

The Effect of 936¹

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Section 936 of the Internal Revenue Code was not an effective means to promote economic growth in Puerto Rico, and the emergence of the current and long-continuing recession cannot be attributed to the termination of 936. Moreover, at this point, U.S. firms are able to operate in Puerto Rico as Controlled Foreign Corporations (CFCs), which provides them with virtually all the advantages of Section 936 (and does not impose some of the restrictions of 936). Section 936 is a failed policy. It would be the height of folly to reinstitute 936—or of a 936-like program—as a means for establishing economic expansion in Puerto Rico.

- Between 1976, when Section 936 was established, and 1996, when Section 936 began to be phased out, the Puerto Rican economy expanded by 2.5% annually, while the U.S. economy grew by 3.0% annually. That is, over this 20 year period, the U.S. economy grew 17% more than the Puerto Rican economy. In the 936 era, then, Puerto Rico was falling further and further behind the states.
- An even more dramatic comparison: In 1970, per capita gross national product (GNP) in South Korea was 65% *less* than in Puerto Rico. By 2000, per capita GNP in South Korea was 9% *larger* than in Puerto Rico. (By 2010, with the Puerto Rican economy in deep recession, Korean per capita GNP was 62% above that in Puerto Rico.)
- The termination of 936 did not bring about the severe recession that began in 2006. Employment in Puerto Rican manufacturing, where 936 firms are primarily located, did decline by 27.5% between 1995 and 2005, as 936 was being phased out. But employment declined by only 1.1% in those four sectors of manufacturing where 936 firms played a major role (pharmaceuticals and medicines, chemicals, computers and electronic goods, and medical equipment and supplies). These four sectors had accounted for 52% of manufacturing employment in 1995, but 72% in 2005.
- Employment in 936 sectors (as well as the rest of manufacturing) did fall off sharply after 2005, dropping by 31%. But this was accounted for largely by the Great Recession in the states (the major market for these sectors) and by technological change. Moreover, in the states, manufacturing employment fell by 19% in this same period, indicating the Puerto Rican decline was not explained simply by factors particular to Puerto Rico.
- Furthermore, it was not the U.S. firms in Puerto Rico (the formally 936 firms) that were doing badly after 2005. They adopted Controlled Foreign Corporations (CFC) status and thus kept virtually all of the 936 tax advantages. But their employment declined because, unlike 936, CFC status contained no employment credits, and the firms rapidly changed their

technology. Pharmaceuticals, the most important of the 936 sectors, saw exports (the largest share of its sales) rise by 40% (in current dollars) between 2005 and 2015, while employment declined by 51%. Good times for the firms, but not so good for Puerto Ricans.

- While some production facilities of 936 firms have closed in recent years, the causes of these closures cannot be attributed to the termination of 936. Other causes—for example, the ending of important patents—appear to have been more significant.
- In terms of its ostensible purpose of job creation in Puerto Rico, Section 936 was very expensive to the U.S. Treasury. According to a U.S. Treasury Department report, in 1987, the middle of the 936 era, it cost the U.S. government on average at least \$1.51 in lost tax revenue for each \$1.00 in wages paid in Puerto Rico by firms operating under the provisions of Section 936. Or, put another way, on average it cost at least \$26,725 each year to maintain a job that was paying an annual salary of \$17,725.
- Section 936 did generate large profits for the U.S. firms engaged in Puerto Rico. While profit data per se for these firms is not available, the large share of the value added in their Puerto Rican operations that the firms obtained indicates large profit. In pharmaceuticals, for example, proprietors' income (profits, interest, etc.) accounted for 94% of value added; in bottled water and soft drinks, 93%; 85% in non-electrical machinery, and 80% in professional instruments.

Section 936 did not generate economic catch-up with the states, but rather the 936 era in Puerto Rico was plagued with relatively slow economic growth. Also, the termination of Section 936 cannot account for the dismal condition of the economy in recent years. In the earlier era of the 1950s and 1960s, similar tax incentive programs were associated with rapid growth, but other conditions that were the foundations of that growth are long-gone. In recent decades it has been primarily highly capital intensive Fortune 500 companies that have benefited from the tax incentives, not the Puerto Rican people.

From the era when Rexford Tugwell governed Puerto Rico in the early 1940s, Puerto Rico has sought provisions in the U.S. tax code that provide special incentives for U.S.-based firms to operate on the island. These provisions, according to Tugwell and later Puerto Rican governments, would create a basis for Puerto Rico to catch up economically with the states. Special tax incentives have thus long been a central element in governments' economic development programs, and they are touted as promoting economic growth and increased employment.³

The principal such provision was Section 936 of the federal tax code, which allowed subsidiaries of U.S. firms operating in Puerto Rico to pay no federal taxes on their Puerto Rican profits, even if those profits were returned to the United States (i.e., to the parent company in the states).⁴ However, the Puerto Rican government, with the concurrence of the federal government, established a 10% tax on profits that were returned to the states—a so-called “tollgate tax.” But the tollgate tax would be reduced substantially (to 4% or less) if the funds were held in Puerto

Rican financial institutions for a specified period.⁵ In the early 1990s, when the federal government began to consider the termination of Section 936, there was a general outcry from Puerto Rican officials. This outcry continued when the ten year phase-out of 936 was set in place to begin in 1996, and the severe recession that began in 2006 is often attributed, at least in large part, to the termination of this federal tax incentive.

