Evidence that Corporate Repatriations under the
American Jobs Creation Act of 2004 Benefited the Domestic Economy

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Abstract

In response to the American Jobs Creation Act of 2004 (AJCA), U.S. multinational corporations (MNCs) repatriated approximately $312 billion of foreign earnings (Redmiles, 2008). Several studies analyze firm-level data to determine the effect of the AJCA on investment and employment, drawing mixed conclusions. In this study we take a different approach and examine employment effects in local areas surrounding the headquarters of repatriating firms. Using employment data at the zip code level from the U.S. Census, we show that employment increased in concentrated geographic areas around the headquarters of repatriating multinational corporations (MNCs) relative to geographic areas around the headquarters of comparable non-repatriating MNCs. These findings suggest the AJCA had a positive impact on job creation, even though some studies suggest that the majority of repatriated earnings was not used for firm-level investment.

1.   Introduction

U.S. Congress passed the American Jobs Creation Act (AJCA) in 2004, creating, among other things, a temporary reduction in the U.S. tax rate on foreign income.[1] This provision arose amid concerns that U.S. multinational corporations (MNCs) were leaving large sums of foreign earnings abroad, thereby allowing them to defer payment of U.S. taxes on those earnings. Of primary concern was the possibility that domestic investment opportunities were being bypassed in favor of foreign alternatives, thereby depressing U.S. economic growth, including U.S. employment. Lawmakers believed that reducing the U.S. tax rate on foreign income would encourage MNCs to repatriate foreign earnings and invest domestically, thereby increasing U.S. employment. Despite the fact that the AJCA was undeniably successful in that it induced over $300 billion of repatriation, it has been criticized by some who believe that it failed to stimulate growth in domestic employment (Dharmapala et al., 2011; Permanent Subcommittee on Investigations, 2011).[2]

In this study, we reexamine the effect of the AJCA on U.S. employment in the geographic regions immediately surrounding the headquarters of repatriating firms. Using this approach allows repatriations to affect employment directly through the firm's own hiring decisions, and also indirectly as the repatriated funds work their way into the economy through other channels. Using U.S. Census data on employment at the zip code level, we show that employment increased in the geographic region surrounding the headquarters of repatriating MNCs in the three years following the AJCA (2006-2008) and that the effect is increasing in the

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[1] The reduced tax rate was structured in the form of an 85% dividends received deduction on dividends received from controlled foreign corporations thereby decreasing the U.S. tax rate on foreign-sourced income from 35% to 5.25%. Under the AJCA, U.S. MNCs were allowed to take the one-time deduction for eligible dividends in the years 2004-2006.

[2] See also "Donald Trump's corporate tax amnesia: Repatriation didn't work in 2004, and it won't work in 2017", http://www.salon.com/2017/01/01/donald-trumps-corporate-tax-amnesia-repatriation-didnt-work-in-2004-and-it-wont-work-in-2017 .

amount repatriated.   The employment effect is strongest when the geographic region is defined as a 20-mile radius around the headquarters of repatriating firms. Generally, the effect weakens as the radius is tightened inside 20 miles and expanded beyond 20 miles. Economically, we find that employment surrounding the headquarters of repatriating MNCs increased by more than three individuals for every $1 million repatriated under the AJCA. The results are robust to a variety of design choices, including using a changes specification and examining employment in relevant Metropolitan Statistical Areas (MSAs). We interpret these findings as evidence that the AJCA increased domestic employment, consistent with its legislative intent.

Our findings are informative to both academics and policymakers. First, existing academic research has largely taken a negative view of the effect of the AJCA on domestic investment and employment. The major conclusion from prior research is that the AJCA did not change investment and employment at repatriating firms, with the possible exception of financially constrained firms. Instead, prior research finds that firms returned most of the repatriated funds to shareholders through stock repurchases. While some prior research acknowledges that returns of capital could have positive effects on the economy, none explicitly test for the effect. We undertake this task and find that the AJCA has positive, indirect effects on employment in the geographic regions surrounding the headquarters of repatriating MNCs. Our findings augment our academic understanding of the economic effects of the AJCA.

Second, policymakers are interested in the effect of the AJCA as they contemplate changes to the taxation of U.S. multinational firms. In the years since the AJCA, many MNCs have accumulated large balances of unremitted foreign earnings in an effort to avoid tax liabilities that would arise upon repatriation (Citizens for Tax Justice, 2016).[3] Over this same

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[3] In a November 2016 report, Moody's Investors Service estimated that U.S. non-financial companies will increase their overseas cash holdings to $1.3 trillion as of the end of 2016, which is 74% of total cash held by these U.S.

period, a variety of proposals have been forwarded to change the U.S. taxation of foreign earnings so as to encourage MNCs to repatriate foreign earnings and invest the proceeds domestically.[4] While some have forwarded proposals suggesting another temporary repatriation tax holiday, others have argued that the AJCA was ineffective, and have instead forwarded proposals that range from tax exemption of foreign earnings (i.e., territorial taxation) to required minimum tax on foreign earnings without deferral (i.e., worldwide taxation without deferral). Our results provide more context to the literature on the effectiveness of the AJCA, thereby informing lawmakers on the potential impact of future international tax reforms on domestic employment and investment.

The remainder of this paper is organized as follows. Section 2 summarizes U.S. tax policy on foreign earnings, summarizes details regarding the Act, reviews related literature, and outlines our empirical design. Section 3 describes our sample. Section 4 presents the main results and additional analyses. Section 5 concludes.

2.   Background and Related Literature

2.1 U.S. Tax System

U.S. MNCs operate under a worldwide tax system that requires payment of U.S. taxes on both domestic and foreign earnings at the U.S. statutory rate. To avoid double taxation, U.S. tax

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firms. These estimates have increased from the prior year and Moody's predicts that overseas cash holdings will continue to increase absent tax reform.

[4] A Stranded $2 Trillion Overseas Stash Gets Closer to Coming Home", *New York Times*, November 4, 2016; Donald Trump's Tax Plan - https://www.donaldjtrump.com/policies/tax-plan; "Obama's Foreign Earnings Tax: 19% Minimum DOA But Deemed Repatriations Key", *Forbes*, February 5, 2015, https://www.forbes.com/sites/taxanalysts/2015/02/05/obamas-foreign-earnings-tax-19-minimum-doa-but-deemed-repatriations-key/#8a528c2186f7 ; "Baucus Proposes Minimum U.S. Tax on Foreign Earnings", *Bloomberg*, November 19, 2013, https://www.bloomberg.com/news/articles/2013-11-19/baucus-proposes-minimum-u-s-tax-on-foreign-earnings

laws provide a foreign tax credit that reduces the U.S. tax liability by the amount paid to foreign jurisdictions.[5] For example, suppose a corporation's foreign pretax income is $100 and the corporation pays $15 in taxes to a foreign jurisdiction. Since the current U.S. corporate statutory rate is 35% percent the U.S. liability is $20, with payment deferred until the earnings are repatriated.[6] For financial reporting purposes, U.S. MNCs are not required to recognize a U.S. tax liability on foreign earnings as long as earnings are designated as indefinitely reinvested.[7]

Analyzing repatriation incentives in a worldwide tax system with deferral like the U.S. tax system, Hartman (1985) shows that when 1) risk-adjusted after-tax returns in the home and foreign jurisdiction are equivalent, 2) the foreign tax rate, and the domestic tax rate are constant in time, and 3) all foreign earnings must eventually be repatriated and taxed in the home jurisdiction, then the timing of repatriation is irrelevant (see Scholes et al., 2015 for a summary of these points). That is, if conditions are appropriate, there is no benefit to deferral of U.S. tax on foreign earnings.

A body of empirical research tests the Hartman (1985) propositions and generally finds that MNCs are not indifferent to the timing of repatriation. For example, Foley et al. (2007) find that MNCs accumulate large balances of unremitted foreign earnings because of the perceived tax benefit of deferral. Hanlon, Lester, and Verdi (2015) examine market reactions to U.S. MNCs' foreign acquisitions and find that the market reactions are decreasing in the amount of

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[5] A worldwide tax system stands in contrast to a territorial tax system which imposes taxes only on income earned in the home jurisdiction. Much of the literature refers to worldwide tax systems as "credit" systems, and territorial tax systems as "exemption" systems. In reality, tax systems fall on a continuum between a purely worldwide system and purely territorial system, with essentially no existing system falling at one extreme or the other.
[6] The $20 tax liability is the full tax liability of $35 less the foreign tax credit of $15.
[7] The guidance which allows MNCs to defer the recognition of a tax liability for foreign earnings that are permanently reinvested is found in Accounting Principles Board (APB) Opinion No. 23.

tax-induced foreign cash held by the acquiring MNC.[8] The evidence in these and other studies

(e.g. Altshuler, Grubert, and Newlon, 2000; Altshuler and Grubert, 2003; Edwards, Kravet, and

Wilson, 2016) suggest that U.S. MNCs prefer reinvesting foreign income abroad, even if returns

on those investments are subpar, thus deferring U.S. tax payments because one or more of the

Hartman assumptions does not hold.

In a more recent model, Altshuler et al. (2007) argue that a temporary decrease (increase)

in the tax costs of repatriation reduces (increases) the current tax costs of repatriation relative to

future costs, while a permanent decrease (increase) in these costs has no effect. They show that

temporary changes to repatriation tax costs affect the repatriation choices of MNCs because the

current tax costs differ relative to the future tax costs. However, a permanent change to

repatriation tax costs will not affect repatriation choices since there is no change in the relative

costs of current and future repatriations. In the context of our analysis of the AJCA, the

temporary reduction in the taxes levied on repatriated foreign-sourced earnings resulted, as

expected, in a temporary increase in the repatriation of foreign-sourced earnings by U.S. MNCs

(Redmiles, 2008).

