



Pension Benefit
Guaranty Corporation

Orphan and Inactive Participants in Multiemployer Plans, 2015 Plan Year Reporting

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Orphan and Inactive Participants in Multiemployer Plans, 2015 Plan Year Reporting

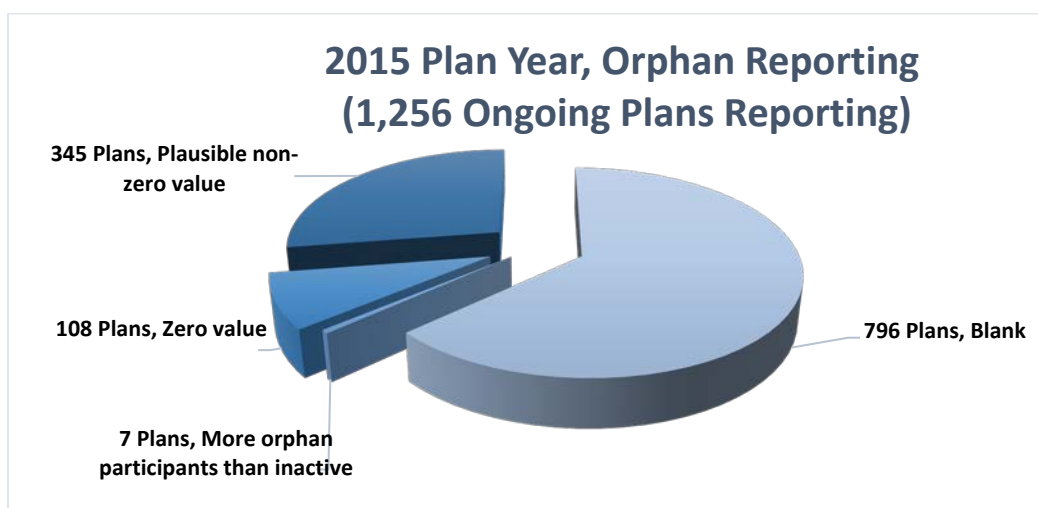
Summary

This supplement to PBGC’s Data Tables examines and analyzes the data reported by multiemployer pension plans on participants whose employer has withdrawn from the plan. These participants are often referred to as “orphan participants” in discussions regarding troubled multiemployer plans.

Plans with large populations of orphan participants may see an increased risk of failure. Orphan participants increase the overall size of the plan compared to its base of contributing employers; this increases the relative cost per contributor to restore plan funding if the plan suffers a loss.

Plans report data on participants whose most recent employer no longer contributes to the plan on the Form 5500. Current orphan reporting does not appear to be robust across ongoing plans in the system. Only a minority of plans report any orphan participants at all, and a few plans report information that appears inconsistent with the instructions for reporting.

Figure 1 - Orphan Reporting is not Robust Across the Universe of Ongoing Plans



Source: Plan Year 2015 Form 5500 Filings, Excludes Terminated and Insolvent Plans

Orphan participants in the ongoing plans that reported plausible non-zero values for orphans totaled 1.6 million, which accounts for 24 percent of participants in those plans and 16 percent of the 10.3 million participants in all multiemployer plans. The estimated range for the total number of orphan participants (defined as participants whose most recent employer no longer contributes to the plan) is 1.6 million to 2.5 million participants, after adjusting for missing reporting.

Given the incomplete state of orphan reporting, the supplement also examines the ratio of inactive to active participants. The five industries with the highest reported concentration of orphans (Agriculture, Mining, Manufacturing, Transportation & Utilities, and Leisure & Hospitality) also report the highest ratio of inactive to active participants. Similarly, in plans in the most troubled funding zone statuses, there is a high concentration of both reported orphans and high inactive to active participant ratios.

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Background

Multiemployer Plans

A multiemployer plan is a pension plan created through collective bargaining agreements between employers and a union. The employers are typically in the same or related industries, such as transportation, construction, and hospitality. Each employer contributes to the plan at an agreed upon rate to fund the aggregate plan liabilities. This contribution rate is typically reset, as needed, during subsequent collective bargaining negotiations. Contribution rates for most plans are set as a rate per hour worked or similar amount per measure of work inputs by active participants.

Pension Insurance and Regulatory Environment

Congress established the Pension Benefit Guaranty Corporation (PBGC) through the Employee Retirement Income Security Act of 1974 (ERISA) to insure the defined benefit pensions of workers and retirees in private-sector pension plans. In 1980, under the Multiemployer Pension Plan Amendments Act of 1980, the insurance program for multiemployer plans was separated from that for other covered plans, leading to two PBGC guarantee programs with different levels of guarantees, premiums, and regulatory requirements.

In the year 2000, both of these insurance programs had assets in excess of incurred claims.¹ But by 2002 the Single-employer Program entered deficit, followed in 2003 by the Multiemployer Program, as it became clear that pension plan failures would exceed the levels that were anticipated in the premium structure of the guarantee programs.

To improve economic security, the Pension Protection Act of 2006 (PPA) made significant changes to the regulatory requirements for both single-employer and multiemployer pension plans. Funding rules were materially changed for both single-employer and multiemployer plans, but in different ways, leading to a sharp divergence in the funding requirements for plans in these programs.

For multiemployer plans, PPA made modest changes to the funding rules which apply to all multiemployer plans. PPA also introduced the concept of a plan's "zone status" based on specific metrics, which delineates plans and requires additional efforts from plans assessed as more troubled. In general, the zone statuses are assigned by looking at whether plans are likely to fail to meet minimum funding rules or become insolvent within the next few years (generally looking out seven or fewer years) or are less than 80 percent funded. Plans subject to the zone status rules are required to devise and disclose how they expect to improve funded status.

¹ 2016 PBGC Databook Tables S-1 and M-1. https://www.pbgc.gov/sites/default/files/2016_pension_data_tables.pdf

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Enforcement of the minimum funding standards also changed significantly. Before PPA, an escalating excise tax on missed contributions effectively led plans to terminate prior to missing a required contribution. PPA effectively removed this incentive in most situations.

PPA also required new disclosures for multiemployer plans, including requiring plans to report more information about the structure and the stability of the group of employers that contribute to these plans and the numbers of participants whose employers have withdrawn from the plans.²

Plan Risks due to Employer Withdrawals

Employers are permitted to withdraw from a multiemployer plan, typically by paying withdrawal liability to the plan based on the plan's funding level at the time of the employer's withdrawal. The withdrawing employer's plan participants are still entitled to receive their accrued vested benefit from the plan, based on service earned prior to the employer's withdrawal. The remaining contributing employers become financially responsible for funding the benefits of these "orphan" participants (subject to certain limitations under the law).

