is.

Not only are minor league teams often located in smaller markets, they are also often located in cities that are more geographically isolated. Geographic isolation can be defined in a variety of ways. We use the distance to the nearest MLB team as a proxy for isolation because MLB teams are relatively evenly dispersed throughout the U.S. population, in part to deter competition¹.

While the population figures in Table 3 indicate that some minor league teams are within the boundaries of a large MSA, Table 4 shows that on average minor league teams are generally not close to cities large enough to support a MLB team. Minor league teams in AAA, AA, and A classifications are, on average, within a 2 to 3 hour drive to a MLB team. The range in these classifications is large though. On the other hand, rookie-level teams are incredibly isolated with the average team nearly 400 miles from the nearest MLB market.

¹ To illustrate our point, we use distance to MLB teams although a MLB game is only one example of an alternate leisure activity that is not available in geographically isolated markets. Using different measures (nearest fly fishing river, the nearest amusement park, the nearest opera house) we could create a gradient of isolation for different communities. Similarly, the Placed Rated Almanac has a recreation index for cities. A full empirical analysis of this matter could use any of these alternate measures of isolation.

Table 4: Average Distance between Major and Minor League Markets, 2011

Classification	Average Distance to the nearest MLB team	Minimum Distance	Maximum Distance
AAA	167	Tacoma Rainiers play 36 miles from the Seattle Mariners	Salt Lake Bees play 535 miles from the Colorado Rockies
AA	151	Bowie Baysox play 21 miles from the Washington Nationals	Mississippi Braves play 382 miles from the Atlanta Braves
all A's	119	Clearwater Threshers play 17 miles from the Tampa Bay Rays	Boise Hawks play 503 miles from the Seattle Mariners
Rookie	386	Greeneville Astros play 247 miles from the Atlanta Braves	Great Falls Voyagers play 642 miles from the Seattle Mariners

The absence of other professional sporting opportunities within a reasonable drive may inspire locals to stay locally for their leisure consumption (also see 4., below) and it may also act a driver for new visitor spending for those whose next nearest professional sporting opportunity is hundreds of miles away. Indeed, Gitter and Rhoads (2010a) found that major and minor league baseball were substitutes, but only when they were located within 100 miles. Further research by Agha and Cobbs (2012) found that minor league attendance increased for every mile further away the parent club was located. These findings, combined with the distances in Table 4, lend support for the finding that some minor league teams and stadiums are associated with gains in per capita income (Agha, 2013).

3. Locals Change Spending

Spending by local residents should not be included in economic impact calculations. By definition, economic impact measures new spending whereas spending by locals is generally the existing base-level economic activity in a community.

Economic theory dictates that local consumers have budget constraints on either their leisure expenditures or their total expenditures. A consumer who purchases a ticket to a local sporting event will forego that same amount of spending at a local restaurant, bar, theater, opera, miniature golf course, or a myriad of other local leisure establishments. This has been referred to as the substitution effect (Crompton, 2006; Okner, 1974)². If a team inspires a local resident to increase local leisure spending above which occurred before, that resident will have to decrease expenditures on food, lodging, or other necessities in the face of a total budget constraint. Only

² Even if locals don't spend more overall when they choose a baseball game over dinner and a movie, they do see an increase in their utility by virtue of having chosen one activity over another at the same price. This is more about the quality of life aspect of cultural goods and, as we know, sometimes government finds itself in the role of enhancing quality of life for its residents. In this research though, we focus on pecuniary gains instead of non-pecuniary gains.

if local consumers increased their total local spending in response to a team would the team be credited as the source of new economic activity.

Thus, expenditures from local consumers are included in economic impact calculations in only two instances: (a) if sport discourages locals from traveling elsewhere for recreation or sporting options (see Section 4 - Locals Stay Locally) or (b) overall aggregate spending increases through a decrease in consumer savings or an increase in productivity (Rosentraub & Swindell, 1991).

Two techniques have been employed to determine if locals spend more in the presence of a team. The first method is through surveys at events although these results are usually proprietary and not publicly available. The second method is to analyze consumer spending when professional sports cease to play. Strikes and lockouts are natural experiments that allow researchers access to aggregate consumer spending data to see if consumers substitute their existing levels of leisure expenditures to other leisure expenditures.

MLB

The conclusion in research on major league sports is that when consumers face a budget constraint, new spending on one leisure activity does in fact substitute for another leisure activity. In short, there is no evidence of an increase in local spending. For example, research by Coates and Humphreys (2003) shows there is a transfer of income and jobs between different industries in the presence of a team which is indicative of a substitution effect.