2.2 Historical Context of the AJCA

In the early 2000s, many MNCs had accumulated large balances of unremitted foreign

earnings, raising concerns that the U.S. economy would suffer if MNCs invested those earnings

in foreign economies instead of the U.S. economy.[9] In response, Congress passed the American

Jobs Creation Act in 2004 which, among other things, temporarily reduced the maximum tax rate

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[8] Tax-induced foreign cash is the incremental tax due when cash is repatriated from foreign subsidiaries. It is measured as the difference between pretax foreign income and current foreign tax payable scaled by a firm's total assets.
[9] "Five Giant Tech Companies Are Sitting on Piles of Cash", *Wall Street Journal,* December 27, 2002; "Bush Quietly Signs Corporate Tax-Cut Bill", http://www.nbcnews.com/id/6307293/ns/business-stocks_and_economy/t/bush-quietly-signs-corporate-tax-cut-bill/#.V9IFOk0rKUk .

on foreign earnings from 35% to 5.25% via an 85% dividends received deduction, applicable to a single repatriation during 2004-2006.[10]

The goal of the temporary tax rate reduction was to encourage corporations to repatriate cash from foreign-sourced income and use the cash to increase employment and investment in the U.S. Accordingly, the AJCA imposed several restrictions on MNCs in order to qualify for the special, one-time tax rate. First, the repatriation had to be cash. Second, repatriation amounts were limited to the maximum of (1) the amount of foreign earnings that a corporation reported as "permanently reinvested" in its most recent 10-K filing prior to June 20, 2003, (2) the tax liability amount associated with permanently reinvested earnings grossed up by the statutory tax rate – 35% (if permanently reinvested earnings were not reported in the most recent 10-K), or (3) $500 million. Qualified repatriations were required to be extraordinary, defined in the AJCA as a repatriation that exceeded the average repatriation amount from the five tax years ending prior to July 1, 2003 (Redmiles, 2008).[11] Finally, corporations were required to adopt a domestic reinvestment plan for using repatriated funds.[12]

Permissible uses of repatriated funds under the AJCA included "worker hiring and training, infrastructure, research and development (R&D), capital investments or the financial stabilization of the corporation for the purposes of job retention or job creation" (American Jobs Creation Act of 2004, Section 422: Incentives to reinvest foreign earnings in the United States).[13]

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[10] The AJCA states that the deduction can be claimed either in the taxpayer's first taxable year beginning on or after the date of enactment of the AJCA (October 22, 2004) or in the taxpayer's last taxable year beginning before that date.

[11] When calculating the average, the maximum and minimum annual repatriation amounts are removed, leaving three tax years over which repatriations are averaged.

[12] Domestic reinvestment plans had to be approved by the CEO and board of directors. Plans were not required to be publicly disclosed. Using Intelligize, we searched 10-K, 10-Q, and 8-K filings for the 2004-2007 using the following search term: "domestic reinvestment plan w/40 (American Jobs or Jobs Creation)". While we found numerous mentions of domestic reinvestment plans by repatriating MNCs, we found only a single domestic reinvestment plan that was disclosed as an exhibit to a 10-K filing. See
https://www.sec.gov/Archives/edgar/data/28452/000119312505077848/dex1050.htm

[13] The list of permissible uses was suggestive, not exhaustive (Permanent Subcommittee on Investigations, 2011).

Specific impermissible uses of repatriated funds were share repurchases, dividend payouts, and executive compensation.[14] However, since cash is fungible, the rules were not enforceable and lawmakers made it clear no enforcement efforts would be undertaken.

2.3 Response to the AJCA

Several studies have examined the firm response to the AJCA, examining 1) whether firms responded to the AJCA by repatriating unremitted foreign earnings balances, 2) what factors affected the severity of the response, and 3) what firms did with the repatriated funds.

Research has overwhelmingly confirmed that firms responded strongly to the AJCA by repatriating unremitted foreign earnings. Redmiles (2008) uses data from the Internal Revenue Service and finds that about $312 billion was repatriated under the AJCA. Because her data comes from the IRS, and contains both public and private firms, it is assumed to be exhaustive. Other researchers have used data from public disclosures or have imposed additional sample selection requirements, but still find estimates of repatriations under the AJCA ranging from $297 billion to $310 billion. No study has arrived at an estimate of total repatriations that is less than 90 percent of the Redmiles (2008) exhaustive benchmark.

Some studies have examined heterogeneity in firms' responses to the AJCA. Because some firms had not disclosed the amount of permanently reinvested earnings or the tax liability associated with permanently reinvested earnings, they were constrained to repatriate no more than $500 million. The distribution of repatriations, shown in Figure 1, shows a clear discontinuity at $500 million, suggesting that this feature of the AJCA was binding on some firms.

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[14] The initial Act only mentioned executive compensation as an impermissible use of repatriated funds. Later guidance by the IRS expanded impermissible uses to include share repurchases, purchases of debt instruments, and tax payments (see IRS, Notice 2005-10).

Researchers who first examined repatriations under the AJCA showed that the response to the AJCA was heterogeneous. For example, Blouin and Krull (2009) show that repatriating firms have fewer investment opportunities and higher free cash flows than nonrepatriating firms.

The financial reporting consequences of repatriation under the AJCA presented an interesting dilemma for some firms. If firms chose to repatriate funds that had previously been designated as permanently reinvested, a tax expense would be required to be recorded for the tax incurred upon repatriation (5.25% instead of the normal 35%), thereby lowering income reported to shareholders. On the other hand, if firms chose to repatriate funds that had not been designated as permanently reinvested, they would reverse the existing tax liability that assumed tax would be paid at 35% and instead record tax expense at 5.25%, thereby increasing income reported to shareholders.[15] Examining this tradeoff, Morrow and Rickets (2013) argue that financial reporting effects were the dominant factor in the repatriation decisions under the AJCA.[16]

A significant portion of prior research pertaining to the AJCA examines how firms used the funds repatriated under the AJCA. A common theme in these studies is that repatriating MNCs increased shareholder payouts, usually through share repurchases (Brennan, 2014; Blouin and Krull, 2009; Dharmapala et al., 2011; Clemons and Kinney, 2008). For example, Dharmapala et al., (2011) conclude that for every $1 repatriated, somewhere between $0.60 and $0.92 was paid out to shareholders. Blouin and Krull (2009) provide a more conservative

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15 While the amount of permanently reinvested earnings disclosed in the financial statements was used as a mechanism to cap repatriations allowed under the AJCA, the AJCA did not require firms to actually choose to repatriate those specific funds. Thus, a firm that had designated only some of its earnings as permanently reinvested could have used the maximum calculated using its balance of permanently reinvested earnings as the cap, but repatriated only non-permanently reinvested earnings under the AJCA.

16 A more recent stream of research examines the effect of accounting on the repatriation decision. Graham et al. (2011) survey over 600 executives and report that both the tax payments and the financial accounting costs associated with repatriating indefinitely reinvested foreign earnings are important when determining whether to repatriate. Blouin, Krull, and Robinson (2014) show that firms are sensitive to financial accounting effects when making repatriation decisions. Exactly how sensitive firms are to the accounting costs of repatriation (incremental to the cash costs) remains an unsettled question.

estimate, suggesting that 20% of the repatriations represented in their sample were paid out to shareholders. As shareholder payouts were deemed an impermissible use of repatriated funds under the guidelines of the AJCA, evidence that a substantial portion of repatriated funds were paid out to shareholders has led some to suggest the AJCA failed in its objective of increasing domestic employment (Dharmapala et al., 2011). More directly, a report by the Permanent Subcommittee on Investigations (2011) found that overall employment at 19 large MNCs that repatriated under the AJCA decreased by 13,585 from 2004-2007, the years immediately following the AJCA, suggesting that repatriated funds were not used to increase employment at repatriating firms.[17]

While the dominant theme of studies examining uses of repatriated funds is that firms increased shareholder payouts, there are at least two studies that draw more nuanced conclusions. Faulkender and Peterson (2012) show that if the repatriating firm was financially constrained, then it was more likely to allocate funds to permissible domestic investments. Brennen (2014) disputes the finding in Dharmapala et al (2011), and argues that about $0.72 per $1.00 repatriated was allocated to permissible uses.

Despite these somewhat mixed results, the dominant theme in the literature is that while the AJCA was very successful in inducing repatriation, it failed in its stated purpose to increase domestic investment and employment, except in the relatively rare cases of financially constrained firms. Nevertheless, Dharmapala et al. (2011) conclude,

"Although the HIA (the AJCA) does not appear to have spurred domestic investment and employment in firms that used the tax holiday to repatriate earnings from abroad, it may still have benefited the U.S. economy in other ways. The tax holiday encouraged U.S.

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[17] This report does not attempt to assess the decrease in employment relative to the overall labor market conditions.

multinationals to repatriate roughly $300 billion of foreign earnings, and firms paid out most of these earnings to shareholders. Presumably these shareholders either reinvested these funds or used them for consumption, thereby having indirect effects on firm investment, employment, or spending. Future work could explore the welfare effects of the holiday more generally."

2.4 Research Design and Predictions

We tackle the task of examining the indirect effect of the AJCA on domestic employment by examining employment levels in the geographic region surrounding the headquarters of repatriating firms relative to the employment levels in geographic regions not surrounding the headquarters of repatriating firms. Our research design is based on two repeated findings in the empirical literature. First, shareholder payouts dramatically increased at repatriating firms (usually through repurchases) during the AJCA, as discussed above. Second, shareholders of publicly traded firms tend to be disproportionately domiciled in the geographic location of the firm's headquarters, a phenomena known as home bias and local bias, discussed below.