It is possible for an orphan-heavy plan to be appropriately funded and remain able to pay the benefits the participants have earned. However, even in a best-case scenario, where a participating employer withdraws from the plan and pays the market price for the unfunded liabilities associated with their participants, the potential for future funding problems may still exist due to differences between projected values based on assumptions versus the realized values (e.g. asset returns, mortality, turnover, retirement, etc.).

The following scenarios illustrate some of the potential plan risks when an employer withdraws.

Scenario 1 – Fully funded plan

If an employer withdraws from a fully funded plan, it may owe no withdrawal liability payments (as there is no underfunding to split between the withdrawing and remaining employers). However, the orphaned participants no longer have an employer to backstop any changes in funded status and if the plan experiences an unforeseen shock, the remaining employers and their workers must fund the benefits. On average, funding for multiemployer plans fell by over 50 percent in the period 2000-2010.³ Plans that had employers withdraw before this period now face large funding shortfalls with fewer contributing employers. Requiring more money from a smaller employer base jeopardizes the sustainability of the plan.

² PPA §503(a)(2) required a series of disclosures including "... (A) The number of employers obligated to contribute to the plan. (B) A list of the employers that contributed more than 5 percent of the total contributions to the plan during such plan year. (C) The number of participants under the plan on whose behalf no contributions were made by an employer as an employer of the participant for such plan year and for each of the 2 preceding plan years. (D) The ratios of (i) the number of participants under the plan on whose behalf no employer had an obligation to make an employer contribution during the plan year, to (ii) the number of participants under the plan on whose behalf no employer had an obligation to make an employer contribution during each of the 2 preceding plan years..."

³ PBGC 2016 Databook Table M-9.

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Scenario 2 – Withdrawing employer pays its full withdrawal liability

Risks are similar to those in Scenario 1, if the withdrawal liability is calculated on a market basis. However, if the withdrawal liability is calculated on a basis that does not incorporate the full market price, or if the plan settles with the employer for less than the full amount, there is additional risk. Also, if an employer were to exit a plan and pay full withdrawal liability in a lump sum, but the plan has not immunized itself by purchasing assets which match the pension liability cash flows (historically rare), the value of this payment would be subject to asset/liability mismatch risk, which may lead to future investment losses.

Scenario 3 – Withdrawing employer is unable to pay its withdrawal liability

In cases of severe distress, particularly in the case of bankruptcy, a withdrawing employer may be unable to pay a significant portion of its share of plan underfunding. In this situation the plan will need to fund the gap either through asset appreciation (which incents the plan to take on riskier investing strategies) or by requiring the other participating employers to make up the difference. Requiring higher contributions can affect the remaining employers' ability to compete both in terms of attracting and retaining employees and in terms of cost structure and profitability.

Orphan Participants – Alternate Definitions

Analysts have looked at orphan participants, or orphan liabilities, in different ways. The preceding discussion has focused on participants whose employer has left the plan. In some cases, that may mean that a worker's ability to earn additional service in the plan has ended. But in many multiemployer plans, it is common for workers to have multiple employers in a brief period of time, and for all of those employers to be contributors to the plan. The exit of one employer may simply mean that a specific project has ended, while workers in the industry move on to other projects. This is often the case for plans covering the construction industry and some entertainment industry plans.

Since participants may be able to change employers and retain plan coverage, some analysts look not at orphan participants, but rather at orphan liabilities – the liabilities for benefits earned due to service with an employer no longer in the plan.⁴ Another approach is to look at orphan participants / liabilities based only on employers who officially withdrew from the plan under the rules of ERISA. (For example, under ERISA, departures of employers from certain construction industry plans may not be treated as a withdrawal, so long as the employer merely finished a project and remains committed to rejoin the plan should other projects arise.) Legislation and

⁴ See, e.g. Charles P. Blahous III. "Averting the Multiemployer Pension Solvency Crisis." Mercatus Research, Mercatus Center at George Mason University, Arlington, VA, October 2018 <https://www.mercatus.org/system/files/blahous-multiemployer-pension-crisis-mercatus-research-v1.pdf> See discussion beginning on p.10

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legislative proposals have sometimes looked at an even smaller subset, orphan liabilities related to employers who withdrew and did not pay full withdrawal liability.⁵

This report review orphan participants, rather than orphan liabilities. It is based on data gathered in accordance with the specific definitions and instructions set forth for plans completing the annual Form 5500 filing, which further limit the group characterized as orphan participants as discussed below.

Reporting on Orphan Participants

Data Source

PPA added a requirement for plans to report on orphan participants. The new information requirement was effective with the 2008 plan year and required new reporting on the Form 5500 filing jointly required by the ERISA agencies. Prior to PPA's enactment, the ERISA agencies had already begun a process to make major updates to the Form 5500 filing, to allow for more data to be collected and made public in electronic form.⁶ These changes were initially scheduled to be made for the 2008 plan year. In December 2006 the agencies proposed further changes to the Form 5500 to add information required by PPA.⁷ In response to comments from various stakeholders, new forms were adopted which reflected the PPA reporting requirements, to be used beginning with the 2009 plan year.⁸ For 2008 plan years, certain information, including information on orphan participants, was reported in an attachment to the Form 5500; other information regarding funding was reported on revised versions of the prior Schedule B.

Thus, for 2009 and later plan years the modified Form 5500 filing includes the following information requests related to stability of the contribution base as part of Schedule R:

- Question 13 - information for contributing employers that are responsible for more than 5 percent of contributions to the plan for that plan year. (In general, the Form 5500 instructions treat all members of a controlled group of employers as a single employer.) Question 13 gathers information on the amount of contribution, the contribution rate and the basis on which contributions are assessed, date the employer's bargaining agreement expires, and identifying information for the employer.
- Question 14 - information on the number of orphan participants, defined as "the number of participants on whose behalf no contributions were made by an employer as an employer of the participant" for the current and two preceding years.
- Question 15 - information on how the number of all inactive participants has changed from the number as of one and as of two years prior.

⁵ MPRA added special rules for benefit suspensions in certain plans that distinguish orphans based on this criterion (see ERISA § 305(e)(9)(D)((vii)(I)). There is also an example in proposed legislation S.1076 — 115th Congress (2017-2018), see Section 3 amending ERISA § 4233.

⁶ <https://www.federalregister.gov/documents/2006/07/21/06-6329/proposed-revision-of-annual-information-returnreports>

⁷ <https://www.federalregister.gov/documents/2006/12/11/06-9633/proposed-revision-of-annual-information-returnreports> .

⁸ <https://www.federalregister.gov/documents/2007/11/16/07-5521/revision-of-annual-information-returnreports>

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- Question 16 - information on the number of employers withdrawing during the preceding year and the aggregate withdrawal liability assessed.
- Question 17 - information on plan mergers or transfers.