The phase out and termination of 936, whatever its impact on the overall Puerto Rican economy (about which more shortly), undercut a substantial gain that had accrued to the financial sector. The tollgate tax worked to the extent that 936 firms deposited a large amount of funds in Puerto Rican banks. In 1980, 936 funds amounted to 33% of all deposits in Puerto Rican commercial banks. By 1985, the figure had risen to 42%. Although the relative share of 936 deposits in the banks' total deposits dropped off in subsequent years, the role of 936 funds initiated a substantial expansion of the role of finance in the economy. Whereas in 1975, finance had accounted for 13.6% of total income, by 2000 it had risen to accounting for 23.9%.⁶

However, the rising role of the banks did not mean that they were playing a driving role in financing productive investment. Instead, their activity was concentrated in securities trading and mortgages. It seems that the banks did relative little to use 936 funds to support economic development and build a local basis for business activity, but they did gain a strong interest in the perpetuation of 936.

In their analysis of Puerto Rican banking Rita Maldonado-Bear and Ingo Walter write:⁷

“Commercial banks appear to have failed to allocate funds to economic development through commercial and industrial loans as much as would seem desirable in an economy such as Puerto Rico’s. Moreover, they have not generated sufficient asset gathering in the form of savings and checking deposits from the household sector to underwrite the capital formation needed to create... self-sustained economic development...[A]ll the banks on the island...need to invest less in securities and instead to lend for commercial and industrial purposes at longer maturities, because doing so is more conducive to economic development...”

The gains to the financial sector notwithstanding, the “conventional wisdom” in Puerto Rico regarding 936 is a myth with little connection to reality. Section 936 and similar provisions have not been a favorable, driving force of the Puerto Rican economy. Equally, the current recession cannot be attributed in significant part to the termination of 936.

Furthermore, while 936 was failing to drive the Puerto Rican economy forward, it was quite costly for the U.S. Treasury. According to a U.S. Treasury Department report, in 1987 it cost the U.S. government on average at least \$1.51 in lost tax revenue for each \$1.00 in wages paid in Puerto Rico by firms operating under the provisions of Section 936. Or, put another way, on average it cost at least \$26,725 each year to maintain a job that was paying an annual salary of \$17,725. For the pharmaceutical industry, the figures were \$3.08 per \$1.00 in wages, or \$81,483 to maintain a job paying \$26,471.⁸

In the late 1980s and early 1990s, when the program was at the center of economic policy in Puerto Rico, annual costs (in terms of lost revenue to the U.S. Treasury) were running between \$2 billion and \$2.5 billion.⁹ In terms of 2016 dollars, this would amount to between \$3.7 billion and \$4.5 billion. This figure far exceeds the costs to the Treasury of alternative policies that would stimulate growth of the Puerto Rican economy.

The Era of 936: No Great Growth Impact

In the 1950s and 1960s, the era of Operation Bootstrap, federal (as well as local) tax incentives may have played a role in the rapid growth of the Puerto Rican economy. While 936 did not exist in those years, similar provisions were put in place, implementing Tugwell's concept that Puerto Rico needed special tax treatment to attract investment to the island. In this early period, however, the major factors pushing the expansion of output and employment were low-wage labor and privileged access to the U.S. market. As wages rose and privileged access largely disappeared (as many lower-wage parts of the world obtained virtually equal access), the tax incentives remained but economic growth faltered. Since 1980, economic growth in Puerto Rico has lagged substantially behind that in the states.