The home bias (the bias that investors prefer to own shares in companies from their own country) literature began with French and Poterba (1991), who show that a majority of corporate equity is held by domestic investors, and Coval and Moskowitz (1999), who find that that U.S. mutual fund managers prefer domestic securities and are more likely to invest in corporations headquartered nearer to the fund managers.[18] Local bias (the bias that investors prefer to own shares in companies near their own specific geographic area) is documented in individual investors and also in fund managers (Ivković and Weisbenner, 2005).[19] Explanations for why

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[18] French and Poterba (1991) document that 92.2% of U.S. corporate equity was held by domestic owners in 1989.
[19] Individual investors' local bias has been shown to exist in foreign countries such as China (Feng and Seasholes, 2004) and Finland (Grinblatt and Keloharju, 2001). The Wall Street Jounal (Deogun, 1997) provides a specific

individual investors prefer to invest in locally headquartered firms include lack of sophistication (Grinblatt and Keloharju, 2001; Karlsson and Nordén, 2007; Goetzmann and Kumar, 2008) and the ability to exploit local information (Ivković and Weisbenner, 2005; Massa and Simonov, 2006). In searching for employment effects of the AJCA, we maintain indifference as to the causes of home bias and local bias, but we do rely on their existence such that a relatively large portion of shareholder payouts find their way to and have a greater impact on the local economy surrounding a corporation's headquarters relative to other, more distant locations.

We assess whether the AJCA had an effect on domestic employment by analyzing whether employment from all sources, not just MNC hiring, increased around the headquarters of MNCs that repatriated under the AJCA. The employment increase might occur via a direct channel (e.g., increased hiring by repatriating MNCs) or an indirect channel (e.g., increased local hiring spurred by investment or consumption of local shareholders). Specifically, we predict that employment is increasing in zip codes near the headquarters of repatriating MNCs during 2006 to 2008, and that the increase is in relation to the amount repatriated.

Our tests assume that shareholders of repatriating MNCs that received payouts invested in U.S. businesses located near the headquarters of the repatriating firm (i.e. "home-bias" applies). Evidence of employment increases around the headquarters of repatriating MNCs following the AJCA would suggest that the AJCA was more successful at increasing domestic employment than most prior researchers have allowed.

Our empirical design uses a difference-in-differences estimation. We exploit differences in repatriation amounts by zip codes across a pre- and post-period and examine the impact of repatriation on employment. Our sample includes all zip codes within the U.S. The treatment

example of the local bias in relation to Coca-Cola, reporting that at least 16% of Coca-Cola shares are held in Georgia, mainly in Atlanta.

group is all zip codes whose centroids lie within a given radius of a base zip code in which a repatriating MNC's headquarters is located, and the control group is all other zip codes. Redmiles (2008) reports that over 93 percent of MNCs that repatriated under the AJCA had completed their repatriations by the end of 2005 and that by the end of 2008 nearly 80% of MNCs had completed their reinvestment plans. Thus, we use 2003-2005 as the pre-period and 2006-2008 as the post-period. We use 5-, 10-, 15-, 20-, 25-, 30-, 35-, 40-, 45-, and 50-mile employment radii around the headquarters of repatriating MNCs to determine the effect of repatriation on employment at different geographical proximities to MNCs' headquarters. To determine the impact of repatriations on employment we estimate the following difference-in-differences regression for 2003-2008:

$$SumEmp_{it} = \alpha + \beta_1 Post_t + \beta_2 Post * Repatriation + \gamma_i + \theta_1 AnnSalary_{it} + \theta_2 Wages_{it} +$$

$$\theta_3 Dividends_{it} + \epsilon_{it} \qquad\qquad\qquad \text{(Equation 1)}$$

Where $SumEmp_{it}$ is the sum of employment for all zip codes whose centroids lie within a given radius around the centroid of zip code *i* in year *t*, $Post_t$ is an indicator variable equal to one for the years 2006-2008, and $Repatriation_i$ is either (1) an indicator equal to one for all base zip codes that contain one or more repatriating MNCs ($IndRepatriation$) or (2) the total amount of repatriated funds (in millions of dollars) by MNCs with headquarters in each base zip code ($SumRepatriation$). γ_i is a zip code level fixed effect, to control for time invariant factors at the zip code level that may influence employment. Three additional time varying controls are included for local economic conditions: $AnnSalary$, $Wages$, and $Dividends$. $AnnSalary$ is the average annual salary per employee (in thousands) for employees in zip codes within a given

radius of zip code i in time t.[20] $Wages$ is the log of salaries and wages reported on IRS 1040

filings for all filers in zip codes within a given radius around the centroid of zip code i in year t.[21]

$Dividends$ is the log of aggregate taxable dividends reported on federal 1040 filings for all filers

in zip codes within a given radius around the centroid of zip code i in year t.[22] Employment data

from the CBP dataset are not subject to sampling errors, but are subject to non-sampling errors

such as missing and or misreported data, processing errors, classification issues, and errors in

recording or coding the data.[23] To control for possible errors we truncate employment at the 1st

and 99th percentiles for each year.

   If employment increases as a result of repatriation, we will find a positive coefficient on

β_2. If the radius around the repatriating headquarters is small, we may not find results because

we might not capture enough shareholders to make a significant difference. If the radius is large,

we may not find results since the effect of local bias is diluted. Thus, we begin by examining a

radius of 5 miles, and later expand the radius to 50 miles, and for all radii in between in

increments of 5 miles.[24] Finding a positive β_2 would suggest the positive effect of repatriated

funds on employment levels.

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[20] Salary data per employee within a given zip code are provided in the County Business Patterns data.

[21] $AnnSalary$ ($Wages$) is computed using data about salaries for employees (residents) within a zip code. The Pearson correlation of these variable is 0.214 (See Table 3)

[22] IRS SOI data are missing for 2003, thus we replace the missing values for $Wages$ and $Dividends$ in 2003 with 2004 values. The coefficient, β_1, from a regression of $Wages_{it} = \alpha + \beta_1 Wages_{i,t-1}$ ($Dividends_{it} = \alpha + \beta_1 Dividends_{i,t-1}$) for 2004-2008 is 0.991 (1.020) with an R^2 of 0.958 (0.950).

[23] For information on CBP data reliability please see http://www.census.gov/programs-surveys/cbp/technical-documentation/methodology/reliability-of-data.html

[24] We do not expand the radius beyond 50 miles due to concerns that larger radii will include employment effects from repatriating MNCs located in multiple metropolitan areas which could confound results.

3.   Sample Selection

Our main empirical analyses require data on the amount of foreign-sourced income repatriated by MNCs under provisions of the AJCA, the headquarters of repatriating MNCs, employment by zip code, and zip code level data for controls. To identify corporations that repatriated under the AJCA, we use 10KWizard.com and search for references to repatriation and American Jobs Creation Act in 10-K filings for 2004-2007. Our initial search results in 1,608 MNCs that mention the AJCA and repatriation in their 10-K filings. We then search the respective 10-K filings to determine whether the corporation repatriated, and if so, the amount.[25] We find 469 MNCs that state they made or plan to make repatriations under the AJCA, of which 27 do not provide an amount. The final sample contains 442 MNCs that repatriated a total of $289.9 billion of qualifying dividends under the AJCA. Using IRS data, Redmiles (2008) reports 843 public and private corporations repatriated $312 billion under the AJCA.

Table 1 reports the repatriation amounts in our sample relative to prior research. Table 1 shows that our sample is similar to Faulkender and Peterson (2012) and Brennan (2014) with regard to the total number of corporations and amounts. Our sample differs slightly from Dharmapala et al. (2011), who use Bureau of Economic Analysis data, and from Blouin and Krull (2009). Despite the slight differences, all samples are within 93% of the Redmiles (2008) benchmark.

Table 2 – Panel A reports descriptive statistics for amounts repatriated by MNCs ($Repatriation\_amount$). The mean amount repatriated is $655.91 million and the median

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[25] Following Brennan (2014), we supplement repatriation amounts for the 19 corporations studied in the report of the Permanent Subcommittee on Investigations (2011). We assume all amounts in the report are correct and replace our figures with the amounts in the report whenever there is a difference. For example, Motorola, Inc., reports a $4.6 billion repatriation under the AJCA in its fiscal 2005 10-K. We use the $2.76 billion repatriation amount reported in the Subcommittee report. Inferences are unchanged if we use amounts reported in MNCs' 10-K filings.

amount is $101.5 million which suggests the repatriation amounts are skewed to the right. The maximum amount repatriated is over $35 billion, while the minimum amount is under $1 million.[26]

The AJCA required that repatriations by MNCs be extraordinary to receive preferential tax treatment. Due to insufficient data, we are unable to provide information on how extraordinary the amounts repatriated by repatriating MNCs under the AJCA are relative to repatriations made prior to the AJCA. However, using Federal Reserve Boards Flow of Funds data we examine aggregate repatriation amounts for all MNCs for 2000-2010. Figure 2 shows the quarterly dividends paid by foreign subsidiaries to U.S. parent companies for 2000-2010. Similar to Blouin and Krull (2009), we observe a substantial increase in aggregate repatriations in 2005. The increase in aggregate repatriations persists for about four quarters before decreasing. This one-time spike in aggregate repatriations in 2005 coincides with the AJCA suggesting that the AJCA induced MNCs to make extraordinary repatriations.

We collect data on employment from the County Business Pattern (CBP) datasets, part of the U.S. Census Bureau data and publically available online.[27] The CBP files contain data on employment and business establishments at the zip code level. We use data on employment at the zip code level for 2003-2008. To calculate employment around the headquarters of MNCs that repatriated under the Act, we sum employment for all zip codes within a given radius of the zip code where a MNC's headquarters is located. To identify zip codes within a given radius of specified base zip code, we use CDXZipStream, a Microsoft Excel add-in provided by CDX Technologies. This add-in locates all centroids of other zip codes within a desired radius of a

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[26] Of the 442 corporations that disclose amount repatriated under the Act, 219 repatriate an amount equal to or less than $100 million and 49 corporations repatriate an amount equal to or less than $10 million.