The instructions⁹ for Question 16 clarify that an employer is counted as withdrawing from a plan only if it meets the requirements to be treated as a withdrawal under ERISA Section 4203. Thus, employers in a building and construction industry plan who cease to contribute (e.g., because they have finished up all projects in the area covered by the plan) are not treated as having withdrawn from the plan unless they meet the requirements of §4203(b) (e.g. by beginning another project in the area within 5 years of completing the prior projects, without resuming contributions). This “construction industry” rule also applies to certain other plans, including some plans in the entertainment industry.

Supplementing the Form 5500 Instructions, PBGC issued a Technical Update providing interim guidance for plans complying with the new requirement for the 2009 plan year, as well as additional guidance on interpreting the Instructions.¹⁰ To reduce plans’ recordkeeping burdens, PBGC’s Technical Update provided that the treatment of employer withdrawals set forth in the instructions for Question 16 also applies to the information gathered under Question 14; i.e., the guidance required plans to report as orphan participants on Question 14 *only* those participants whose most recent contributing employer had withdrawn from the plan under §4203. (A plan need not review the status of any previous employers of the participant.)

PBGC’s Technical Update also granted plans an alternative approach for answering Question 14, which would lower the number of orphan participants being reported to only those individuals for whom *all* of their former employers had withdrawn from the plan. (The guidance suggested a plan could review a list of all current contributing employers and report as orphan participants those participants who had no covered service with any of these employers.) Plans using the alternative approach were required to document this approach on an attachment to Schedule R.

After PPA, the ERISA agencies separated out the Schedule B attachment to the Form 5500 (certified by the plan’s actuary) into separate schedules for multiemployer plans (Schedule MB) and other plans (Schedule SB). The MB contains robust data on the number of participants as of the start of the plan year.

Schedule MB also contains information on the zone status of the plan. MPRA added a new zone sub-status of Critical and Declining (C&D) plans. The 2015 MB was the first to require plans to use a code of “D” to identify this new status. 84 plans used the new status code of “D”; other information sources (notices to participants and zone status reports) indicate that approximately one quarter of Critical and Declining plans did not correctly change their status code to the new code in the 2015 Form 5500 filing. Data shown in this report on the zone status of plans corrects the status code to Critical and Declining for these plans, based on the information from other sources.

⁹ Instructions for 2015 Form 5500, Pg. 60-61

¹⁰ PBGC Technical Update 10-1 <https://www.pbgc.gov/prac/other-guidance/tu/technical-update-10-1-multiemployer-plans-clarification-schedule-r-form-5500>

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Schedule MB is only required to be filed by plans subject to the minimum funding rules. Terminated multiemployer plans continue to operate and pay benefits but are no longer subject to the minimum funding rules and thus do not provide the MB filing after plan termination. This study generally excludes terminated plans except for purposes of Figure 2 and Figure 3.

In 2013 PBGC submitted a study of the effects of PPA to Congress.¹¹ A section of the report discussed Orphan Participants and found a higher percentage of orphan participants in distressed plans than in non-distressed plans. This supplement provides more recent data available on orphan participants and further examines the role that orphan participants play in the funded status of multiemployer plans. This analysis focuses on information reported by plan administrators on Form 5500 for the 2015 plan year, supplemented by data reported for prior years.¹²

Data Anomalies

Initial validation checks on the data reported on Line 14a of the 2015 Forms 5500 showed:

- Less than 30 percent of plans report any orphans.
 - Of the plans that reported orphans, 11 reported that the number of orphan participants is greater than or equal to the total reported inactive participant count, indicating potentially inaccurate data.
- More than 60 percent of plans left the orphan field blank.
- Less than 10 percent of plans affirmatively reported zero orphan participants.

Figure 2 illustrates plan reporting patterns across all plans, and the above key findings.

¹¹ <https://www.pbgc.gov/sites/default/files/legacy/docs/pbgc-report-multiemployer-pension-plans.pdf>

¹² The number of orphan participants at the beginning of the 2015 plan year is reported on Schedule R, Line 14a and the number of employer withdrawals on line 16a. The number of total plan participants at the beginning of the 2015 plan year is reported on Line 2b of Schedule MB and as of the end of the year on Line 6 of Form 5500. Both lines 2b of Schedule MB and line 6 of Form 5500 break out counts for active as well as reporting total participants. Zone status is reported on Line 4b of the 2015 Schedule MB and has been supplemented by PBGC analysis for certain plans.

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Figure 2 - Orphan Reporting in All Multiemployer Plans (2015)

| | Number of Orphan Participants | Number of Total Participants* | Number of Plans | Ratio of Orphans to Total Participants |
|---|-------------------------------|-------------------------------|-----------------|--|
| 1. Plans that left the field blank | 0 | 2,800,781 | 870 | 0.0% |
| 2. Plans reporting a zero value for orphans | 0 | 820,495 | 110 | 0.0% |
| 3. Plans reporting orphans ≥ inactive participants | 39,472 | 26,088 | 11 | 151.3% |
| 4. Plans with plausible, non-zero value for orphans | 1,667,531 | 6,664,063 | 381 | 25.0% |
| Total plans | 1,707,003 | 10,311,427 | 1,372 | 16.6% |

Source: Plan Year 2015 Form 5500 Filings

*Participant Count for Terminated or Insolvent Plans Based on Greater of Form 5500 (End of Year Count) and Attachment MB (Beginning of year Count)

Terminated and Insolvent Plans

While terminated plans remain obligated to file certain sections of the Form 5500, they are exempt from certain other filing requirements, including the filing of the Schedule MB. There are also a few plans which, while ongoing, are insolvent and receiving financial assistance from PBGC. Figure 3 shows the reporting on orphans in terminated and ongoing insolvent plans.

Figure 3 - Anomalous Orphan Reporting in Terminated and Insolvent Plans (2015)

| | Number of Orphan Participants | Number of Total Participants* | Number of Plans | Ratio of Orphans to Total Participants |
|---|-------------------------------|-------------------------------|-----------------|--|
| 1. Plans that left the field blank | 0 | 77,072 | 74 | 0.0% |
| 2. Plans reporting a zero value for orphans | 0 | 2,759 | 2 | 0.0% |
| 3. Plans reporting orphans ≥ inactive participants | 1,598 | 1,575 | 4 | 101.5% |
| | | | | - |
| 4. Plans with plausible, non-zero value for orphans | 70,963 | 72,102 | 36 | 98.4% |
| Total plans | 72,561 | 153,508 | 116 | 47.3% |

Source: Plan Year 2015 Form 5500 Filings,

*Participant Count Based on Greater of Form 5500 (End of Year Count) and Attachment MB (Beginning of year Count)

Almost all of the plans shown in Figure 3 are terminated (there are only a handful of ongoing insolvent plans included). In plans terminated by mass withdrawal, one would expect that virtually all participants would be orphan participants as their most recent employer would have withdrawn. Nevertheless 76 plans, representing more than half of participants covered by insolvent or terminated plans, report zero or blank numbers of orphans. Furthermore, 4 plans

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report more orphan participants than the number of participants reported on either the attachment MB or the Form 5500.