If consumers spend the same amount with or without a team, there will be no changes during a strike or lockout. Yet, during MLB strikes and lockouts Matheson and Baade (2005) found an increase in local personal income and Zipp (1996) found an increase in spending in about 75% of MLB cities. These findings suggest that the presence of a team might actually suppress local spending. In other words, it appears that consumers might spend less when a team is present and more when it is not.

This effect has not been observed in all cases. For example, during work stoppages Baade, Bauman, and Matheson (2008) found no significant change in sales tax revenue and Coates and Humphreys (2001) found no change in income. No change in either of these economic measurements suggests consumers maintain their leisure spending but easily substitute spending in one industry for spending in another, as found by Coates and Humphreys (2003).

While the results are inconclusive as to whether consumers spend less or the same, what is clear is that consumers do not spend more in the presence of a team. Thus, while increased spending by locals could theoretically lead to an increase in economic gains, it does not appear to be happening in the case of MLB.

MiLB

No specific empirical research has been conducted on the substitution effect at the minor league level but there is no compelling reason to believe the results would be different at the minor league level.

4. Locals Stay Locally

Local consumers also generate a positive pecuniary benefit to a community if a team encourages them to stay and spend locally more often than they would have without the team. This is known in the tourism industry as “vacationing at home,” taking a “staycation,” or “home stayers” (e.g. Cobb & Olberding, 2007; Getz, 1991; Preuss, 2005).

MLB

Although there has been no research in MLB in terms of the number of locals who stay locally there is evidence for the effect in other sports. Cobb and Olberding (2007) investigated the phenomenon at an annual event and found that marathon runners were more likely to stay locally if a race was run in their home town. The runners substituted spending outside of their community with spending locally when possible. Rascher (2010) also reports substantial vacationing at home effects with college football bowl games and college football conference championships.

MiLB

There is also no research on this effect in MiLB cities, although Agha (2013) hypothesized the effect is more likely to occur in smaller, geographically isolated communities with fewer local entertainment or sporting options. With external leisure opportunities further away, the presence of a team might lead to an increase in local economic activity if it discourages locals from traveling outside the area for leisure.

5. Leakages

The effect of new export spending by visitors is contingent upon the amount that leaves a local economy, often referred to as leakages. Net economic impact is measured as the gains in a community net of any loss. Money can leave an economy for two reasons. The first is that some feature of the team or game creates a situation whereby expenditures are made outside of the local economy, thus reducing the amount spent locally. As an example, if a team pays a band to perform in a post-game concert, that money is lost if the band is located outside of the local economy and doesn't spend it in the local economy.

Second, there are also "natural" outflows of money from a local economy. No community has all of the necessary raw inputs to create the goods and services it needs at the best price. Thus, at some point a business will spend money to import materials necessary for production. For example, a grocery store might send money to Florida in exchange for oranges. This normal flow of goods and funds between communities is measured through input-output models which generate multipliers for the hundreds of industrial sectors in every community. Every dollar spent will recirculate a number of times within a community before eventually leaving, thus multipliers measure how many times a dollar spent recirculates. Table 5 provides an example of multipliers for select industries in the greater Boston metropolitan area. It is clear that some industries, such as local public transportation, rely more heavily on local inputs and thus have higher multipliers. Other industries, such as hotels and motels, have lower multipliers because they rely more on external inputs. Ultimately, the amount of leakage generated by a team is a function of the features of the team's spending as well as the industries where new spending occurs.

Table 5: Selected Multipliers for the Greater Boston, MA Metropolitan Area, 2008

ID	Industry	Indirect and Induced Effects
432	Automotive equipment rental and leasing	0.696893
479	Hotels and motels including casino hotels	0.659313
481	Food services and drinking places	0.679466
497	State and local government passenger transit	0.978436

MLB

Team owners, players, concessionaires, and other recipients of consumer expenditures tend to remove those dollars from the local economy (Baade & Sanderson, 1997; Siegfried & Zimbalist, 2000, 2002). Because professional sports teams spend approximately 60% of their revenues on player payroll, a considerable amount of new spending flows out of the regional economy. This is due to high tax rates, high savings rates, and the location of permanent residences of players. Wealthier individuals are faced with the highest tax rate and send nearly 40% of their salaries to the federal government (Siegfried & Zimbalist, 2002). High wealth individuals also have a higher savings rate thus pushing local dollars into national money markets (Siegfried & Zimbalist, 2000). Finally, players and owners rarely live year-round in the city in which they play, therefore, only a partial amount of their annual expenditures occur locally (Siegfried & Zimbalist, 2002).