[27] Employment data capture the zip code where the employee works, not the zip code of the employee's residence. See http://www.census.gov/programs-surveys/cbp.html.

specified zip code. Figure 3 demonstrates how CDXZipStream determines all zip codes within a specified distance of a base zip code. Using 98204 as the base zip code, we find 6 other zip codes whose centroids are within a 5-mile radius of the centroid of zip code 98204.[28] Although the 5-mile radius around 98204 includes portions of other zip codes, the CDXZipStream add-in does not include them because their centroids are not within in the specified 5-mile radius of the 98204 centroid.

Using CDXZipStream, we locate all zip codes with centroids within a 5-, 10-, 15-, 20-, 25-, 30-, 35-, 40-, 45- and 50-mile radius of the centroid of each base zip code.[29] We sum employment data for zip codes within a given radius of a given base zip code for each year. To merge the repatriation data (at the corporation-level) with employment data (at the zip code level), we link the repatriation amount of each MNC to the zip code of the MNC headquarters location, as reported on the 10-K filed with the SEC in the year of repatriation. Table 2 – Panel B reports descriptive statistics for repatriation amounts aggregated by zip code.   In our sample there are 364 distinct base zip codes with at least one repatriating MNC and 58 zip codes that contain the headquarters of more than one repatriating MNC. The maximum number of repatriating MNCs located within a given base zip code is seven.[30] The mean (median) amount repatriated for a zip code in which at least one repatriating MNC is located is $796.46 ($109.7) million.

Data for zip code level controls come from either the CBP dataset or the IRS Statistics on Income (SOI) dataset. In addition to employment data, the CBP datasets include annual salary

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[28] This results in a total of seven zip codes.

[29] To ensure that there are not data errors, we limit the possible number of zip codes within a 5, 10, 15, 20, 25, 30, 35, 40, 45, and 50-mile radius to 200, 200, 250, 250, 400, 500, 550, 600, 650, and 700.

[30] There are 18 zip codes in which more than two repatriating MNCs are located and 5 zip codes in which more than 3 repatriating MNCs are located.

for employees by zip code. The SOI datasets provide aggregated information from IRS 1040 filings, including Salaries and Wages (Line 7), Taxable Dividends (Line 9a), and Net Capital Gain/Loss (Line 13) for each zip code for a given year. We include both Salaries and Wages, and Taxable Dividends in our estimation model to control for local economic conditions that could be influencing employment trends. Table 3 – Panel A presents descriptive statistics for the main variables when using a 5-mile employment radius. Employment has a mean (median) of 48,790 (2,824) suggesting employment is highly skewed to the right.

4.   Results

Table 3 – Panel B reports Pearson and Spearman correlations for the variables used to estimate Equation 1 for a 5-mile employment radius. $IndRepatriation$ and $SumRepatriation$ are positively correlated with $SumEmp$, suggesting that employment is greater in a 5-mile radius around the headquarters of repatriating MNCs relative to other U.S. locations and that employment is greater conditional on the amount repatriated. $Post$ is positively correlated with $Sumemp$, suggesting employment increases in the post-period unconditional on repatriation. $Wages$ and $Dividends$ have a Pearson (Spearman) correlation of 0.954 (0.963), which suggests each has little independent variation.[31]

Table 4 – Panel A presents the results of estimating Equation 1 for all zip codes using a 5-mile radius and $Sumemp_{it}$ as the dependent variable.[32] In the first column of Panel A, the coefficient on the interaction between $Post_t$ and $IndRepatriation_i$ is positive and significant at the 1% level. In the second column, the coefficient of interest is 0.720, significant at the 5%

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[31] Results for the main analysis are similar and inferences unchanged if we remove either $Wages$ or $Dividends$ from Equation 1.

[32] In additional analysis, we examine the relation between repatriation and employment without using an employment radius around a zip code (i.e., no radius), thus we only examine employment in zip codes with repatriating MNCs relative to other zip codes. In untabulated results, we find an insignificant relation between $IndRepatration$ and $SumEmp$, and $SumRepatration$ and $SumEmp$.

level. The coefficient can be interpreted as suggesting that for every additional $1 million

repatriated under the AJCA employment increases by 0.72 persons within a 5-mile radius of the

headquarters of MNCs that repatriated. In the third column of Panel A, we use the log of

$SumRepatriation_t$ as the repatriation variable to take account of the skewed distribution of

repatriation. The results show the interaction between $Post_t$ and the natural log of

$SumRepatriation_i$ is positive and signficant at the 1% level.   Overall, the results from Panel A

suggest that in 2006-2008 employment increased in a 5-mile radius around the headquarters of

MNCs that repatriated under the AJCA (1st column) and that employment is increasing in the

amount repatriated (2nd and 3rd column).

 Table 3 – Panel A reports that $Sumemp$ is skewed to the right. To examine whether the

skewed distribution of employment affects the results reported in Panel A, we estimate Equation

1 with the natural log of $Sumemp$ as the dependent variable. Table 4 – Panel B reports the

results. The coefficient on the interaction between $Post$ and the repatriation variable is positive

and significant at the 5% (10%) level when $SumRepatriation$ or log of $SumRepatriation$

($IndRepatriation$) is used as the repatriation variable. The coefficient estimate on the

interaction when $SumRepatriation$ (log of $Sumrepatriation$) is 4.88 x 10^{-6} (0.002) which

suggests that an increase in repatriation by $1 million (1%) will result in approximately a 0.005%

(0.002%) increase in employment, or about 2.44 (0.98) more jobs.

 Table 4 – Panel B supports the findings in Panel A that employment within a 5-mile

radius around the headquarters of repatriating MNCs is increasing in 2006-2008 and that the

magnitude of increase is associated with the amount repatriated. We find significant results

using either employment or the natural log of employment as the outcome variable and using

either the $SumRepatriation$, the natural log of $SumRepatriation$, or $IndRepatriation$ as the

main independent variable. Our findings can be interpreted as evidence that employment levels in the 5-mile radius around the headquarters of repatriating MNCs increase in 2006-2008 and the increase is a function of the amount repatriated under the AJCA. The results suggest that a temporary reduction in the tax costs of repatriation may facilitate economic growth, in the form of increased employment.

4.1   Additional Analyses

4.1.1   Expanded Radii

In this section, we expand the employment radii around the headquarters of MNCs to 10, 15, 20, 25, 30, 35, 40, 45 and 50-miles. We estimate Equation 1 using these expanded radii to determine the impact of repatriations under the AJCA on employment in larger areas around the headquarters of repatriating MNCs. We use $SumRepatriation$ as the repatriation variable since our aim is to determine the impact of additional repatriated cash on employment; using either an indicator or count variable for repatriation would not capture this effect. We use the raw amount of repatriated cash ($SumRepatriation$) instead of the log of repatriated cash because our conclusions are essentially the same as when using the natural log of $SumRepatriation$.

Table 5 reports the results of estimating Equation 1 using 10 to 50-mile employment radii and $SumRepatriation$ as the repatriation variable. The first, second, third, and fourth columns in Table 5 report the results when Equation 1 is estimated for 10-, 15-, 20-, and 25-mile employment radii. These employment radii provide evidence that repatriation amounts are positively related to employment levels around repatriating MNCs' headquarters in the post-period. For a 10-mile employment, the coefficient estimate on the interaction term, β_2, is 1.608, significant at the 1% level (t-statistic=2.855). The interpretation is that employment increases within a 10-mile employment radius of repatriating MNCs' headquarters by 1.654 individuals for

every additional \$1 million repatriated. The coefficient estimates for 15-, 20-, and 25-mile employment radii are 2.711, 3.385, and 3.141 and are significant at the 1% level (t-statistics=4.331, 3.968, 2.561). One can interpret a coefficient estimate of 3.00 for a specified radius as suggesting that for every additional \$1 million in repatriated funds three additional individuals are employed, in the post-period, within that radius of the headquarters of repatriating MNCs relative to other zip codes.

The fifth through ninth columns of Table 5 present the results of estimating Equation 1 for employment radii of 30-, 35-, 40-, 45-, and 50-miles. The coefficient estimates for β_2, when using a 30-, 35-, 40-, 45-mile employment radius are 0.780, 0.539, 0.633, 0.470 and are insignificant at conventional levels. The coefficient estimate for β_2 when a 50-mile employment radius is used is 2.301, significant at the 10% level (t-statistic=2.301). Results when using an employment radius between 10 and 45 miles are as expected, that is, β_2 is positive and significant at conventional levels for smaller radii; as the radius expands the magnitude of the coefficient decreases. To determine why β_2 increases in magnitude and becomes significant for a 50-mile employment radius, we examine whether expanding the radius results in overlap in multiple large metropolitan areas. To do so we match zip codes to Metropolitan Statistical Areas (MSAs) using a zip code to MSA table compiled by the U.S. Department of Labor, in which each zip code is matched to a single MSA.[33,34] We find overlap between both the New York-Northern New Jersey-Long Island, NY-NJ-PA MSA and the Philadelphia-Camden-Wilmington, PA-NJ-DE-MD MSA; and between the Baltimore-Towson, MD MSA and the Philadelphia-

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[33] The Office of Management and Budget (OMB) defines certain geographical entities called Metropolitan Statistical Areas (MSAs) for use by Federal agencies in collecting and computing certain statistics. MSAs are urban areas that contain more than 50,000 persons.

[34] Zip codes located in areas that do not qualify as a traditional MSA (i.e. not urban or metropolitan) are grouped in non-metropolitan areas by state. Thus, there are 50 non-metropolitan areas.

Camden-Wilmington, PA-NJ-DE-MD MSA. Thus, results when using a 50-mile radius should be interpreted with caution as they may be affected by overlapping MSAs, each with multiple repatriating MNCs.

Excluding results for the 50-mile employment radius, Table 5 suggests that the impact of repatriation on employment is strongest for 15 to 25-mile employment radii and weakens as the employment radius around the headquarters of repatriating corporations increases beyond these distances. A potential explanation for this finding, congruent with the home or local-bias theory, is that a disproportionate portion of shareholders of repatriating MNCs are located near the headquarters and as the distance from the headquarters location increases there are fewer shareholders. Thus, fewer repatriated funds reach the areas further from headquarters resulting in weaker employment gains.