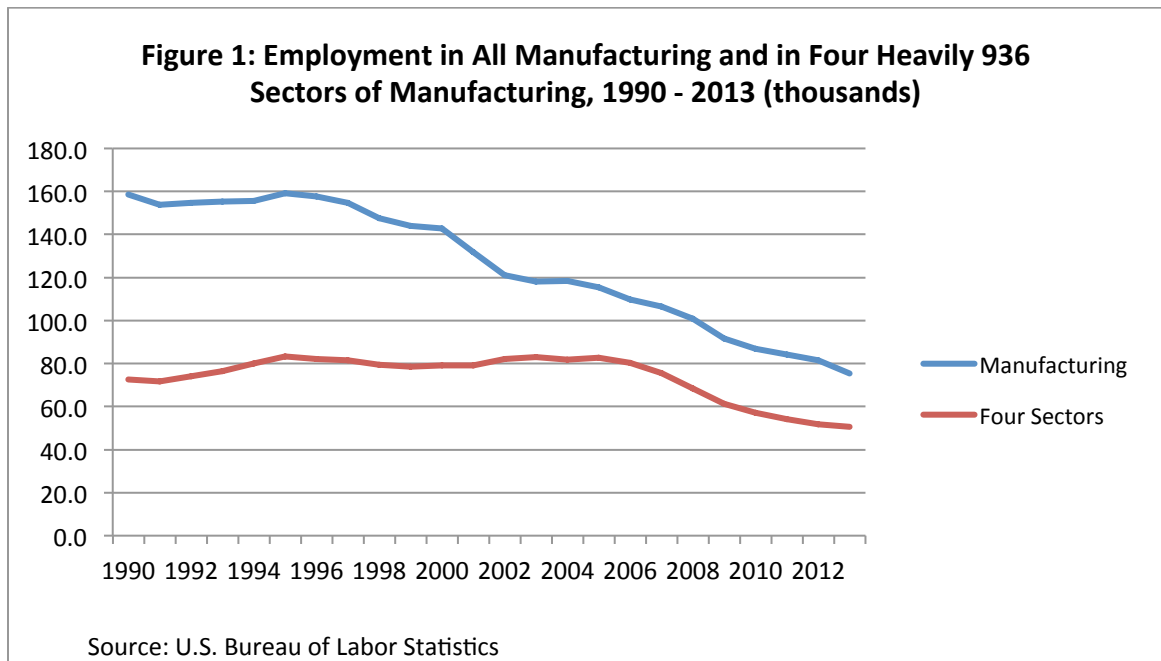
During the twenty years from the implementation of 936 in 1976 to the initiation of its phase out in 1996, real (i.e., inflation adjusted) GNP in Puerto Rico grew at an annual average rate of 2.5%, while the U.S. economy grew by 3.0% annually. That is, over this 20 year period, the U.S. economy grew 17% more than the Puerto Rican economy. In the twenty year 936 era, then, Puerto Rico was falling further and further behind the states.¹⁰

The association of 936 with years of relatively poor economic performance is often obscured by the fact that growth of gross domestic product (GDP) was fairly strong in the 1970 to 2000 period. GDP growth, after all, is the standard by which a country's or a region's economic expansion is usually gauged, and between 1970 and 2000 GDP (inflation adjusted) grew at a 3.8% annual rate. Gross national product (GNP), however, expanded at an annual rate of only 2.7% in this thirty year period. By 2000, GDP was almost 50% greater than GNP. This difference was largely, if not entirely, accounted for by the profits of firms based outside of Puerto Rico—mostly in the states. The growth of GNP is a much better measure of the improvement of the Puerto Rican economy—of the well-being of the Puerto Rican people and the condition of firms based in Puerto Rico—than is GDP. This is especially the case because much of the earnings of the firms based outside of Puerto Rico has been a result of the ownership of their patents being located in Puerto Rico and of transfer pricing, both designed to locate profits, but not real activity, in Puerto Rico. (For further discussion and a figure showing the GNP-GDP gap, see the Appendix.)

By the GNP measure, during these decades when 936 was in force, the Puerto Rican economy grew relatively slowly. In particular, by comparison with the U.S. economy in this 30 year period, Puerto Rican GNP was diverging downward, with its 2.7% annual growth rate well below the U.S. rate of 3.3%. The experience of these years is, then, hardly a brief for the success of 936 as driving the Puerto Rican economy forward.

The Decline in Manufacturing Employment

Yet manufacturing has played a large role in the Puerto Rican economy for many years, and this large role is usually attributed in large part to 936. When, from the mid-1990s onward, employment in manufacturing dropped off sharply, this was widely seen as evidence that the impending termination of this favorable tax treatment was a cause of decline. (Section 936 was phased out over the ten year period from the beginning of 1996.)



The top line in Figure 1 shows the course of manufacturing employment from 1990 to 2013. From its peak of 159.1 thousand employees in 1995, manufacturing fell off sharply. This sharp fall-off, however, cannot be readily attributed to the impending termination of 936. The bottom line in Figure 1 shows the course of combined employment in four sectors of manufacturing where 936 firms have played a major role—pharmaceuticals and medicine, chemicals, computers and electrical goods, and medical equipment and supplies. In 1995, these four sectors accounted for 52% of employment in manufacturing. As the figure shows, combined employment in these sectors was stable in the 1995 to 2005 decade, at virtually the same level in 2005 as in 1995. The data for Figure 1 are presented in Table 1.