Based on the anomalies and missing data for terminated and ongoing insolvent plans, they are removed from the remaining analysis in this study. The remaining subgroup of plans will be referred to as Ongoing Plans for the remainder of this report. Figure 4 shows the distribution of orphan reporting in tabular format after removing these terminated and ongoing insolvent plans. Figure 1, shown in the report summary, presents the distribution of reporting issues among these plans in a graphical format.

Figure 4 - Orphan Reporting in Ongoing Plans (2015)

| | Number of Orphan Participants | Number of Total Participants | Number of Plans | Ratio of Orphans to Total Participants |
|---|-------------------------------|------------------------------|-----------------|--|
| 1. Plans that left the field blank | 0 | 2,794,082 | 796 | 0.0% |
| 2. Plans reporting a zero value for orphans | 0 | 820,495 | 108 | 0.0% |
| 3. Plans reporting orphans \geq inactive participants | 37,874 | 25,950 | 7 | 145.9% |
| 4. Plans with plausible, non-zero value for orphans | 1,596,568 | 6,663,402 | 345 | 24.0% |
| Total plans | 1,634,442 | 10,303,929 | 1,256 | 15.9% |

Source: Plan Year 2015 Form 5500 Filings

After removing terminated and insolvent plan data, more than 60 percent of the remaining ongoing plans left the orphan reporting field blank. About 9 percent of plans affirmatively reported zero orphan participants, and a few (7) plans reported that the number of orphan participants is greater than the total reported inactive participant count, indicating potentially inaccurate data. We further explore these anomalies below.

Blank and Zero Values

For filers that left the orphan field blank, this could mean either:

- The filer intended a blank value to mean the plan has zero orphan participants as defined in the instructions, or
- The filer skipped the question. This group could include plans that cover orphan participants, but the plan administrator lacks enough information to provide a reasonable estimate for reporting purposes.

To further test the quality of the reporting we looked for plans that reported zero or blank orphans after reporting withdrawal of an employer in any of the plan years 2010 through 2014. If an employer withdraws, in order for the plan to have zero orphans, no former employees could

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have had the withdrawn employer as their final employer. While this could conceivably happen in smaller plans, it is unlikely to have occurred repeatedly.

Figure 5 examines the incidence of zero or blank orphan reporting responses on the 2015 Form 5500 by whether a plan reported a withdrawal during plan years 2010-2014.

Figure 5 - Ongoing Plans Reporting Zero or Blank Orphans in 2015, by Reported Withdrawal History

| | SMALL (Under 2,500 participants) | MID-SIZE (2,500 to 35,000 participants) | LARGE (Greater than 35,000 participants) | TOTAL |
|--|--|--|---|-----------|
| 1. Reported one or more withdrawals during 2010-2014 period | | | | |
| Plans | 106 | 84 | 8 | 198 |
| Total Participants | 121,244 | 803,313 | 696,935 | 1,621,492 |
| 2. Did not report a withdrawal during 2010-2014 period | | | | |
| Plans | 534 | 167 | 5 | 706 |
| Total Participants | 472,269 | 1,197,163 | 323,653 | 1,993,085 |
| 3. Total (all blank or zero reporters in 2015) | | | | |
| Plans | 640 | 251 | 13 | 904 |
| Total Participants | 593,513 | 2,000,476 | 1,020,588 | 3,614,577 |

Source: Plan Year 2010-2015 Form 5500 Filings

As shown in Figure 5, plans of a variety of sizes do not report orphans, even when they have reported a recent employer withdrawal. 198 plans that reported one or more recent withdrawals nevertheless reported zero or blank orphans, representing somewhat more than one-fifth of all plans reporting zero or blank orphans for plan year 2015. These plans covered 1.6 million participants.

However, most (706 of 904) plans reporting zero or blank participants have not recently reported an employer withdrawal. These plans cover 2 million participants. Many of these plans may report zero or blank number of orphans because it is rare for these plans to experience a withdrawal.

This analysis only reviews withdrawal history for the 5 years preceding a zero or blank orphan report. Data on the number of employers contributing to multiemployer plans is a relatively recent addition to the Form 5500 filing. If data were available to cover a longer period, additional plans might be found which do not report an orphan value, even though the plan had experienced a withdrawal.

Based on the limited data on employer withdrawals discussed above, it appears that more than one-fifth of zero and blank orphan reporting plans, covering 1.6 million participants, actually experienced a recent withdrawal. Thus, these plans are likely to be reporting orphan participants incorrectly.

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Since the definition of the action that constitutes a withdrawal differs between plans that cover different industries (e.g. construction vs. transportation), additional analysis by industry later in this report provides more insight on the plans that reported blank or zero fields.

Reported Value Check

All orphan participants, as defined for purposes of the Schedule R, should be reported as inactive participants, since they were most recently employed by an employer that ceased contributing before the beginning of the year and thus would not be counted as an actively employed participant. In most cases, we would anticipate that the number of orphans would be significantly less than the number of inactive participants, since some of the inactive participants likely worked for employers who remain in the plan.

To evaluate the prevalence of over-reporting errors in the data, we tested whether plans showed more orphans than inactive participants, using the beginning of the year participant counts reported on the Schedule MB. We identified 35 such plans covering 132,000 participants. We further investigated these plans and found that, for most of the plans, the number of inactive participants as of the end of the year (as reported on line 6 of the Form 5500) was equal to or exceeded the number of orphans.

As of the date that data is compiled for the actuarial valuation (the source for beginning of the year information reported on the Schedule MB), some plans may not have data on employees that have left employment but did not yet retire. Thus, for purposes of determining the number of active workers for the actuarial valuation, some plans may have a practice of deeming workers to be actively employed unless the worker retired before the end of the year or had less than a threshold number of hours in the prior year. Presumably, by the time the end of year participant count is prepared for the Form 5500, prior-year workers who had no work hours during the current year would be appropriately characterized as former workers and shown as “inactive” participants.

Based on this timing analysis, we checked for over-reporting of orphans based on reported orphan participant counts in excess of the greater of the inactive participant count reported on the Schedule MB (as of the beginning of the plan year) or the inactive participant counts reported on the 2015 Form 5500 (as of the end of the plan year). This reduced the number of ongoing plans flagged as reporting unreasonably high orphan participant counts to 7 plans covering 26,000 participants.

Orphan Participant Counts

For the subgroups of plans reported in Figure 1, Figure 4 shows the number of orphan participants and number of total plan participants.