4.1.2   Changes in employment

The dependent variable in Equation 1, $SumEmp$, is the raw number of employees for all zip codes within a given radius of a base zip code. A possible concern with this specification is that the results in Tables 4 and 5 could be driven by highly populated zip codes. To mitigate the impact of highly populated zip codes on the results we modify Equation 1 and estimate the effect of repatriation on $\Delta SumEmp$, the annual change in employment for all zip codes within a specified radius of a base zip code. Since changes in employment are not serially correlated across time, we drop γ_i, the zip code fixed effect, and instead include the main effect of $SumRepatriation$.[35] Thus we estimate the following regression:

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[35] In untabulated results we find that the Pearson (Spearman) correlation of $SumEmp$ and $\Delta SumEmp$ is -0.008 (.021).

$$\Delta SumEmp_{it} = \alpha + \beta_1 Post_t + \beta_2 SumRepatriation + \beta_3 Post * SumRepatriation +$$

$$\theta_1 AnnSalary_{it} + \theta_2 Wages_{it} + \theta_3 Dividends_{it} + \epsilon_{it} \qquad \text{(Equation 2)}$$

The coefficient of interest in Equation 2 is β_3. The results of estimating Equation 2 are reported in Table 6. For the 5-mile radius, β_3 is positive yet insignificant at conventional levels. For 10-, 15-, 20-, and 25-mile radii, β_3 is positive and significant at the 10% level. This suggests that employment changes are increasing in the post-period in relation to the amount repatriated. For all employment radii greater than 25-miles, β_3 is positive, yet insignificant at conventional levels. Overall, we find the effect of repatriation on *changes* in employment (Table 6) is similar, yet slightly weaker, to the effect of repatriation on the *level* of employment (Table 5).

4.1.3   *Analysis of Parallel Trends*

A key assumption of a difference-in-differences design is parallel trends; that is, trends in the outcome variable are similar for both treatment and control samples prior to the treatment application. In our setting, the parallel trend assumption is that in the pre-period the time-series trend of employment should be similar for zip codes within a given radius of the headquarters of a repatriating MNC (i.e. treatment group) and zip codes not located within a given radius of the headquarters of a repatriating MNC (i.e. control group).[36] Prior literature (e.g. Angrist and Pischke, 2009; Lechner, 2011) recommends using pre-treatment time indicator variables to examine whether pre-period trends are similar for treatment and control groups. Following prior literature, we test the parallel trends assumption by estimating the following model for the years 2003-2008:

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[36] The assumption does not require that employment is similar for both treatment and control groups in the pre-period (i.e. mean employment is similar), only that the trend in employment is similar for both treated and control groups in the pre-period.

$$Sumemp_{it} = \alpha + \beta_1 Post_t + \beta_2 Post_t * SumRepatriation_i + \beta_3 Before_t + \beta_4 Before_t *$$

$$SumRepatriation_i + \gamma_i + \theta_\eta Controls + \epsilon_{it} \qquad \text{(Equation 3)}$$

Where $SumEmp, SumRepatriation$, and $Post$ are defined previously. γ_i is a zip code fixed effect. $Before$ is an indicator variable equal to one when the year is 2004 or 2005. Control variables are as defined in Equation 1. The employment radius is 10-miles.[37]

The results of the test of parallel trends are shown in Table 7. Before (-1) [Before (-2)] is an indicator equal to one when the year is 2005 [2004]. The coefficient on the variable of interest, $Post * SumRepatriation$, is 1.525 [1.524], significant at the 1% [5%] level (t-statistic=2.902 [2.533]) when only Before(-1) [Before(-2)] is included in the regression. These coefficient estimates are similar to the coefficient estimate for a 10-mile employment radius in the main analysis in Table 5. A coefficient estimate of 1.525 is interpreted as suggesting that employment increases, in the post period, in a 10-mile radius around the headquarters of repatriating MNCs by 1.525 individuals for every \$1 million of repatriated foreign earnings. The coefficient on $Before * SumRepatriation$ is -0.246 [-0.278] and not significant at the 10% level for both Before (-1) [Before (-2)]. When both Before(-1) and Before (-2) are included in the same regression, in column three of Table 7 – Panel A, the coefficient on $Post * SumRepatriation$ is 1.281, significant at the 5% level (t-statistic=2.340). These findings suggest that the treatment and control groups have similar trends in employment prior to the AJCA and that the trends diverge only after repatriations.

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[37] There are 364 distinct zip codes with at least one repatriating MNC. A 10-mile employment radius includes a total of 7,578 zip codes in the treated group and 33,944 zip codes in the control group.

Redmiles (2008) reports that nearly 80% of MNCs that repatriated under the AJCA planned to complete their domestic reinvestment plans by 2008. Thus, we examine the persistence of the effect of repatriation on employment following 2008 by replacing $Before$ in Equation 3 with $After$, where $After$ is an indicator variable equal to one for both 2009 and 2010, and then estimating Equation 2 for the years 2003-2010. As we do not have sufficient data to compute amounts for $Wages$ and $Dividends$ for 2009 or 2010, $AnnSalary$ is the only control variable included in this estimation. We are interested in the coefficients on $Post *$ $SumRepatriation$ and $After * SumRepatriation$. Table 7 – Panel B reports the results of this estimation. The coefficient on the interaction of $Post$ and $SumRepatriation$ is 1.749, significant at the 1% level (t-statistic=2.854). The coefficient for $After * SumRepatriation$ is -1.954, significant at the 10% level (t-statistics=-1.817). This finding suggests that the increase in employment in 2006-2008 for zip codes located near the headquarters of repatriating MNCs may not persist beyond 2008.

4.1.4   Metropolitan Statistical Area (MSA) Analysis

The results for the 50-mile employment radius in Table 5 engender concerns overlapping MSAs, each with multiple repatriating MNCs, could be affecting results. To address these concerns, we examine the impact of repatriation on employment at an MSA level by using a zip code-MSA linking table to match each zip code to a single MSA and then aggregating the variables in Equation 1 for zip codes within each MSA. Estimating Equation 1 at the MSA level versus the zip code level has both advantages and disadvantages. The main advantage of the MSA level analysis is that any overlap that may exist among two or more large metropolitan areas is eliminated. Another advantage is that MSAs ignore certain geographical conditions that could affect zip code employment radii. For example, if a particular base zip code is surrounded

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on three sides by a body of water this limits the number of other zip codes that will be located within a specified radius of that base zip code. However, since MSAs are manually, not mechanically, formed they are not subject to these geographic conditions. A disadvantage of MSAs relative to zip codes is that since MSAs are not as granular as zip codes, certain localized effects may not be observed.

To determine the impact of repatriation on employment at the MSA level we re-estimate Equation 1 for the 366 MSAs as defined by the United States Office of Management and Budget (OMB) as of March 29, 2010.[38] The first column in Table 8 reports the results of estimating Equation 1 for all 366 MSAs. The coefficient on the interaction between $Post$ and $SumRepatriation$ is 0.637, significant at the 10% level (t-statistic=1.864). This finding confirms prior findings at the zip code level that employment is increasing in the amount repatriated. In column two we add rural zip codes that were previously removed as an additional MSA and then re-estimate Equation 1. The results are very similar to the first column. In the last column of Table 8, we remove the New York-Newark-Jersey City, NY-NJ-PA MSA (New York MSA), the largest MSA in the United States by employment.[39] This MSA contains 49 of the 442 repatriating MNCs and $105 of the $289.9 billion total repatriation in our sample. After removing the New York MSA, we estimate Equation 1 and report the results in column four of Table 8. The coefficient on $Post * SumRepatriation$ is 4.3 and significant at the 5% level (t-statistic=2.324). This finding suggests that after excluding the New York MSA, for every additional $1 million repatriated employment increases in by 4.3 individuals in the post-period in MSAs where repatriating MNCs are headquartered (treatment group) relative to MSAs with no

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[38] Including only zip codes located within defined MSAs removes over 16,000 mostly rural zip codes located outside of MSAs.
[39] The 2010 U.S. Census recorded a population of nearly 20 million in the New York MSA.

repatriating MNCs (control group). The findings in column four suggest that not only are results robust to the removal of the New York MSA, but results actually become stronger after removing the New York MSA.

5. Conclusion

This paper examines the impact of repatriation of foreign income by U.S. MNCs under the American Jobs Creation Act of 2004 (AJCA) on the U.S. economy. In 2004, U.S. Congress passed the AJCA, which included a special one-time dividend received deduction for multinational corporations that repatriated foreign earnings held abroad. In response, U.S. multinational corporations repatriated more than $300 billion, primarily in 2004 and 2005. We assess the impact of these repatriations on employment in the geographic region immediately surrounding the headquarters of MNCs that repatriated under the AJCA. Using a difference-in-differences design, we find a positive relation between the amount of cash repatriated by MNCs and employment around their headquarters. These results are especially strong for smaller geographic radii (i.e. less than or equal to 25 miles). We find similar results when examining the effect of repatriation on employment at the Metropolitan Statistical Area (MSA) level. Additionally, we show that results are robust to the removal of the New York MSA, the largest MSA by population and repatriation amount. This suggests that the positive impact of repatriation on employment is neither driven by or isolated to the largest U.S. metropolitan area.

Our findings provide evidence that the AJCA had a positive impact on domestic employment. Currently, estimates suggest that U.S. MNCs are holding more than $2 trillion in cash overseas as a result of unremitted foreign earnings (Casselman and Larhart, 2011; Citizens for Tax Justice, 2016). Due to the current U.S. tax policy regarding foreign-sourced income, the foreign profits of these MNCs cannot be invested in the domestic economy without first being

taxed at the U.S. statutory rate less any applicable foreign tax credits. To avoid the tax liability, MNCs seem content to permanently reinvest foreign earnings abroad, possibly awaiting another temporary reduction in repatriation taxes. The results of this study shed light on the potential positive impact that large-scale repatriation, induced by a temporary reduction in tax repatriation costs, can have on the U.S. economy. The findings of this study are especially relevant to current policymakers who are responsible for determining U.S. tax policy that could stimulate economic growth and job creation within the U.S.