**Table 1:
Manufacturing Employment, Total and in Four 936 Sectors,
1990 - 2013 (thousands)**

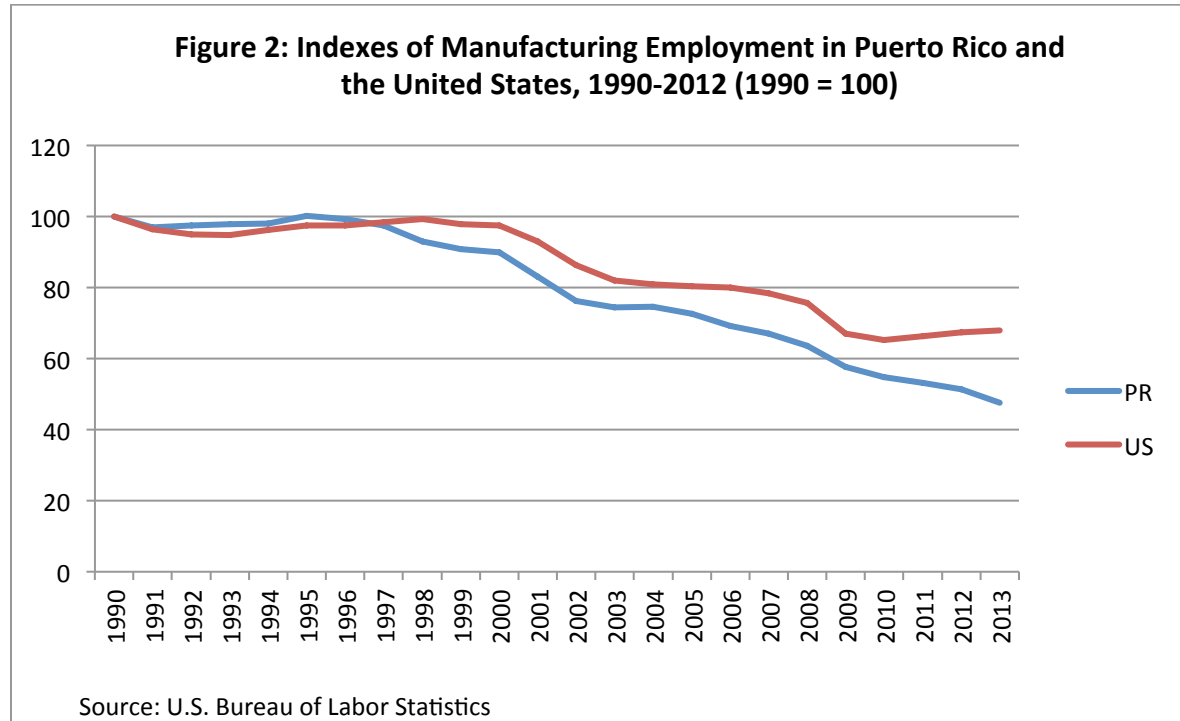
	All Manufactur- ing	Pharmaceut- icals & Medicine	Chemicals	Computers & Elec. Goods	Medical Equip. & Supplies
1990	158.7	21.1	25.8	15.6	10.2
1991	153.9	20.6	25.3	13.6	12.2
1992	154.6	22.1	26.7	12.6	12.6
1993	155.4	23.5	28.0	11.8	13.3
1994	155.6	24.5	29.2	14.3	12.0
1995	159.1	25.1	29.8	16.1	12.3
1996	157.7	24.5	29.1	16.2	12.4
1997	154.7	23.6	28.3	19.2	10.3
1998	147.6	23.4	28.6	16.9	10.4
1999	144.1	23.8	29.0	15.5	10.3
2000	142.7	24.6	29.6	14.7	10.3
2001	131.8	25.2	29.9	13.0	11.0
2002	121.1	27.1	31.8	11.8	11.3
2003	118.2	28.1	32.4	11.1	11.3
2004	118.3	28.4	32.6	10.3	10.6
2005	115.3	28.3	32.7	11.1	10.5
2006	109.8	27.4	31.6	10.4	10.9
2007	106.5	25.2	29.1	9.5	11.7
2008	100.9	22.8	26.5	7.8	11.4
2009	91.6	20.2	23.6	6.2	11.3
2010	86.8	18.3	21.6	5.9	11.2
2011	84.3	17.0	20.4	5.6	11.2
2012	81.5	16.1	19.4	5.0	11.2
2013	75.4	15.5	18.7	5.0	11.4

Source: U.S. Bureau of Labor Statistics

It was only after the recession began in 2006 that employment in these four sectors followed the same downward path as did manufacturing overall. Furthermore, as can be seen from the data in Table 1, while employment in all manufacturing fell by 28% between 1995 and 2005, employment in pharmaceuticals and medicines and in chemicals rose in that decade, by 13% and 10%, respectively. These two sectors accounted for 36% of manufacturing employment in 1995 and 53% in 2005.

Also, it is useful to compare manufacturing employment in Puerto Rico to manufacturing employment in the states. Figure 2 shows indexes of employment in Puerto Rico and the United States, with 1990 equal to 100. Between 1990 and 2010, when recovery from the Great Recession began in the United States, manufacturing employment fell by 35%. In Puerto Rico, for this same period, manufacturing fell by 45%, and no recovery is yet apparent. While the decline in Puerto Rico is somewhat greater, the similar experience in the states suggests that the decline is not primarily explained by factors particular to Puerto Rico—i.e., by the termination of 936. It is more likely that import competition from low-wage areas of the world and

technological change account for most of the employment decline in both Puerto Rico and the United States.