Additional leakage occurs when consumers substitute spending away from higher multiplier local leisure activities to professional sports (Baade & Sanderson, 1997; Siegfried & Zimbalist, 2000). The export nature of the professional sports industry is different from local leisure industries meaning professional sports teams retain less money in the local economy than other businesses (Siegfried & Zimbalist, 2000). For example, Rascher (2010) reports that as little as 22% of a team's expenditures occur locally.

MiLB

Leakages are higher in smaller communities than in larger ones (Johnson, 1995; Siegfried & Zimbalist, 2002). A small community will have lower multipliers and a higher level of leakage because fewer goods and services are available locally.

But minor league teams themselves have fewer leakages than major league teams for three reasons. First, minor league salaries are very low compared to major league salaries. At most levels, players earn enough for basic local living expenses so little, if any, of their wage leaves the local economy. Second, team profits stay with team owners who are very often local residents. This suggests that local spending on a minor league game will be subject to a higher multiplier than when spent on an alternate local leisure activity like a movie where much of the profit is sent directly out of the area. Finally, there are considerable monetary inflows because MLB teams pay the salaries of their minor league players which results in a direct economic gain to a community.

Thus while a lower percentage of minor league expenditures leak, the total magnitude of expenditures is smaller.

6. Government Spending

Professional teams affect government spending in at least three major ways: (a) annual debt for stadium construction, (b) ongoing stadium operations, and (c) local public services for games.

First, new stadium construction is often financed through local government bonds which means one or more local governments are responsible for the annual debt service. In some cases, teams contribute to the annual debt payments through ticket fees, stadium rents, or other financial transactions. In other cases cities are responsible for millions of dollars in debt and spending may be diverted to paying off bonds instead of being spent on basic local services. There are many instances where cities are responsible for stadium debt even years after a team

has left and the facility is no longer in use. This was the case for Giants Stadium in New Jersey where the State of New Jersey still owed about \$110 million in debt in 2010 when the new stadium for the Giants opened up right next door (Belson, 2010).

Second, some municipalities are responsible for the ongoing operations and maintenance of the stadium.

Third, communities are responsible for the costs of traffic control, police, public transit, trash collection, and other services associated with managing the thousands of fans that attend each game. These public services have real costs that must be absorbed by the city unless the team covers some or all of those costs.

In all three cases, these public expenditures on stadiums and teams may have a negative effect on local government budgets. This can result in either reduced services to those most in need or an increase in taxes, both of which will slow the local economy (Siegfried & Zimbalist, 2000). An increase in local taxes has further negative effects as a local dollar spent by a resident on taxes is a dollar that cannot be spent on local goods and services. When local spending is taxed and used to pay off municipal construction bonds, those dollars leave the local economy with no multiplier effects. In this case, a negative multiplier effect exists whereby disincentive effects are created for working, saving, and investing (Keating, 1999).

MLB

In terms of (a) stadium debt, all current MLB stadiums were built with some public subsidy (Long, 2012). In some cases teams pay rents, share revenues, or otherwise transfer money to the city to pay off bonds issued to build the stadium. But in other cases cities are left with long term debt and no revenue stream from the team. This is the case in Seattle where the city will not finish paying off debt for the Seattle Kingdome until 2016 despite the fact that the MLB Seattle Mariners last played there in 1999 and the stadium was demolished in 2000 (Belson, 2010). Similarly, when the Montreal Expos left Montreal in 2004, the Quebec government was still paying stadium debt that began in 1973.

Rosentraub and Nunn (1978) looked at the case of stadium debt using a case study. They wondered whether communities were able to capture enough new tax revenues to offset stadium costs in Arlington, TX (Arlington Stadium for the Texas Rangers) and Irving, TX (Texas Stadium for the NFL Dallas Cowboys). The authors compared these two towns to five similar cities in Texas. They found that sports teams had little impact on Arlington and Irving's sales tax collections although both teams were associated with an increase in property tax collections. Unfortunately, Arlington invested so heavily in their MLB stadium that they were only able to maintain local services through high debt levels.

In terms of (b) stadium operating costs, Long (2012) estimates the ongoing maintenance expenses in MLB stadiums range from \$2-\$4 million per year. Long reports that overall some public deals have net positive operating revenues and some have net negative operating revenues.