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Figure 1 shows the frequency of repatriation amounts for firms that repatriated greater than $100 million under the American Jobs Creation Act of 2004. Frequencies are in bins with a width of $25 million beginning with $100 million and ending with $1 billion. All firms that repatriating an amount greater than $1 billion are shown in the bin labeled "More".
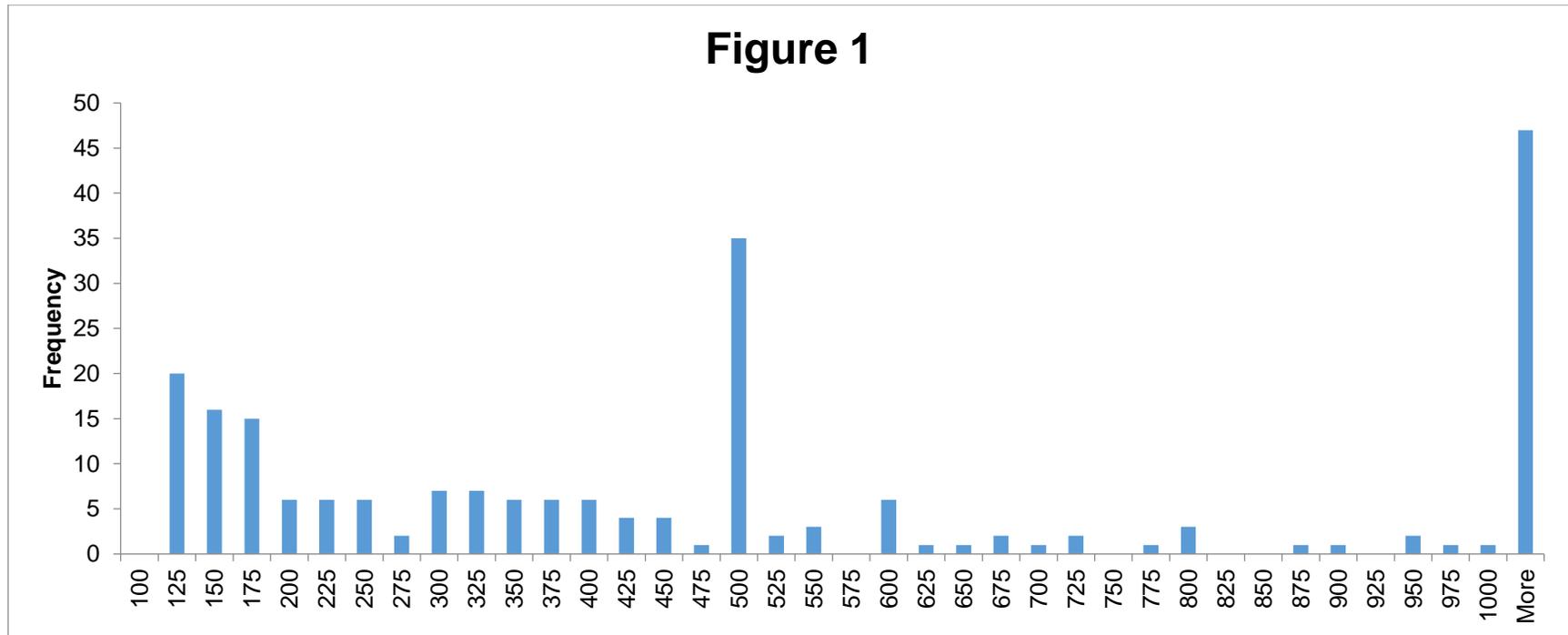
Figure 1

Figure 2 displays the net quarterly dividends received by U.S. MNCs from their foreign subsidiaries from 2000-2010. Data on net dividends is from the Federal Reserve Board Flow of Funds Data. Values shown on the Y-axis are in billions of dollars.
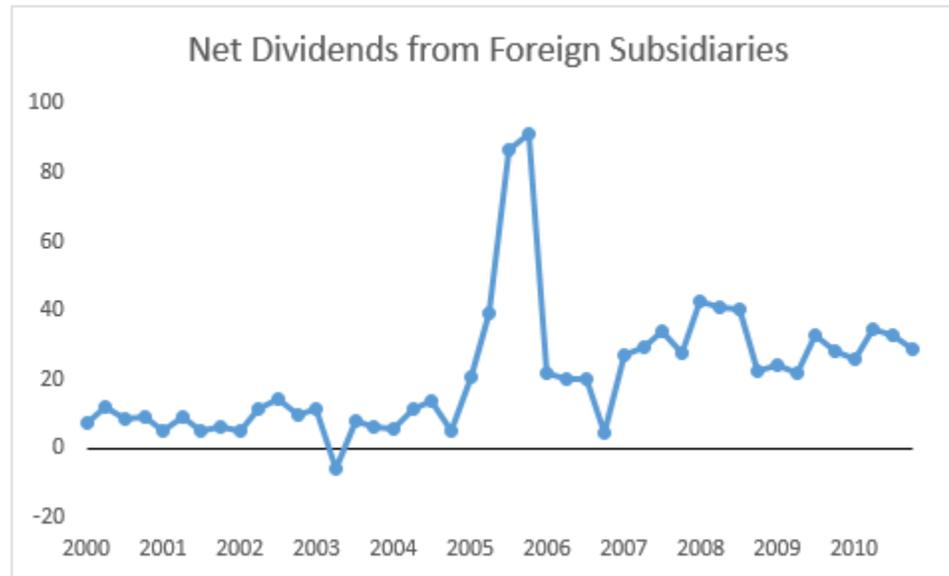
Figure 2

Figure 3 depicts how CDXZipStream calculates a 5-mile radius around the centroid of zip code 98204. The radius function provided by CDXZipStream locates the centroids of all other zip codes with a given radius of the centroid from a base zip code. Using, zip code 98204 as an example, the radius function locates six zip codes in addition to 98204 whose centroids are located within a 5-mile radius. If portions of a nearby zip code are included in the radius, but the centroid is not then the nearby zip code is not returned by the radius function. For example, zip codes such as 98290, 98236, and 98206 are note included in the 5-mile radius.
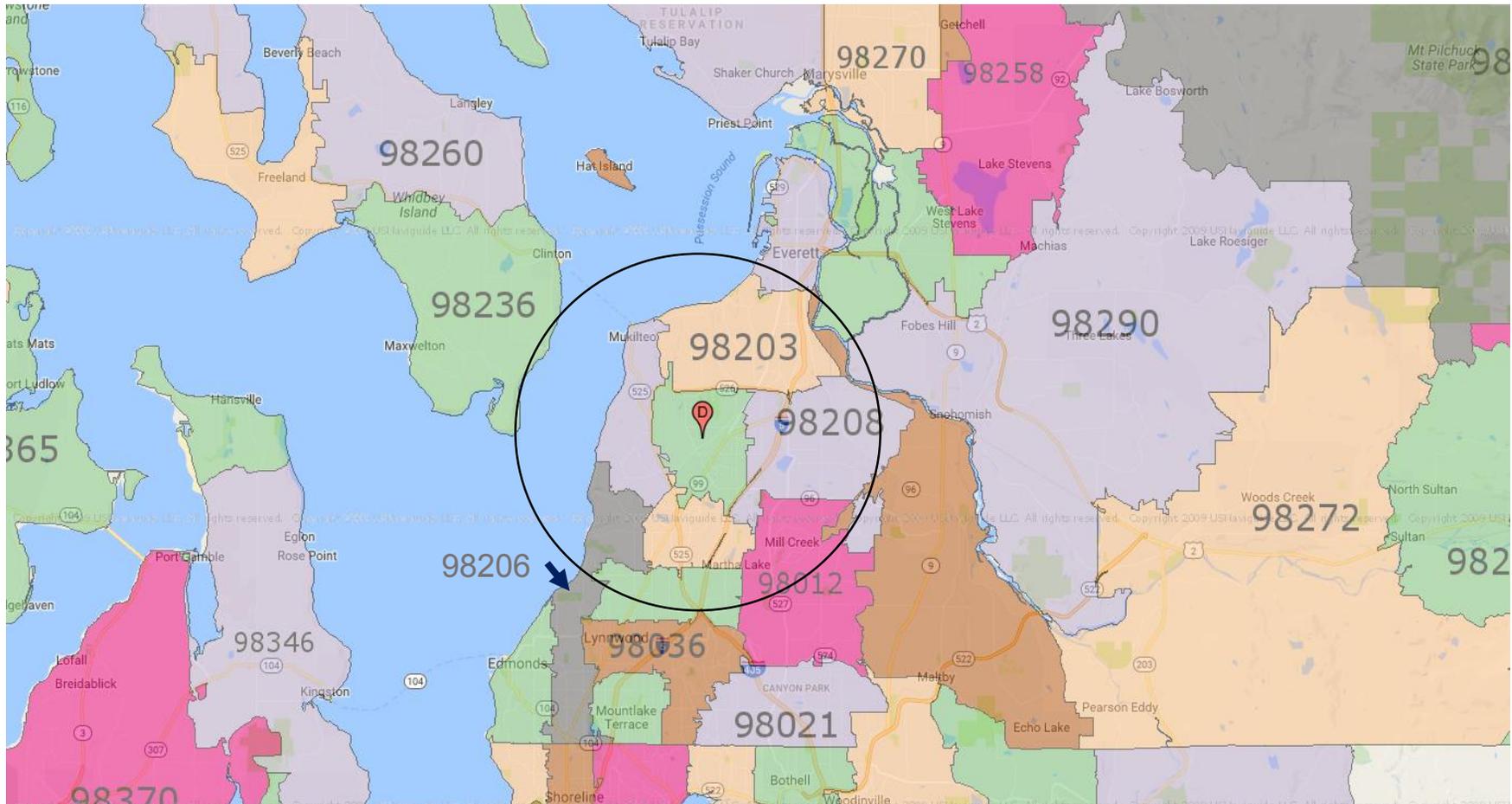
Table 1 displays repatriation amounts under the AJCA for corporations in our sample relative to other studies. Redmiles (2008) uses IRS data and reports the total amount of repatriation under the AJCA for both public and private firms. Thus, her sample is assumed to be exhaustive. The total repatriation amounts used in other studies are compared to the amount reported by Redmiles (2008).