After 2006

One of the reasons that the termination of 936 is not accountable for Puerto Rico’s current economic difficulties is that the advantages that U.S.-based corporations obtained from 936 did not end when this section of the federal tax code was terminated. By obtaining Controlled Foreign Corporation (CFC) status, firms were able to retain virtually all of the federal tax advantages they had had with 936. CFC status allowed the U.S.-based firms to continue to avoid U.S. taxes on their Puerto Rican operations as long as they did not return those profits to the parent corporation in the states.

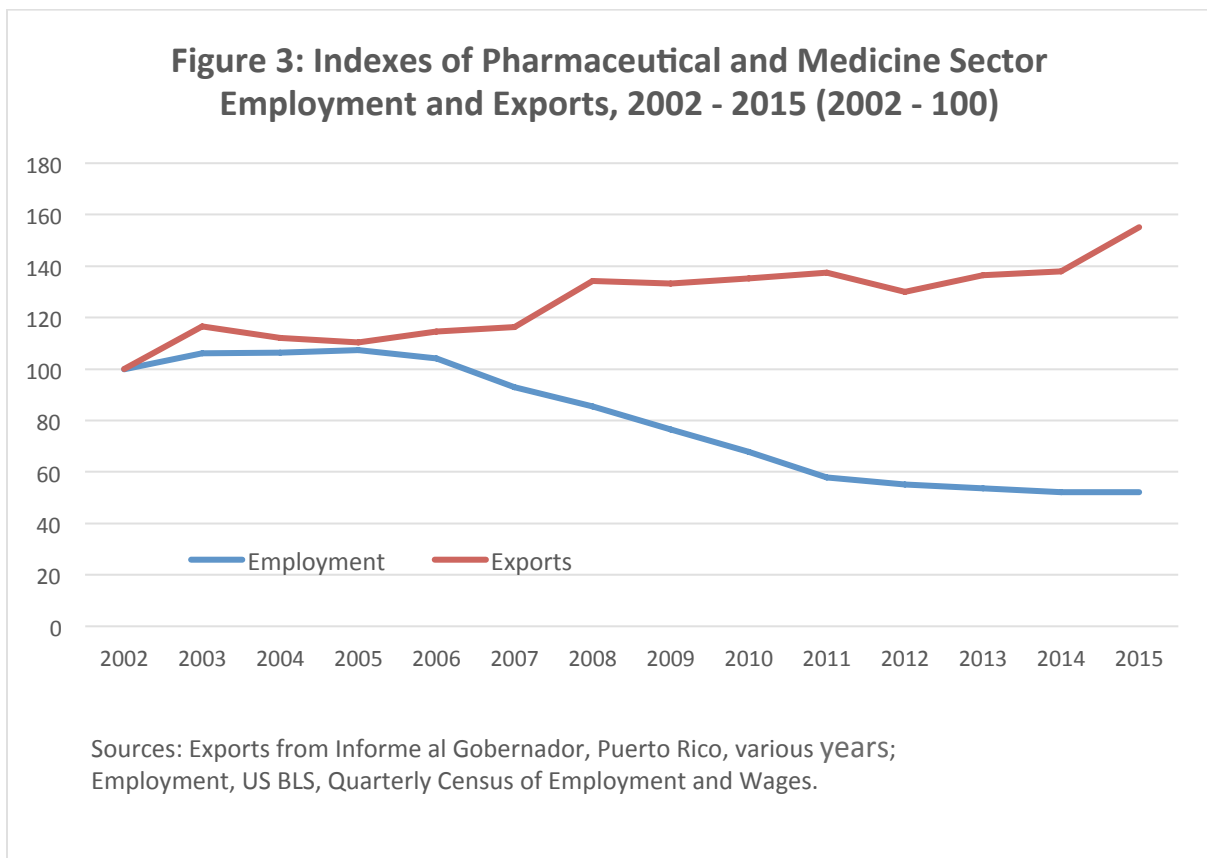
Nonetheless, employment in the group of four 936 sectors shown in Figure 1 and Table 1 dropped off substantially from 2005 (except in medical supplies and equipment). Some of the employment decline can be attributed to the Great Recession in the United States, which is the principal market for the products of these firms. Something else, however, was going on, and here the switch from 936 to CFC status appears to have made a difference.

In *Pharmaceutical Online* in September 2006, Kevin C. Richards, Group Vice President Life Sciences, Reed Life Sciences/Reed Exhibitions, notes the following:¹¹

“Most of the former Section 936 companies have converted to 901 CFC, which converts US companies operating in foreign countries into controlled foreign corporations, or CFCs. This strategy allows manufacturers to enjoy the benefits of

operating within a U.S. jurisdiction, with the added tax benefits of operating under a foreign tax structure. It has also helped many facilities to become more productive with state-of-the-art automated systems. Under Section 936, which included wage credits, a typical packaging line was operated manually, by 35 or so employees. Now, under 901 CFC, it is not uncommon for automated lines to be operated by as few as ten employees.”