Finally, in terms of (c) local public services, there are a minimum of 81 days in a year when MLB cities mobilize extra fire, police, public safety, traffic control, public transportation, and trash services. These costs are non-trivial in magnitude with estimates from \$2 to \$5 million per year (Long, 2012). While there is often little said about these costs, one recent exception was when Washington Nationals fans leaving the park after a 13-inning game found the Metro trains had stopped running (Augenstein, 2012). Unlike the NFL Washington Redskins and the NHL Washington Capitals, the Nationals had not placed a deposit of \$29,500 with the Washington

Metropolitan Area Transportation Authority for the cost of keeping the trains running for an extra hour (Roussey, 2012). A few days later, as it appeared the Nationals would make it to the post-season, the team requested the District of Columbia provide extra police, street closures, and Metro service for each additional post-season game (Segraves, 2012).

Coates and Humphreys provide another perspective on the cost of these public services. To explain Zipp's (1996) seemingly counterintuitive finding that spending increased during the 1994 baseball strike, Coates and Humphreys (2001) proposed that in the absence of games, government spending on these services decreases meaning more money may stay with local area residents.

MiLB

In terms of (a) stadium debt, the percentage paid by the public varies between different cities although the average for both AAA and Rookie classifications is near 80% (see Table 6). Whether teams have successfully contributed to the debt service or whether the city has been left with the responsibility for the payment varies from market to market. For example, in November 2012, the AAA Reno Aces re-negotiated the terms of their lease so the city of Reno will pay \$1 million from its general fund every year for the next 30 years to cover stadium debt (Duggan, 2012). On the other hand, teams like the independent Somerset Patriots have successfully used ticket revenue to cover the annual debt service on the city bonds issued to build their \$17.7 million ballpark (Harrington, 2002).

Table 6: Public Cost of Selected Minor League Stadiums, in millions of 2009 dollars

Location	Original Stadium Name	Opened	Cost	% Public
<i>AAA</i>				
Richmond, VA	The Diamond*	1985	15.9	75%
Colorado Springs, CO	SkySox Stadium	1988	6.7	0%
Buffalo, NY	Pilot Field*	1988	101.3	93%
Scranton/W.B., PA	Lackawanna County Stadium	1989	43.1	44%
Fort Mill, SC	Knights Stadium	1990	27.8	100%
Phoenix, AZ	Scottsdale Stadium*	1992	12.8	100%
Des Moines, IA	Sec Taylor Stadium*	1992	18.3	100%
Norfolk, VA	Harbor Park*	1993	23.7	100%
Salt Lake City, UT	Franklin Covey Field	1994	31.7	100%
Indianapolis, IN	Victory Field*	1996	27.2	50%
Rochester, NY	Frontier Field*	1996	56.5	100%
New Orleans, LA	Zephyr Field	1997	34.7	81%
Syracuse, NY	P&C Stadium*	1997	38.7	100%
Oklahoma City, OK	Bricktown Ballpark*	1998	44.9	100%
Tucson, AZ	Tucson Electric Park	1998	49.9	100%
Memphis, TN	AutoZone Park*	2000	100.0	100%
Louisville, KY	Louisville Slugger Field*	2000	49.7	50%
Sacramento, CA	Raley Field*	2000	36.6	0%
Dayton, OH	Fifth Third Field*	2002	46.4	100%
Fresno, CA	Grizzlies Stadium*	2002	54.7	100%
Allentown, PA	Coca-Cola Park	2008	49.9	100%
Reno, NV	Aces Ballpark*	2009	50.0	100%

AAA Average			41.8	82%
<i>Rookie</i>				
Casper, WY	Mike Lansing Field*	2002	4.8	100%
Missoula, MT	Missoula Civic Stadium*	2004	11.3	20%
Idaho Falls, ID	Melaleuca Field*	2007	5.8	100%
Billings, MT	Dehler Park*	2008	12.4	100%
Rookie Average			8.6	80%

Note. The public cost does not include annual operating expenses which, in some cases, may be substantial. The * indicates stadiums located downtown or in central business districts

For (b) stadium operating costs, no aggregate information is available for MiLB. Finally, in terms of (c) local public services, minor league cities must also incur the operating costs of games. Because minor league teams play fewer games and have lower attendance, the absolute cost is likely lower in minor league cities although in relative terms the impacts may be similar in both major and minor league cities. This is an area that warrants further investigation.

As a whole, both MiLB and MLB teams rely on government spending to pay for new or renovated stadiums, both are responsible for operations and maintenance of stadiums, and both are responsible for the costs of local public services to manage the games. In each case, these government expenditures may have a negative effect on local operating budgets which results in either a reduction in local services or an increase in taxation. From the data at hand, it is not possible to determine which level of baseball might rely more on government resources. This is clearly another area where further research is needed.