Table 1

Sample	Number of Firms	Number of Firms that disclose	Repatriations Amount	Percent
Redmiles(2008)	843		312.3	100.00%
Blouin and Krull (2009)#	455	N/A	310	99%
Faulkender and Petersen (2012)	442	423	298	95%
Dharmapala et al. (2011)*	261	N/A	N/A	N/A
Brennan (2014)	440	417	297.1	95%
Our Sample	471	444	289.9	93%

Blouin and Krull (2009) identify 455 firms that repatriate a total of $310 billion. Information is not provided on whether all 455 firms disclose the amount repatriated. Due to data limitations, they use 350 repatriating firms in their analysis. They report the average repatriation amount for the 350 firms as $833.14 million for a total of $291.6 billion.

*Using BEA data, Dharmapala et al. (2011) report that they have data on 261 repatriating firms, and a total of 924 repatriating and non-repatriating firms. Their descriptive statistics report that the average repatriation amount across all 924 firms is $71.153 million. This suggests that the total amount of repatriations for firms in the study is $65.75 billion.

Table 2 provides summary details on repatriation amounts. Panel A reports the summary statistics for amount repatriated by firm for the 442 MNCs in our sample that disclose the amount repatriated under the AJCA. Panel B reports the summary statistics for repatriation amount by zip code. *SumRepatriation* is the total repatriation amount within a zip code and *CountRepatriation* is the number of repatriating MNCs within a given zip code.

Table 2: Panel A

	Mean	SD	Min	10%	25%	Median	75%	90%	Max
Repatriation_amount	655.91	2,344.98	0.93	9.20	30	101.50	476.40	1,100	35,491
Number of MNCs	442								

Table 2: Panel B

	mean	sd	min	p10	p25	p50	p75	p90	max
SumRepatriation	796.46	2901.74	0.93	8.52	31.8	109.7	500	1300	43792.2
CountRepatriation	1.24	0.66	1	1	1	1	1	2	7
Number of zip codes	364								

Table 3 – Panel A reports the descriptive statistics for variables used in the main analysis when using a five-mile employment radius. Table 3 – Panel B reports the Pearson and Spearman correlations for variables used in estimating Equation 1 when a five-mile radius is used. The Pearson (Spearman) correlations are shown below (above) the diagonal. ***, **, * represent statistical significance at the 1%, 5%, and 10% levels using a two-tailed test.

Table 3 - Panel A : Descriptive Statistics - 5 Mile Radius

Variable	Mean	SD	Min	10%	25%	Median	75%	90%	Max
SumEmp	48,790	165,804	1	66	301	2,824	36,127	136,283	2,497,867
Post	0.49	0.50	0.00	0.00	0.00	0.00	1.00	1.00	1.00
SumRepatriation	7.72	295.93	0.00	0.00	0.00	0.00	0.00	0.00	43,769.70
IndRepatriation	0.01	0.10	0.00	0.00	0.00	0.00	0.00	0.00	1.00
AnnSalary	31.44	12.08	0.89	19.02	23.69	29.58	36.92	45.79	445.71
Wages	12.06	2.34	4.28	9.14	10.24	11.86	14.01	15.26	18.48
Dividends	8.01	2.98	0.00	4.09	5.75	7.98	10.41	11.91	16.04

Number of Observations	216,325
Number of Unique Zip Codes	37,606

Table 3 - Panel B: Correlation Table - 5 Mile Radius

		A	B	C	D	E	F	G
SumEmp	A	1	0.007***	0.017***	0.016***	0.729***	0.950***	0.952***
Post	B	0.013***	1	-0.137***	-0.134***	0.195***	-0.079***	-0.003
SumRepatriation	C	0.051***	0	1	0.072***	-0.009***	0.031***	0.019***
IndRepatriation	D	0.149***	0.001	0.333***	1	-0.010***	0.029***	0.018***
AnnSalary	E	0.617***	0.178***	0.071***	0.145***	1	0.693***	0.710***
Wages	F	0.694***	-0.031***	0.047***	0.126***	0.641***	1	0.963***
Dividends	G	0.674***	0.033***	0.046***	0.127***	0.649***	0.954***	1

Table 4: Panel A

	SumEmp					
	IndRepatriation		SumRepatriation		Log(SumRepatriation)	
Variable	Coefficient	t-Stat	Coefficient	t-Stat	Coefficient	t-Stat
Post	370.000*	(15.670)	383.800***	(16.300)	370.900***	(15.770)
Post * Repatriation var	2136.000***	(3.387)	0.720**	(1.985)	460.100***	(4.265)
Ann_Salary	22.220***	(3.064)	23.130***	(3.181)	22.160***	(3.049)
Wages	-163.900***	(-6.461)	-164.800***	(-6.495)	-164.400***	(-6.484)
Dividends	89.570**	(2.261)	91.440**	(2.307)	90.190**	(2.276)
N	212,895		212,895		212,895	
R-squared	0.004		0.004		0.004	
Zip Code FE	Yes		Yes		Yes	

Table 4: Panel B

	Log(SumEmp)					
	IndRepatriation		SumRepatriation		Log(SumRepatriation)	
Variable	Coefficient	t-Stat	Coefficient	t-Stat	Coefficient	t-Stat
Post	0.012***	(5.332)	0.012***	(5.351)	0.012***	(5.332)
Post * Repatriation var	0.010*	(1.707)	0.000**	(1.970)	0.002**	(2.058)
Ann_Salary	-0.000	(-0.208)	-0.000	(-0.203)	-0.000	(-0.209)
Wages	-0.019***	(-10.940)	-0.019***	(-10.940)	-0.019***	(-10.940)
Dividends	0.023***	(8.818)	0.023***	(8.821)	0.023***	(8.819)
N	212,895		212,895		212,895	
R-squared	0.003		0.003		0.003	
Zip Code FE	Yes		Yes		Yes	

Table 4 reports the results of estimating the following equation: $SumEmp_{it} = \alpha + \beta_1 Post_t + \beta_2 Post * Repatriation + \gamma_i + \theta_1 AnnSalary_{it} + \theta_2 Wages_{it} + \theta_3 Dividends_{it} + \epsilon_{it}$ for the years 2003-2008 using 5-mile radii around zip codes. In Panel A, the dependent variable is *SumEmp*, the sum of employment for all zip codes whose centroid is located within a 5-mile radius of the centroid of the base zip code. In Panel B, the dependent variable is *Log(SumEmp)*, which is the natural log of *SumEmp*. *Post* is an indicator equal to one for the years 2006-2008. *IndRepatriation* is an indicator equal to one for all zip codes in which the headquarters of at least one repatriating MNCs is located. *SumRepatriation* is the total amount of cash (in millions) repatriated by MNCs whose headquarters is in the base zip code. *AnnSalary* is the average annual salary per employee (in thousands) for employees in zip codes within a five mile radius of zip code *i* in time *t*. *Wages* is the log of the aggregate amount of salaries and wages for all filiers in zip codes within a five mile radius around the centroid of zip code *i* in year *t*. *Dividends* is the log of the aggregate amount of taxable dividends for all filiers in zip codes within a five mile radius around the centroid of zip code *i* in year *t*. ***, **, * represent statistical significance at the 1%, 5%, and 10% levels using a two-tailed test. T-statistics are shown in parentheses to the right of coefficient estimates. Standard errors are clustered at the zip code level.

Table 5 reports the results of estimating the following equation: $SumEmp_{it} = \alpha + \beta_1 Post_t + \beta_2 Post_t * Repatriation_i + \gamma_i + \theta_1 AnnSalary_{it} + \theta_2 Wages_{it} + \theta_3 Dividends_{it} + \epsilon_{it}$ for the years 2003-2008 for the following radii: 10, 15, 20, 25, 30, 35, 40, 45, 50. The dependent variable used in all regression estimations is *SumEmp*, the sum of employment for all zip codes whose centroid is located within a specified radius of the centroid of the base zip code. *Post* is an indicator equal to one for the years 2005-2008. *SumRepatriation* is the total amount of funds (in millions) repatriated by MNCs whose headquarters is in the base zip code. *AnnSalary* is the average annual salary per employee (in thousands) for employees in zip codes within a given radius of zip code *i* in time *t*. *Wages* is the log of the aggregate amount of salaries and wages for all filiers in zip codes within a given radius around the centroid of zip code *i* in year *t*. *Dividends* is the log of the aggregate amount of taxable dividends for all filiers in zip codes within a given radius around the centroid of zip code *i* in year *t*. ***, **, * represent statistical significance at the 1%, 5%, and 10% levels using a two-tailed test. *T-statistics* are shown in parentheses below the coefficient estimates. Standard errors are clustered at the zip code level.