That is, the particular structure of the 936 legislation gave employers credit for maintaining employment, but the CFC provisions did not. What happened in the pharmaceutical sector illustrates the results. Figure 3 shows indexes of employment and exports in the pharmaceutical industry from 2002 to 2015. In this period, exports rose substantially, by 55.2% (in current dollars), an especially favorable expansion in the context of the weak condition of the U.S. market in this period. Employment, however, was roughly stable until 2006 and then fell off sharply; by 2011 it was 57.8% of the 2002 level, and slid down further to 52.1% in 2015. By 2015 exports per worker were roughly 3 times as great as in 2002. (Because the export figures are in current dollars, an adjustment for price changes would reduce the difference between the two indexes, but by no means change the difference in the trends.)



These figures on the Puerto Rican pharmaceutical industry hardly portray an industry suffering major difficulties from the termination of 936, but they do suggest that the switch from 936 to CFC status harmed employment and contributed to the decline following the 2006 onset

of the recession. Nonetheless, there appears to be no basis to view the termination of 936 as a *cause* of the recession.

Firms Leaving Puerto Rico

In spite of the apparent positive export experience of the pharmaceutical industry, there have been numerous reports of firms, pharmaceutical firms in particular, departing Puerto Rico in recent years. These departures are sometimes attributed to the termination of 936. It seems, however, that other factors have been major problems for the pharmaceutical industry. According to a report in *Caribbean Business*:¹²

“...the future of the pharmaceutical manufacturing industry in Puerto Rico faces many challenges as many companies have patents on their products that already have or will soon expire, and the number of new drugs in the pipeline are [sic] not enough to replace those with expired patents. One dynamic now at play in the industry is the consolidation and purchasing of companies with promising medicines and patents that will help strengthen a company’s overall product pipeline. In addition, local pharmaceutical companies are increasingly turning toward the outsourcing of certain products to India and China to help reduce costs.”

And further:

“The expiration of \$91 billion in drug patents by 2013 will pose challenges for the pharmaceutical industry, particularly in Puerto Rico, where many of the blockbuster drugs used the world over are made.”

A November 22, 2013, article at *PharmaTech.com: Essential Insights for Pharma Manufacturing*, “Pfizer to Close Manufacturing Plant in Puerto Rico by 2017,” explained the closing in the following terms:¹³

“Pfizer will close one of its three manufacturing facilities in Puerto Rico by the end of 2017, the company announced in a Nov. 20, 2013 press release. Pfizer has determined that facility consolidation is necessary because of excess capacity in its manufacturing network created by the achievement of greater efficiencies in manufacturing processes and by changing global demand, which has resulted from the loss of *patent exclusivity*.” [emphasis added]

On January 30, 2014, *Caribbean Business Online* reported “Abbott closing one of its plants in PR.”¹⁴ According to the article, “The plant is the smallest of several that the drug and medical device maker operates in the north coastal town of Barceloneta...” And further: “The company announced in 2009 a planned expansion in its local operation estimated at \$150 million in new investment. In 2007, Abbott inaugurated a \$450 million, 330,000-square-foot biotech facility, Abbott Biotechnology Ltd. in Barceloneta, the largest-single capital investment for the company to date. It has another plant in Barceloneta, Abbott Pharmaceuticals P.R. Ltd.”

In neither of these examples of plant closings by Pfizer and Abbott is 936 mentioned. Moreover, the expansionary steps mentioned in the Abbott article took place after the termination of 936. It is of course possible that the situation with taxes may have been a factor, but it was at most one of several factors in these cases. While these examples of plant closings are only examples, they do suggest that the termination of 936 or other tax issues were not at the center of firms' decisions to close plants in Puerto Rico.

Conclusion

The evidence does not support the claim that Section 936 was an important foundation for favorable economic expansion in Puerto Rico when it was in force or that the termination of 936 was an important factor bringing about the severe recession, which began in 2006. There is limited evidence that firms' switch from Section 936 to CFC status contributed to some extent to the employment decline of the recession. The firms themselves, however, have remained in good condition, as indicated by their post-2006 exports, and plant closings in recent years do not appear to have any substantial relation to the termination of 936 or other tax factors. The 936 myth should be abandoned.¹⁵

Although manufacturing has played a major role in the Puerto Rican economy for several decades, it has not driven the economy forward nearly to the extent that has been widely believed. The role that manufacturing has played can be explained by the favorable tax advantages that have been supplied by Section 936 and CFC status, but also by tax incentives provided by the Puerto Rican government. There is no reason to believe that, absent these tax factors, Puerto Rico would have a comparative advantage that would generate a substantial role for manufacturing. While labor costs are lower in Puerto Rico than in the states, other factors raise costs—e.g., energy prices, regulations, and transportation. Moreover, labor costs are probably partly accompanied by lower levels of productivity. Consequently, it would seem reasonable to view the heavy reliance on manufacturing—a reliance that has not produced very positive results—as an artificial distortion of the Puerto Rican economy.

Rather than yearning for the return of 936, Puerto Rico would do well to abandon of the 936 myth. This recognition of reality could be one important step in laying the foundation for a new era of economic development for Puerto Rico.

Appendix: The Puerto Rican GNP-GDP Gap

The usual measures of economic activity do not work so well for Puerto Rico. The standard gauge of economic activity, Gross Domestic Product (GDP), yields a very misleading picture of the economic well-being of the Puerto Rican people or how their conditions are changing over time.