7. New Stadiums

New stadiums can theoretically contribute to positive economic gains in a community in four ways: (a) increased visitor spending from increased attendance at a new stadium, (b) new team employment, (c) construction employment and spending, and (d) location in a central business district.

To begin, (a) new stadiums experience a honeymoon effect where attendance increases above baseline levels for up to ten years (Clapp & Hakes, 2005; Leadley & Zygmunt, 2005; McEvoy, Nagel, DeSchriver, & Brown, 2005). This increased attendance is partially derived from visitors who bring new spending to the local economy. These years of higher than average attendance and spending can theoretically lead to positive economic gains.

If a new stadium is (b) being built for a new expansion team, local employment will be positively affected by the need to hire front office staff and stadium crews. On the other hand, when a new stadium is built for an existing team, the team and stadium jobs are simply retained and little or no new job creation occurs (Baade & Sanderson, 1997).

In terms of point (c), common claims by stadium proponents are that new stadiums can have a temporary impact through an increase in construction employment and spending. Despite these claims, research has shown construction will create demand for jobs but the impact is only positive if there is a surplus of workers. At full capacity, demand for construction workers simply drives up the cost paid by other businesses (Johnson, 1995) or causes workers to shift from a non-sports construction job to a sports construction job leaving no net gain in construction jobs in the local economy (Miller, 2002). Construction spending has a similar effect on the local economy. When construction is financed by the local government, these dollars are

likely substituted from other local expenditures. Thus, no new spending takes place, only a physical or temporal substitution occurs from other local projects (Porter, 1999).

Finally, there is some indication that (d) the location of a new stadium can affect the degree to which it generates positive pecuniary benefits in the local economy. When a stadium is positioned in a central business district, it can potentially contribute to urban revitalization if it is adjacent to other housing and retail development and it is part of a larger development program (e.g. Austrian & Rosentraub, 2002; Chapin, 2004; Johnson, 1998; Nelson, 2001, 2002). While the construction of a new stadium does not guarantee growth in local income and jobs (see (c) above), once built the positive externalities from the team and stadium can provide the focus that other businesses need to invest in the actual revitalization (Austrian & Rosentraub, 2002; Meder & Leckrone, 2002). Despite some examples of urban revitalization around new stadiums, Wassmer (2001) and Coates (2007) suggest that research showing positive effects of downtown stadiums as economic redevelopment tools are simply measuring the substitution of regional spending from the suburbs to the central business district.

MLB

Thirty MLB teams have built or extensively renovated a stadium since 1990. Each of these new venues generates a honeymoon effect that draws more fans and more new visitor spending than in the years before the new stadium. Clapp and Hakes (2005) estimated increased attendance over 30% in the first year of a new MLB stadium with the effect returning to baseline between six and ten years later.

In terms of (b) increased employment associated with new teams, there have been four new MLB teams since 1990. Each new team necessitates new employees to run the front office and staff the stadium. While these new jobs increase economic activity, the majority of the jobs created are low-paying, seasonal, part-time service sector jobs (Baade, 1996; Miller, 2002; Rosentraub, Swindell, Przybylski, & Mullins, 1994).

Although the popular press makes the claim that (c) new stadiums contribute to the local economy through increased spending and employment, a large number of *ex ante* studies have found negative or insignificant effects for stadiums (e.g. Coates and Humphreys, 1999; Miller, 2002).

Finally, (d) of the 14 new MLB stadiums built since 2000, 12 are located in or directly adjacent to central business districts. In fact, contrary to most previous research on stadium impacts, Santo (2005) found many positive effects of stadiums and teams on local area income. He believed that his data, which reflected more modern stadiums built through 2001, and stadiums more commonly built in central business districts, explained his positive effects. The San Francisco Giants new ballpark, opened in 2001, is an example of a stadium that drove considerable new development to a part of the city that was previously undeveloped. But new stadiums are no guarantee of economic success. For example, the new Comiskey Park was criticized for many years for its failure to integrate with the community and generate growth outside of the ballpark (Spirou & Bennett, 2003). Despite Santo's findings, these examples of successful and unsuccessful new development may simply represent a redistribution of regional spending from the suburbs to the central business district and not new spending (Coates, 2007; Wassmer, 2001)³.

³ Even if new stadiums in central business districts do not drive new revenues it is still possible that they have additional positive effects on the environment, commute times, and energy usage in more dense areas (Gerber, 2010). While these have the potential to increase economic impact (if commute times drop the lower demand for

MiLB

Agha (2013) found AA and rookie stadiums were associated with gains in per capita income but it was not possible to attribute the positive effect to the actual construction. It is equally likely the effect stemmed from increased visitor spending (see 1., above), locals staying locally (see 4., above), venue usage (see 8., below), or regional development.