Despite the identified reporting issues, most of the participants in the Multiemployer Program are in plans that reported a value for orphans (i.e., 6.7 million out of 10.3 million total participants in ongoing plans).

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For the 7 plans that reported more orphans than total inactive participants, the aggregate ratio of orphan participants to total participants is 146 percent. This statistic supports the exclusion of these plans in general analyses since these results, both individually and in aggregate, are not plausible.

Plan Size

Figure 6, Figure 7 and Figure 8 expand the information from Figure 1 by adding plan size categories based on total covered plan participants.

Figure 6 - Orphan Reporting by Ongoing Small Plans (2015) Figure 7 - Orphan Reporting by Ongoing Mid-Size Plans (2015)

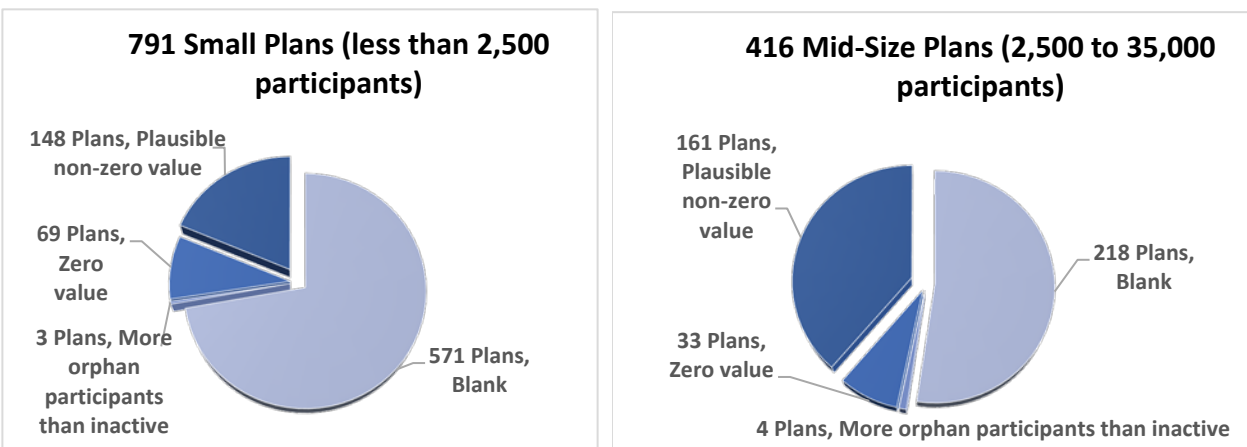


Figure 8 - Orphan Reporting by Ongoing Large Plans (2015)

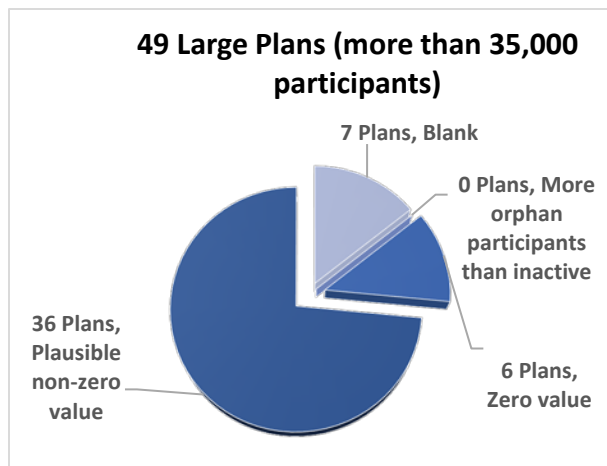


Figure 9 expands on the information in Figure 4 to show numbers of orphans by reporting status and plan size along with additional information on the number of inactive participants.

Orphan and Inactive Participants in Multiemployer Plans, 2015 Plan Year Reporting

Figure 9 - Orphan Reporting by Plan Size, Ongoing Plans (2015)

| | | SMALL (Under 2,500 participants) | MID-SIZE (2,500 to 35,000 participants) | LARGE (Greater than 35,000 participants) | TOTAL |
|-----------------------------|--|-------------------------------------|--|---|------------|
| 1 | Plans that left the field blank | | | | |
| | Plans | 571 | 218 | 7 | 796 |
| | Inactive Participants | 330,482 | 1,029,044 | 298,526 | 1,658,052 |
| | Total Participants | 532,317 | 1,695,772 | 565,993 | 2,794,082 |
| 2 | Plans reporting a zero value for orphans | | | | |
| | Plans | 69 | 33 | 6 | 108 |
| | Inactive Participants | 37,995 | 182,618 | 225,020 | 445,633 |
| | Total Participants | 61,196 | 304,704 | 454,595 | 820,495 |
| 3 | Plans reporting orphans ≥ inactive participants | | | | |
| | Plans | 3 | 4 | - | 7 |
| | Inactive Participants | 1,509 | 14,696 | - | 16,205 |
| | Total Participants | 2,007 | 23,943 | - | 25,950 |
| | Orphan Participants | 1,863 | 36,011 | - | 37,874 |
| 4 | Plans with plausible, non-zero value for orphans | | | | |
| | Plans | 148 | 161 | 36 | 345 |
| | Inactive Participants | 118,861 | 1,058,117 | 3,228,077 | 4,405,055 |
| | Total Participants | 169,511 | 1,580,176 | 4,913,715 | 6,663,402 |
| | Orphan Participants | 58,815 | 298,815 | 1,238,938 | 1,596,568 |
| | Orphan as a % of inactive Participants | 49.5% | 28.2% | 38.4% | 36.2% |
| Orphan as % of Participants | 34.7% | 18.9% | 25.2% | 24.0% | |
| Total ongoing plans | | | | | |
| As reported | Plans | 791 | 416 | 49 | 1,256 |
| | Inactive Participants | 488,847 | 2,284,475 | 3,751,623 | 6,524,945 |
| | Total Participants | 765,031 | 3,604,595 | 5,934,303 | 10,303,929 |
| | Orphan Participants | 60,678 | 334,826 | 1,238,938 | 1,634,442 |
| | Orphan as % of Participants | 7.9% | 9.3% | 20.9% | 15.9% |

Source: Plan Year 2015 Form 5500 Filings

Analysis by Plan Size

- Small plans (fewer than 2,500 participants) are relatively more likely to report blank or zero orphan counts, but the phenomenon persists among plans in all three size categories.
- Only small and mid-size plans report orphan counts greater than the inactive population; larger plans do not fail this basic logic test.
- The average percentage of orphan participants across plan size, for plans reporting a plausible, non-zero value, varies within a band between 15 percent and 35 percent.