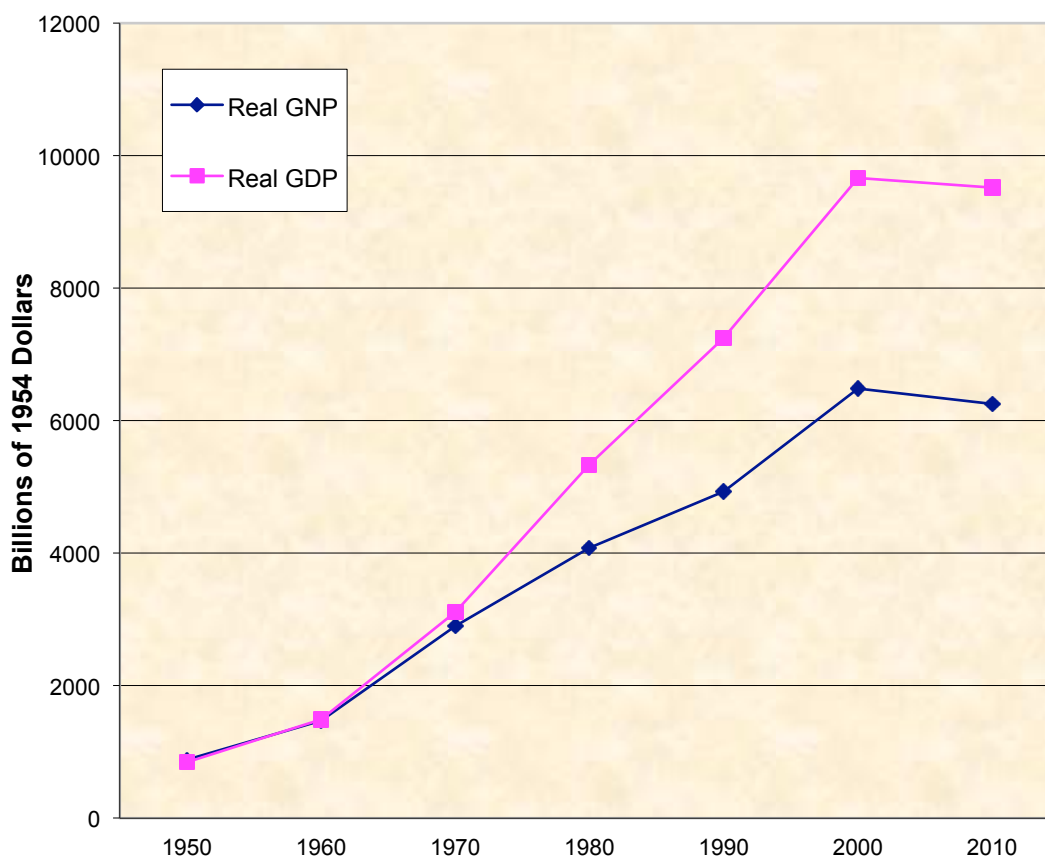
GDP measures all the production of goods and services that takes place in a country (or region) in a given period of time. Yet, in Puerto Rico a great deal—a very great deal—of the income from that production does not go to either Puerto Rican companies or Puerto Rican workers. It goes as the profits of companies that are based outside of Puerto Rico, mostly in the United States. The share of Puerto Rican GDP that is attributable to off-shore firms has grown substantially over the last several decades.

The problems with the GDP measure for Puerto Rico can be understood in terms of the gap between GDP and Gross National Product (GNP). GNP is the amount of production that is attributable to the nationals of a country (or region). GDP will be larger than GNP insofar as foreign workers or businesses are obtaining income within the country (i.e., insofar as output in the country is attributable to foreign labor and capital). GDP will be smaller than GNP insofar as national labor and capital are obtaining income from abroad. (Both GDP and GNP include only production that is sold for final use—i.e., intermediate goods and services, sales of inputs from one firm to another, are not included.)

Puerto Rican economic development for several decades has been organized around firms from the mainland United States operating on the island. The profits of these firms, while counting as part of Puerto Rican GDP, do not count as part of Puerto Rican GNP. In some cases—936 companies in particular—the income of the firms operating in Puerto Rico has been much larger than would normally be associated with the amount of activity they undertake on the island because, through such devices as locating the ownership of a lucrative patent with their Puerto Rican subsidiaries and transfer pricing, they are able to locate a large amount of their profits in Puerto Rico and thus take advantage of tax laws to increase their total after-tax profits.