Table 5 - Expanded Radii

	10-mile	15-mile	20-mile	25-mile	30-mile	35-mile	40-mile	45-mile	50-mile
Post	1283.000***	1439.000***	-2391.000***	-606.400***	-2374.000***	-3649.000***	-5209.000***	-6612.000***	-7341.000***
	(22.830)	(7.727)	(-6.031)	(-2.831)	(-9.259)	(-12.050)	(-21.190)	(-26.430)	(-28.070)
Post * SumRepatriation	1.654***	2.711***	3.385***	3.141***	0.780	0.539	0.633	0.470	2.301*
	(2.855)	(4.331)	(3.968)	(2.561)	(0.952)	(0.514)	(0.597)	(0.592)	(1.890)
AnnSalary (Employees)	276.200***	892.000***	1767.000***	3257.000***	4837.000***	6133.000***	7508.000***	8851.000***	9961.000***
	(13.750)	(13.070)	(13.520)	(38.360)	(46.500)	(50.290)	(68.600)	(77.380)	(83.030)
Wages (Residents)	-776.700***	-1174.000***	2643.000***	609.400***	2561.000***	4561.000***	6518.000***	8218.000***	9936.000***
	(-13.430)	(-7.838)	(3.826)	(2.575)	(8.934)	(13.270)	(19.450)	(22.760)	(25.570)
Dividends	931.000***	2019.000***	4138.000***	2001.000***	1161.000***	-0.564	-1110.000***	-1893.000***	-2787.000***
	(11.590)	(10.990)	(6.846)	(6.928)	(3.482)	(-0.001)	(-2.821)	(-4.438)	(-6.120)
N	227,810	232,154	234,234	235,085	235,672	235,981	236,244	236,431	236,568
R-squared	0.034	0.065	0.103	0.146	0.184	0.215	0.245	0.277	0.299
Zip Code FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 6 reports the results of estimating the following equation: $\Delta SumEmp_{it} = \alpha + \beta_1 Post_t + \beta_2 SumRepatriation_i + \beta_3 Post_t * SumRepatriation_i + \theta_1 AnnSalary_{it} + \theta_2 Wages_{it} + \theta_3 Dividends_{it} + \epsilon_{it}$ for the years 2003-2008 for the following radii: 5, 10, 15, 20, 25, 30, 35, 40, 45, 50. The dependent variable used in all regression estimations **is** $\Delta SumEmp$, the change of employment for all zip codes whose centroid is located within a specified radius of the centroid of the base zip code. *Post* is an indicator equal to one for the years 2005-2008. *SumRepatriation* is the total amount of funds (in millions) repatriated by MNCs whose headquarters is in the base zip code. *AnnSalary* is the average annual salary per employee (in thousands) for employees in zip codes within a given radius of zip code *i* in time *t*. *Wages* is the log of the aggregate amount of salaries and wages for all filiers in zip codes within a given radius around the centroid of zip code *i* in year *t*. *Dividends* is the log of the aggregate amount of taxable dividends for all filiers in zip codes within a given radius around the centroid of zip code *i* in year *t*. ***, **, * represent statistical significance at the 1%, 5%, and 10% levels using a two-tailed test. T-statistics are shown in parentheses to the right of coefficient estimates. Standard errors are clustered at the zip code level.

Table 6 - Change in Employment

	5-mile	10-mile	15-mile	20-mile	25-mile	30-mile	35-mile	40-mile	45-mile	50-mile
Post	-0.012***	-0.013***	-0.010***	-0.009***	-0.007***	-0.007***	-0.006***	-0.006***	-0.006***	-0.006***
	(-19.470)	(-31.560)	(-34.650)	(-44.290)	(-37.410)	(-37.590)	(-37.980)	(-40.850)	(-41.000)	(-41.700)
SumRepatriation	-0.000	-0.000*	-0.000**	-0.000**	-0.000*	-0.000*	-0.000	-0.000	-0.000	-0.000
	(-0.340)	(-1.699)	(-2.077)	(-2.028)	(-1.905)	(-1.655)	(-1.619)	(-1.459)	(-1.405)	(-1.331)
Post * SumRepatriation	0.000	0.000*	0.000*	0.000*	0.000*	0.000	0.000	0.000	0.000	0.000
	(1.351)	(1.736)	(1.799)	(1.817)	(1.731)	(1.501)	(1.374)	(1.239)	(1.175)	(1.035)
AnnSalary	-0.001***	-0.000***	0.000	-0.000**	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***
	(-15.590)	(-6.870)	(0.711)	(-2.105)	(-9.261)	(-11.370)	(-11.400)	(-11.210)	(-11.010)	(-9.825)
Wages	0.005***	0.003***	0.003***	0.005***	0.004***	0.004***	0.004***	0.004***	0.005***	0.005***
	(10.980)	(6.888)	(8.329)	(15.210)	(15.780)	(18.250)	(20.380)	(21.420)	(21.900)	(23.160)
Dividends	-0.000	0.001*	-0.001**	-0.003***	-0.002***	-0.002***	-0.002***	-0.003***	-0.003***	-0.003***
	(-0.161)	(1.923)	(-1.974)	(-8.059)	(-6.509)	(-8.555)	(-10.890)	(-12.520)	(-13.480)	(-15.480)
N	212,041	227,264	231,712	233,794	234,697	235,313	235,658	235,919	236,097	236,242
R-squared	0.007	0.008	0.008	0.012	0.016	0.019	0.021	0.024	0.027	0.029

Table 7 presents the results of the parallel trend and persistence tests when estimating Equation 3: $Sumemp_{it} = \alpha + \beta_1 Post_t + \beta_2 Post_t * SumRepatriation_i + \beta_3 Before_t + \beta_4 Before_t * SumRepatriation_i + \gamma_i + \theta_\eta Controls_{it} + \epsilon_{it}$. In Panel A Before(-1) denotes the year 2005 and Before(-2) denotes the year 2004. In Panel B, After an indicator variable equal to one for the years 2009-2010 replaces Before. The dependent variable is *SumEmp*, the sum of employment for all zip codes whose centroid is located within a 10-mile radius of the centroid of the base zip code. γ_i is a zip code fixed effect. *SumRepatriation* is the total amount of funds (in millions) repatriated by MNCs whose headquarters is in the base zip code. *AnnSalary* is the average annual salary per employee (in thousands) for employees in zip codes within a given radius of zip code i in time t. *Wages* is the log of the aggregate amount of salaries and wages for all filiers in zip codes within a given radius around the centroid of zip code i in year t. *Dividends* is the log of the aggregate amount of taxable dividends for all filiers in zip codes within a given radius around the centroid of zip code i in year t. ***, **, * represent statistical significance at the 1%, 5%, and 10% levels using a two-tailed test. T-statistics are shown in parentheses to the right of coefficient estimates. Standard errors are clustered at the zip code level.

TABLE 7 - Panel A: Parallel Trends Test

Variable	Coefficient	t-stat	Coefficient	t-stat	Coefficient	t-stat
Before (-1)			364.900***	(7.278)	863.600***	(12.180)
Before (-2)	521.100***	(18.000)			940.600***	(17.990)
Before (-1)*SumRepatriation			-0.278	(-0.752)	-0.527	(-0.988)
Before (-2)*SumRepatriation	-0.246	(-0.773)			-0.508	(-1.043)
Post	1442.000***	(25.440)	1458.000***	(20.140)	1986.000***	(22.500)
Post*SumRepatriation	1.525***	(2.902)	1.524**	(2.533)	1.281**	(2.340)
Ann_Salary	277.000***	(13.790)	263.900***	(12.760)	248.000***	(12.110)
Wage	-809.400***	(-14.000)	-743.600***	(-12.880)	-758.600***	(-13.210)
Dividends	988.700***	(12.310)	861.500***	(10.540)	871.200***	(10.680)
N	227,810		227,810		227,810	
R-squared	0.034		0.034		0.035	

TABLE 7 - Panel B: Persistence Test

Variable	Coefficient	t-stat
After	-4710.000***	(-60.520)
After*SumRepatriation	-1.954*	(-1.817)
Post	2231.000***	(51.160)
Post*SumRepatriation	1.749***	(2.854)
Ann_Salary	60.570***	(4.015)
N	298,549	
R-squared	0.068	

Table 8 reports the results of estimating either Equation 1: $SumEmp_{it} = \alpha + \beta_1 Post_t + \beta_2 Post_t *$ $Repatriation_i + \gamma_i + \theta_1 AnnSalary_{it} + \theta_2 Wages_{it} + \theta_3 Dividends_{it} + \epsilon_{it}$ for the years 2003-2008 at the Metropolitan Statistical Area (MSA) level. The dependent variable used in all regression estimations is *SumEmp,* the sum of employment for all zip codes located within a MSA for a given year. *Post* is an indicator equal to one for the years 2005-2008. *SumRepatriation* is the total amount of cash (in millions) repatriated by MNCs whose headquarters in a given MSA. γ_i is a MSA-level fixed effect. *AnnSalary* is the average annual salary per employee (in thousands) for employees in zip codes within a given MSA in time *t*. $Wages$ is the log of the aggregate amount of salaries and wages for all filiers in all zip codes within a given MSA in year *t*. $Dividends$ is the log of the aggregate amount of taxable dividends for all filiers in all zip codes within a given MSA in year *t*. The first column includes only MSAs defined by the Office of Management and Budget and used by the Department of Labor. The second column includes rural areas not included in any defined MSA as an additional MSA and estimates Equation 1. The third column removes the New York MSA and estimates Equation 1. ***, **, * represent statistical significance at the 1%, 5%, and 10% levels using a two-tailed test. T-statistics are shown in parentheses to the right of coefficient estimates. Standard errors are clustered at the MSA level.

Table 8 : MSA Analysis

Variable	MSA		All Zip Codes		No New York MSA	
	Coefficient	t-Stat	Coefficient	t-Stat	Coefficient	t-Stat
Post	-165.300	(-0.107)	1116.000	(0.556)	325.000	(0.214)
Post * SumRepatriation	0.637*	(1.864)	0.628*	(1.833)	4.300**	(2.324)
Ann_Salary (Employees)	3316.000***	(4.119)	3305.000***	(4.110)	2725.000***	(3.635)
Wages (Residents)	1377.000	(0.937)	1772.000	(1.173)	685.200	(0.473)
Dividends	902.000	(0.476)	607.400	(0.322)	1427.000	(0.760)
N	2,188		2,194		2,182	
R-squared	0.165		0.127		0.195	
MSA FE	Yes		Yes		Yes	
Clusters	366		367		365	