Orphan and Inactive Participants in Multiemployer Plans, 2015 Plan Year Reporting

Estimating System-wide Numbers of Orphan Participants

Meeting the test for plausible, non-zero reported numbers of orphans is not sufficient to confirm that the data is being reported as intended. Experts consulted by PBGC stated that many plans do not meticulously track former employment data in order to identify orphan participants -- or at least have not done so since plan inception. Often, these experts explain that the prior employer data is ancillary to the determination of participants' benefits which are typically determined based on *total* credited service earned under the plan, without regard to the specific employer(s) for whom the employer worked.

Experts cited many reasons it may be difficult for plans to track this data. These reasons include: tracking of employers after they withdraw (e.g., to determine whether they have become affiliated with another employer in the plan); reconstructing employer data from plans that have merged into a plan, (e.g., where data locations and personnel familiar with prior recordkeeping systems are no longer available); as well as other issues involved in tracking the final employer for each worker (and their beneficiaries) over decades and multiple recordkeeping systems.

Given this uncertainty, we estimated upper and lower bounds for the number of orphan participants in the system.

- The number of orphans reported by plans that have a plausible non-zero value is 1.6 million. This is likely an approximate lower bound on the number of orphans in the system.
- Orphans represent 24 percent of all participants in plans that report a plausible non-zero orphan value. Extrapolating this value to the entire multiemployer system of reporting plans results in an estimate of 2.5 million orphan participants, which might serve as an upper bound on the number in the system.

The upper bound estimate of 2.5 million participants may be high for several reasons. As shown in Figure 9, plans reporting zero and blank orphan values tend to be smaller on average and have fewer inactive participants in general. Thus, extrapolating the fraction of total participants to these plans likely overstates the fraction of inactive participants that should be characterized as orphans.¹³ In addition, review of the data by industry shows that many of these small plans are in the construction industry, where the difference in the rules for employer action which constitutes a withdrawal results in an effectively narrower definition of what would be construed as an orphan participant on the Form 5500 report.

Given the quality of the data reporting, both the lower and upper bounds are best viewed as estimates of the range of plausible values.

¹³ If instead of extrapolating based on total participants, we instead extrapolated the ratio of orphan participants to inactive participants as equal for blank and zero orphan reporting plans to the ratio for plausible reporters, the system would have an estimated 2.4 million orphans.

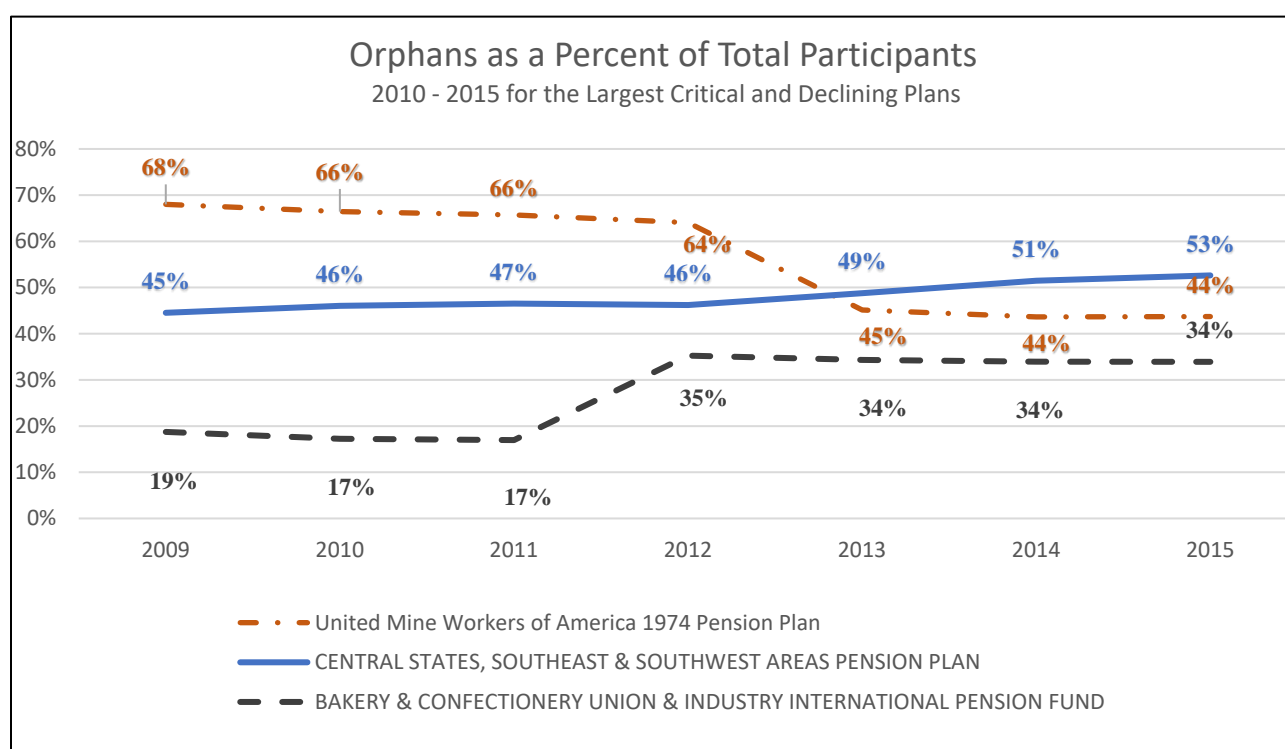
Orphan and Inactive Participants in Multiemployer Plans, 2015 Plan Year Reporting

Historical Trends

Largest Critical and Declining Plans

We also reviewed historical consistency of orphan reporting over time. Given the anomalies previously noted in the data, the more complete reporting by larger plans, and the greater incentive that troubled plans might have to understand the underlying population changes that lead to orphan participants, we examined the reported data on the largest Critical and Declining plans, reviewing data reported from 2010 to 2015.¹⁴

Figure 10 - Historical Orphan Reporting by Largest Critical and Declining Plans



The largest Critical and Declining plan, the Central States plan, is shown as a solid blue line. It shows a relatively consistent pattern of increasing percentages of orphan participants, as additional employers leave the plan. The second largest Critical and Declining plan, the Bakery and Confectionery plan, is shown as a dashed black line. It shows a sharp spike in orphan participants in 2012, due to the departure of a major employer (the proximate cause of the plan's critical and declining status). Thereafter, reported percentages of orphans decline slightly as the orphan population matures more rapidly than does the remaining population covered by the plan.

¹⁴ PBGC Technical Update 2010-1 allowed plans to use various approximation techniques to estimate the number of participants for 2009 (the second year of reporting and the first under the new version and instructions for Schedule R), before moving to the reporting requirements which applied since 2010. 2008 data was reported solely as an unstructured attachment. Thus 2008 and 2009 data have been excluded from this historical comparison.