In 1950, before the major influx of U.S.-based firms, GNP actually exceeded GDP by about 4%, the difference accounted for by the incomes earned by Puerto Ricans working in the states, which counted as part of GNP but not part of GDP. In the next two decades, as rapid growth took place with a large role for U.S.-based firms, GNP fell off to 93% of GDP. Then, over the following three decades, as the performance of

Figure A1: The Puerto Rican GDP-GNP Gap



Source: 1950-1980, James L. Dietz, *Economic History of Puerto Rico*. Princeton: Princeton University Press, 1986, Table 5.1; 1990 and 2000, Planning Board of Puerto Rico, Economic Report to the Governor 2001, San Juan, 2002; 2010, Junta de Planificación de Puerto Rico, www.jp.gobierno.pr, Apéndice Estadístico. Real GDP has been calculated on the assumption that the deflator is the same as that for GNP.

the economy slowed while the U.S.-based firms were still central to the economy, GNP fell to 76% of GDP in 1980, 68% in 1990, 67% in 2000, and 66% in 2010. (See Figure A1.)

To put these figures in some perspective, in 2004, out of 188 countries or territories for which data are available in the Penn World Tables, for only 15 was GNP less than 90% of GDP, and for only 2 was the GNP-GDP ratio less than 70%--Puerto Rico at 67% in that year and Equatorial Guinea at 30%.

¹ An earlier version of this paper appeared as MacEwan, Arthur, "Quantifying the Impact of 936," Center for Global Development and Sustainability, Working Paper Series 2016-4, Brandeis University, May, 2016 (with a forward by R. Godoy), http://heller.brandeis.edu/gds/eLibrary/pdfs/Godoy-Forward-May_5_2016_PuertoRico_2.pdf.

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³ The exception was the government of Pedro Rosselló, who held the governorship from 1993 to 2001. Rosselló was in favor of statehood for Puerto Rico and opposed 936 because it treated Puerto Rico differently, and outside of, the states.

⁴ For a description of 936, see, for example, U.S. General Accounting Office, *Tax Policy: Puerto Rico and the Section 936 Tax Credit*, June 1993.

⁵ See James L. Dietz, *Puerto Rico: Negotiating Development and Change*, Lynne Reiner Publishers, Boulder and London, 2003, p. 60. Dietz provides data showing the substantial impact of the tollgate tax on Puerto Rican banks' deposits.

⁶ See Dietz, as cited in the previous note, pp. 60-63.

⁷ Rita Maldonado-Bear and Ingo Walter, "Financing Economic Development," in Susan Collins, Barry P. Bosworth, and Miguel A. Soto-Class, editors, *The Economy of Puerto Rico: Restoring Growth, Center for the New Economy*, San Juan, and Brookings Institution, Washington, 2006, p. 454.

⁸ U.S. Department of the Treasury, "U.S. Possessions Corporations Returns, 1987," Tables 1 and 2, as cited by J. Tomas Hexner et al., *Puerto Rican Statehood: A Precondition to Sound Economic Growth*, Second Edition, Hex, Inc. Cambridge, 1993, p. 27. The ratios of cost to wage benefits are excessively conservative as they are based on the assumption that the persons employed in the 936 industries would otherwise be unemployed.

⁹ Estimates of the costs of 936 to the U.S. Treasury are from Angel L. Ruíz and Edwin Meléndez, "The Economic Impact of Repealing Section 936 on Puerto Rico's Economy," in *Economic Impacts of the Political Options for Puerto Rico*, edited by Edwin Meléndez and Angel L. Ruíz, Universidad Interamericana de Puerto Rico, San Germán, Puerto Rico, 1998, p. 126.; P. Morrison, "Testimony before the Committee on Finance, United States Senate," April 26, 1990, p. 2, as cited by J. Tomas Hexner and Glenn P. Jenkins, "Puerto Rico and Section 936: A Costly Dependence," *Tax Notes International*, January 16, 1995, p. 236; and United States Department of the Treasury, "U.S. Possessions Corporations Returns, 1987," Tables 1 and 2, as cited by J. Tomas Hexner et al., "Puerto Rican Statehood: A Precondition to Sound Economic Growth," Hex, Inc., Cambridge, MA, 1993, pp. 25-26. Also, for a full discussion of the costliness of 936, see the 1995 *Tax Notes International* article by Hexner and Jenkins.

¹⁰ Puerto Rican data are from Dietz, as cited in the previous endnote, Table 5.1, and *Informe Económico al Gobernador Puerto Rico, 2003*; U.S. data are from the *Economic Report of the President 2003*, Table B-2.

¹¹ Available at <http://www.pharmaceuticalonline.com/doc/puerto-ricos-pharmaceutical-industry-40-years-0003>.

¹² The article, "Manufacturing at a crossroads," is online at http://www.caribbeanbusinesspr.com/cbdirectory/cb_manufacturing.php?cat_id=11. While undated, it appears to be from late 2011 or 2012.

¹³ Available at <http://www.pharmtech.com/pharmtech/News/Pfizer-to-Close-Manufacturing-Plant-in-Puerto-Rico/ArticleStandard/Article/detail/829210?contextCategoryId=35097>.

¹⁴ Available at <http://www.caribbeanbusinesspr.com/news/abbott-closing-one-of-its-plants-in-pr-93210.html>.

¹⁵ The fact that the firms appear to continue in good condition means that their tax payments to the Puerto Rican government—the tax breaks they are given notwithstanding—have remained an important source of government revenue.