In terms of the (a) honeymoon effect, Gitter and Rhoads (forthcoming) found new minor league baseball stadiums increase attendance at the AAA, AA, and A levels. In addition, Roy (2008) identified a honeymoon effect with the largest gain seen in teams that moved to new replacement stadiums built within the same market. Additional anecdotal evidence in the minor leagues also confirms honeymoon effects exist. For example, a newspaper article from Tulsa (Davis, 2008) states, “Take the Springfield [MO] Cardinals for example. Its stadium, Hammons Field, was completed in 2004. The word spread and baseball fans from St. Louis and across Missouri made the trek to see what the buzz was all about.” To the extent that this increase in attendance derives from visitors, the local economy will benefit. This effect appears to be relatively equivalent between MLB and MiLB.

Because minor league baseball teams move much more often than MLB teams, in any given year there are multiple minor league cities that have a new team (b). No empirical research has estimated job impacts at the minor league level, but the reality of minor league staffing suggests any effect would be severely limited, although it may vary between classifications. For example, because minor league teams play between 36 and 71 home games a year, teams rely on part-time seasonal workers and interns to staff both the front office and the games.

New construction spending and employment (c) have not been directly investigated at the minor league level.

Similar to Santo’s (2005) findings in MLB, the minor league stadium effect at the AA and rookie levels (Agha, 2013) may be driven by (d) the location and developmental logic of these stadiums instead of the actual construction spending or employment gains. Minor league teams in Louisville, Toledo, and Durham, to name a few, have purposefully built stadiums downtown as part of revitalization efforts (Chapin, 2004). Table 6 identifies stadiums located in central business districts with asterisks and shows AAA and rookie teams are increasingly building stadiums in downtown districts.

Overall, it is not possible to determine whether MLB or MiLB markets are more affected by new stadiums. Agha and Coates (2013) estimated the per capita cost of stadiums built since 2002 were \$77.91 in MLB, \$71.42 in AAA, and \$53.16 in rookie markets suggesting that as a whole, the net effect is very similar.

8. Venue Utilization

The utilization of a stadium is of vital importance in generating positive pecuniary benefits. Jones (2012) reports that football stadiums are used an average of 23 days in a year and arenas are used an average of 197 days. Each additional day of use creates additional exports which can potentially positively affect employment, income, and local sales tax revenues but can also potentially drain other local consumption activities.

energy lowers prices for energy which frees up money for other things) we focus on the more direct case of economic impact derived from new visitor spending.

The excess capacity in professional venues has led to the creation of alliances between stadium owners to increase usage. In the NFL, the Gridiron Stadium Network attracts high profile concerts that gross over \$4 million per venue by assuming the financial risk and acting as the promoter (Dreir & Muret, 2011). Similarly, in 2011 seven Major League Soccer (MLS) teams formed the Soccer Stadium Alliance to increase revenue streams through increased venue usage for concerts and other events.

MLB

MLB stadiums are used an average of 120 days each year (Jones, 2012). As new stadiums are increasingly built with non-baseball uses in mind, teams have increased the number of corporate events, parties, concerts, and community events. The degree to which this occurs varies dramatically. For example, the San Francisco Giants have a separate business entity, Giants Enterprises, which is fully responsible for non-baseball events. Their website offers 18 different categories of events and boasts, “AT&T Park is Open for Anything!” On the other hand, there were so few events at Petco Park that in 2012 the San Diego city council attempted to increase the number of off-season events by renegotiating the revenue sharing agreement they had with the team (City New Service, 2012).

MiLB

Minor league facilities are often built with the community in mind (Johnson, 1995). Minor league teams may be more successful than others in utilizing the venue for events that drive economic activity. Examples of events that have been held in minor league stadiums include ice skating, marching band competitions, high school football and baseball games, amateur events, concerts, holiday gatherings and parades, exhibits, trade shows, Special Olympics, movies, track meets, fireworks, banquets, and company picnics. Every additional day of venue use provides another opportunity to drive visitor spending.

For example, the Sacramento River Cats, a successful AAA team, host the Rhythm and Ribs food and music festival, corporate meetings, concerts, and other events (Rayasam, 2007). The Joliet Slammers, an independent Frontier League team playing at Silver Cross Field reported that they host 51 regular season games, 2 exhibition games, 25 college baseball games, over 20 high school baseball games, 6 events to provide disabled children access to baseball, plus parties (weddings, banquets, graduations, reunions, bachelor, and bachelorette), business events (corporate meetings, trade shows, seminars), and other miscellaneous events like concerts, yard sales, movies, picnics, and fantasy draft parties (Joliet Slammers, 2013).