Orphan and Inactive Participants in Multiemployer Plans, 2015 Plan Year Reporting

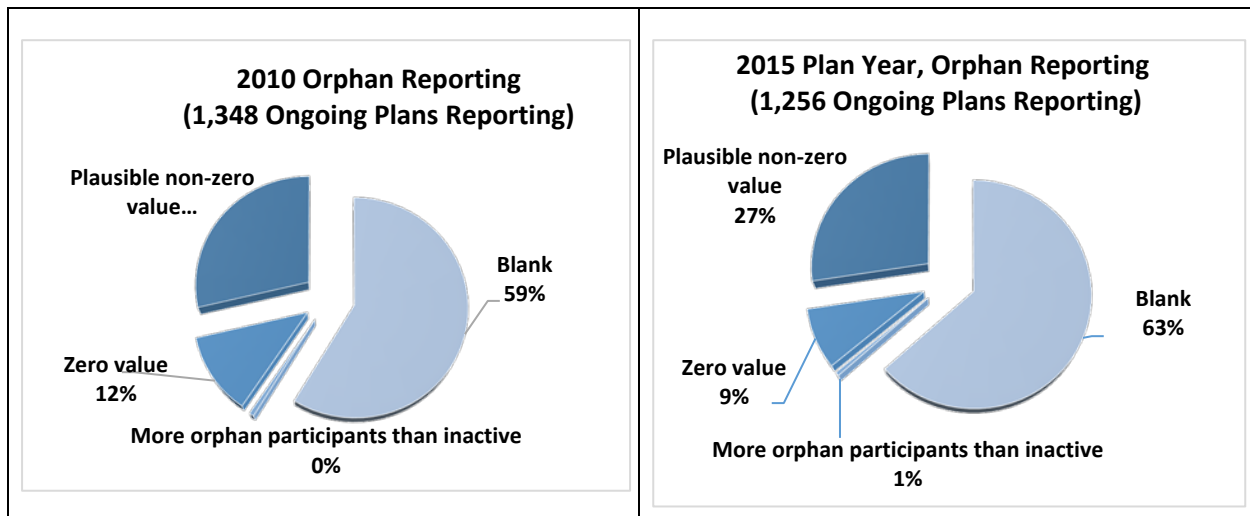
The third largest Critical and Declining plan, the UMWA plan, shows an anomalous pattern with a sharp decrease in the percentage of orphan participants in 2013. This is due to erroneous reporting for 2010-2012; as disclosed by the plan in an attachment to the 2013 Form 5500 filing, "...active participants and deferred vested participants were incorrectly included within the number..." [shown for line 14a in prior years]. For the years before the revision and after the revision to its reports the plan shows a reasonable pattern assuming the orphan population is more mature than the remaining population. However, the discontinuity in the pattern highlights an example where even a plausible non-zero report may still misstate the number of orphan participants.

Examining these three plans provides examples of how the populations are expected to change. Both the Central States and Bakery and Confectionery plans exhibit plausible values over time whereas the UMWA plan is an example of one type of reporting error.

Data Anomalies for All Reporting Plans over Time

We also examined whether the general reporting patterns were changing over time for all plans. The below chart compares the percentages of plans reporting various statuses as shown for the 2010 year and the 2015 year.

Figure 11 - Changes in Reporting by Ongoing Plans (2010 & 2015)



The percentage of plans reporting a plausible non-zero value for orphans declined from 2010 to 2015, and the percentage of plans reporting more orphan than inactive participants and leaving the orphan reporting question blank increased. This suggests the quality of reporting on orphan participants may be deteriorating.

Orphan and Inactive Participants in Multiemployer Plans, 2015 Plan Year Reporting

Industry

PBGC classified plans into industry¹⁵ groups to examine the concentration of orphans within industries. The results are shown below in Figure 12, which shows orphan and total participant counts, active counts, and number of plans, along with related metrics.

As noted earlier, the instructions for the Form 5500 identify orphans based on whether a participant most recently worked for an employer that formally withdrew from the plan. In the construction industry and in some plans in the entertainment and other industries, this may lead to fewer reported orphans, as the nature of employer activity that constitutes a withdrawal varies, under ERISA, from similar employer activity in a different industry.

For example, under ERISA, departures of employers from plans subject to the “construction industry rule” may not be treated as a withdrawal, so long as the employer merely finished a project and remains committed to rejoin the plan should other projects arise during a specified period. Special rules apply to some other industries as well.

¹⁵ Industry codes are reported on Form 5500. Codes are reviewed by PBGC staff and replaced where appropriate.

Orphan and Inactive Participants in Multiemployer Plans, 2015 Plan Year Reporting

Figure 12 - Orphan Participant Metrics in Ongoing Plans, by Industry (2015)

| Industry | Orphan Participants | | Total Participants | | | Active Plan Participants | | | All Plans | | |
|-----------------------------|---------------------|--|--------------------|----------------------------------|------------------------------------|--------------------------|---|---|-----------|---------------------------|---------------------------|
| | Number | As Percent of Total Reported Orphan Participants | Number | As Percent of Total Participants | Orphans As Percent of Participants | Number | Reported Orphans Per Active Participant | Participants Supported Per Active Participant | Number | As Percent of Total Plans | Reported Orphans Per Plan |
| AGRICULTURE | 11,979 | 0.8% | 19,355 | 0.2% | 62% | 1,210 | 9.9 | 16.0 | 6 | 0.5% | 1,997 |
| MINING | 45,570 | 2.9% | 108,899 | 1.1% | 42% | 9,585 | 4.8 | 11.4 | 5 | 0.4% | 9,114 |
| CONSTRUCTION | 221,875 | 13.9% | 3,756,065 | 36.5% | 6% | 1,495,080 | 0.1 | 2.5 | 742 | 59.4% | 299 |
| MANUFACTURING | 360,324 | 22.6% | 993,876 | 9.7% | 36% | 254,857 | 1.4 | 3.9 | 99 | 7.9% | 3,640 |
| TRADE | 144,059 | 9.0% | 1,517,458 | 14.8% | 9% | 575,822 | 0.3 | 2.6 | 80 | 6.4% | 1,801 |
| TRANSPORTATION & UTILITIES | 433,175 | 27.1% | 1,563,186 | 15.2% | 28% | 434,535 | 1.0 | 3.6 | 128 | 10.2% | 3,384 |
| INFORMATION | 3,838 | 0.2% | 234,981 | 2.3% | 2% | 113,229 | 0.0 | 2.1 | 25 | 2.0% | 154 |
| FINANCE, INS. & REAL ESTATE | 0 | 0.0% | 102,035 | 1.0% | 0% | 100,660 | 0.0 | 1.0 | 2 | 0.2% | 0 |
| OTHER SERVICES | 57,048 | 3.6% | 1,124,337 | 10.9% | 5% | 483,345 | 0.1 | 2.3 | 109 | 8.7% | 523 |
| LEISURE AND HOSPITALITY | 318,700 | 20.0% | 857,787 | 8.3% | 37% | 300,916 | 1.1 | 2.9 | 53 | 4.2% | 6,013 |
| ALL | 1,596,568 | 100.0% | 10,277,979 | 100.0% | 16% | 3,769,239 | 0.4 | 2.7 | 1,249 | 100.0% | 1,278 |

Source: Plan Year 2015 Form 5500 Filings. Excludes plans currently receiving Financial Assistance and terminated plans currently booked by PBGC; also excludes plans reporting more orphans than total inactive participants.