While both major and minor league teams are increasingly booking their stadiums for alternate uses, minor league cities, through their small and geographically isolated nature, will naturally drive more visitor spending for these events than will major league teams, or the minimum cost to open a venue for an event is much lower in minor league parks, making many more events at these parks possible.

9. Crowding Out

The ability of a professional sports franchise to generate positive pecuniary benefits in the local economy is also dependent on the degree of crowding out. This phenomenon is often over-looked and difficult to quantify (Baade et al., 2008; Crompton, 1995). In the simplest terms, crowding out can take the form of locals changing travel and spending habits and not venturing near a stadium when a game is taking place (the “hunker-down effect” as in Coates &

Depken, 2009), normal business or leisure travelers avoiding a local economy when a game is occurring (known as reverse time-switchers), or local area residents purposefully leaving the local economy to avoid an event (the “skeddadle effect” as in Coates & Depken, 2009). The latter two are most common during mega-events, but in all of these cases, normal local economic activity is reduced below its regular level meaning any gains from an event must offset the loss in order for the community to simply “break even.” For example, when looking at crowding out for regular season college football games in Texas, Coates and Depken (2009) found no change in sales tax revenues suggesting any gains from visitors were offset by reductions in other local spending. However, if the money that would have been spent by locals, but instead stayed in the pockets of those hunkering down, is then spent later on in the local economy, then it isn’t a loss to the local economy. Yet, even when looking at one month intervals, Coates & Depken (2009) found no change in overall sales tax collections.

In more technical terms, crowding out begins with demand. In a market with binding capacity constraints, demand drives up prices which causes buyers to seek substitute products. If these substitute products are only available outside the local economy then new visitor spending does not occur locally and impact decreases. Thus, a fully productive economy will benefit less than one that has excess capacity (Baade & Sanderson, 1997; Porter, 1999).

The biggest concern with crowding out generally occurs during one-off, large scale events. In these cases several industrial sectors reach or exceed capacity, high demand drives prices up, the demand crowds out other activity, and thus reduces any economic impact. The question in baseball is if a series of regularly occurring games induces (a) the most extreme form of crowding out where capacity constraints and price increases impede new visitor spending or (b) the simplest form of crowding out where local residents change travel and spending habits.

MLB

Crowding out has been identified as a probable explanation for the low or negative *ex post* effect for a variety of All-Star games, championship games, and mega-events (e.g. Porter, 1999; Baade & Matheson, 2000, 2001, 2004a, 2004b). Although no research has been conducted to very specifically isolate crowding out effects of regular season MLB games, there is some evidence that the most extreme form of crowding out does not exist. For example, the average occupancy rate in the 27 MLB markets is 61% during the off-season and 71% in-season (which is also travel season). The number of excess rooms available on any given night is over 17,000 and the average daily room rate rises during the season from \$112.44 to \$114.63 in the 27 MLB markets (Smith Travel Research, 2013).

If crowding out occurs during the regular MLB season its effect is most likely to be in (b) the altered travel and spending habits of local residents. Although no empirical in-season crowding out research has been conducted for MLB, a report prepared for the Federal Highway Administration describes sporting events as “significant contributors to noncommuter congestion” (Cambridge Systematics, 2005). Similarly, the San Francisco Metropolitan Transportation Agency warns drivers to be prepared for heavy traffic when Giants games begin or end near regular commute times (SFMTA, 2013). Ultimately, we suspect each person reading this can remember at least one time when the thought of sitting in a sport-related traffic jam resulted in a change of travel or spending plans.

MiLB

It is unknown whether minor league teams experience more or less crowding out than major league teams. Although one might suspect that a smaller city may have a smaller tourism infrastructure and thus be unable to accommodate the fans who might be traveling to the city for the game, the numbers do not appear to support this.

Table 7: Estimates of Capacity in Minor League Baseball Markets

	AAA Indianapolis Indians (1992)	AAA Indianapolis Indians (2011)	Rookie Helena Brewers (2011)
Total attendance	332,941	580,082	37,468
Home games	72	72	38
Attendance per game	4,624	8,057	986
Visitors per game*	2,775	4,834	592
% Day trippers**	37%	37%	37%
Visitors who spend the night	1,748	3,045	373
Total Hotel rooms	19,553	31,641	1,469
Occupancy rate during baseball season	68.5%	61.4%	66.8%
Available rooms, each night, on average	6,159	12,213	487

* We use Rosentraub and Swindell's (1991) report of 60% of out of area visitors.

** We use an estimate from the NHL Sharks that 37% of visitors were day-trippers in 2009 (SportsEconomics, LLC, 2008).

Table 7 summarizes attendance and visitor information for the AAA Indianapolis Indians and the Rookie Helena Brewers. Both cities have hosted minor league teams for well over 20 years and thus these represent markets with strong minor league attendance. We also use the Indianapolis Indians because Rosentraub and Swindell (1991) reported that 60% of the Indians attendance came from visitors. Further, based on the NHL Sharks 2009 season, we estimate that 37% of the visitors are day trippers. Total hotel rooms and average occupancy rates during the summer were supplied Smith Travel Research (2013). Even in the extreme case where 60% of a team's attendees are visiting from outside the local area, it appears that minor league cities at the AAA and rookie levels have sufficient capacity in the hotel sector and would not be affected by crowding out.

In terms of (b) locals changing travel and spending habits, we offer an example in the absence of empirical research. Given that Helena High School, the larger of two high schools in Helena, has a student population of 1,569, it seems hard to imagine that a crowd of 986 people headed to the Helena Brewers baseball game would affect the 28,592 residents any more than the daily commute of high school students.

Thus, while it is doubtful that regular season games in either MLB or MiLB induce (a) large-scale crowding out that reduces visitor spending, there is some evidence that MLB, but not MiLB, induces (b) changes in local travel and spending habits associated with traffic, congestion, and large crowds.

Discussion

Table 8 summarizes the findings for each of the nine conditions explained above. In some cases, there are no clear differences between MLB and MiLB. Interestingly, the conditions that have a larger effect on total impact are the conditions where we see the most differences between MLB and MiLB. Specifically, when measured in magnitude, the effect of locals increasing spending is much smaller than the gains from new visitor spending or higher venue utilization. On the cost side, crowding out and leakages have large effects.

Table 8: Nine Conditions Applied to MLB and MiLB

	MLB	MiLB
1. New visitors	Yes, but less spending captured locally	Yes, but more spending captured locally
2. Geographic isolation	Rarely	Often
3. Locals change spending	No	No
4. Locals stay locally	Perhaps	Perhaps
5. Leakages	Higher	Lower
6. Government spending	Yes	Yes
7. New stadium	Almost all teams	Increasingly yes
8. Venue utilization	More likely low	More likely high
9. Crowding out	Higher	Lower or none

This analysis begins to provide an explanation for the common *ex post* empirical result that major league sports have negative or neutral effects on their local communities. Major league cities realize new visitor spending, but little of it is captured outside of the stadium. Major league markets experience higher leakages, more crowding out, and lower venue utilization.

Despite the fact that major league teams do not meet many of the conditions necessary for economic gain described above, there are many reasons to suspect that minor league teams may be fundamentally different from major league teams. MiLB teams are more geographically isolated which increases visitor spending and inspires locals to stay locally. New visitor spending is more likely to be captured locally, there is less crowding out, lower leakages, and higher venue utilization.

In spite of the smaller size of minor league sports, its fundamental structure may be different enough to allow positive benefits to accrue to the local economy, especially small local economies, and thus help explain Agha's (2013) findings.

Conclusion

The purpose of this paper was four-fold. First, it distills our understanding of economic impact into nine conditions that alone or in combination allow for a team to generate economic impact in its host community. Second, these conditions create a platform by which to explain our current understanding of the economic impacts of team sports. Third, when applied to MLB and MiLB these conditions generate reasonable explanations for why we find some positive impacts in MiLB and negative or neutral impacts in MLB. Finally, in applying these conditions to the context of major and minor league baseball, we illuminate the immense need to add explanatory research to the abundant descriptive research that has chronicled the economic impact of major league sports throughout the past 40 years.

Despite the gaps in explanatory research, we compiled what research there is, added illustrative examples, and showed that despite popular opinion to the contrary, it is entirely reasonable that major league teams do not generate economic impacts because of their large leakages and crowding out effects. Moreover, despite the seemingly counterintuitive finding that some minor league baseball teams have positive impacts, it is entirely reasonable that the benefits of minor league teams result from their geographic isolation, high venue utilization, and low levels of leakages and crowding out. The nine conditions may vary across teams, leagues, cities, and sports and thus the true underlying economic impact even within a sport may vary across cities.

While this research has created a theoretical understanding of economic impact and reasonably explained existing economic impact results, perhaps the most enduring outcome will be the academicians who investigate the many areas that we have highlighted where more research is needed.

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