Orphan and Inactive Participants in Multiemployer Plans, 2015 Plan Year Reporting

Orphan Participants

Figure 12 provides several industry insights:

- Construction industry plans cover more than one-third of all participants (36.5 percent) but have relatively few reported orphans per active participant (0.1 versus an average of 0.4 for the entire multiemployer system).
 - While the low number of orphans per active participant may be influenced by the special construction rule limiting which former workers are reported as orphans, the ratio of participants to workers is also lower than for the system as a whole (2.5 participants per active participant vs. a system average of 2.7). Thus, the low number of orphans per active participant in construction plans is not entirely due to the impact of the construction industry rule – in part it reflects fewer plan participants per active worker.
- Over 25 percent of all reported orphans are in plans in the transportation industry, which covers only 15 percent of participants.
- Manufacturing and Leisure & Hospitality each have over 20 percent of the system’s orphans while covering less than 10 percent of participants.

Orphan vs. Total Plan Participants

The ratio of orphans to the total participant base within each industry provides other useful information.

Five industries (Agriculture, Mining, Manufacturing, Transportation/Utilities, Leisure/Hospitality) representing almost 3.5 million plan participants reported that more than one-quarter of their participants are no longer associated with a contributing employer.

Agriculture and Mining industries have the highest ratio of orphans to total participants – over 40 percent of the participants in these industries are reported as orphans.

Orphan vs. Active Plan Participants

Figure 12 shows both the number of orphans and the number of total participants “supported” by each active participant, since contributions are generally based on the active participants of contributing employers. We can easily calculate how many inactive participants each active participant needs to support by subtracting one from this value. Revisiting Figure 12 with this in mind we find that, in all but one industry, active participants are supporting at least one inactive participant with contributions from their employers.

Plans in the Agriculture and Mining industries have by far the highest numbers of orphans and total participants being supported by active participants. Active participants are supporting

Orphan and Inactive Participants in Multiemployer Plans, 2015 Plan Year Reporting

relatively few orphans in Construction and Trade industries, where there are 4 to 7 actives for each reported orphan participant.¹⁶

These metrics “per active participant” provide simple but critical insight into the implications of a high number of orphans in a plan. Orphans are a particular type of inactive participant. However, the larger systemic issue may be the legacy costs associated with plan maturation and an inability to replace active workers within plans.

Zone

PPA created a process for multiemployer plans to identify funding challenges and document a plan to address any funding shortfall. Based on this plan level analysis, the plan actuary certifies to the zone status of the plan.

The zone status is a function of the plan’s funded status, projected ability to comply with funding standards, and time until likely insolvency. As amended in 2014, PPA designates the most troubled plans as “Critical and Declining” (C&D). Plans can also be designated as “Critical” (Red) or “Endangered” (Yellow). A subset of the Endangered zone status, referred to as “Seriously Endangered” (Orange) is sometimes broken out as well. A plan that does not meet the criteria to be included in one of these zones is said to not have a risk status (Green zone). Definition of the zones are set forth in ERISA and the Internal Revenue Code.¹⁷ Zone status information is collected on Schedule MB; the zone status codes were most recently modified to add a code for critical and declining plans for 2015 and later plan years.

Figure 13 groups plans by both size and zone status and provides information on the prevalence of orphan participants within each class. The left side of the chart displays this information solely for plans that reported a plausible non-zero number of orphan participants; the right side of the chart adds in plans that reported blank or zero orphan participant counts. The zones are organized with the most troubled zone (Critical & Declining) at the top and moves through the zones in order towards the bottom of the chart, where Green zone plans are displayed.

Orphans represent a large share of total participants for Critical and Declining plans, particularly large Critical and Declining plans. As the zone status improves, the ratio of orphans to participants generally decreases (indicating that having a high proportion of orphans within the plan is a signal of, or potentially leads to, plan funding issues).

Comparing the left side of the chart with the right side shows the impact of the number of zero or blank orphan participant reports on the aggregate statistics. This impact is particularly significant

¹⁶ The “orphan” liability problem may be less significant in the construction industry because participants whose employers leave the plan are often re-hired by replacement employers who take over the work of the exiting employer and contribute to the plan. However, orphan liabilities may still arise during periods of recession, or if non-union competition enters the jurisdiction of the plan, which can lead to participants who no longer have employers contributing to the plan. And there have been several construction plans that have incurred mass withdrawals with subsequent insolvencies that currently receive financial assistance; these plans have generally had orphan liabilities.

¹⁷ See Internal Revenue Code § 432.

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when looking at small plans, which tend to report zero or blank orphan data more frequently than do medium or large plans.

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Figure 13 - Orphan Participant Metrics by Plan Size, Within Zone Status (2015)

| Zone Status | Plan Size (by Participant Count) | Plans Reporting Orphan Participants | | | | | All Plans (Including Blank & Zero Reporters) | | | |
|--|---|-------------------------------------|-----------------|------------------------------------|---|---------------------|--|------------------------------------|---|---------------------|
| | | Number of Plans | Orphan Count | Total Number of Participants | Orphans as a Percentage of Participants | Orphans per Plan | Number of Plans | Total Number of Participants | Orphans as a Percentage of Participants | Orphans per Plan |
| Critical & Declining | Small | 29 | 12,809 | 30,408 | 42% | 442 | 68 | 68,189 | 19% | 188 |
| | Mid-Size | 22 | 74,212 | 235,279 | 32% | 3,373 | 30 | 265,421 | 28% | 2,474 |
| | Large | 8 | 427,309 | 868,584 | 49% | 53,414 | 9 | 917,207 | 47% | 47,479 |
| | Subtotal | 59 | 514,330 | 1,134,271 | 45% | 8,717 | 107 | 1,250,817 | 41% | 4,807 |
| Critical | Small | 28 | 9,446 | 24,980 | 38% | 337 | 109 | 92,649 | 10% | 87 |
| | Mid-Size | 39 | 98,530 | 426,920 | 23% | 2,526 | 70 | 695,535 | 14% | 1,408 |
| | Large | 10 | 343,659 | 1,006,038 | 34% | 34,366 | 12 | 1,306,342 | 26% | 28,638 |
| | Subtotal | 77 | 451,635 | 1,457,938 | 31% | 5,865 | 191 | 2,094,526 | 22% | 2,365 |
| Seriously Endangered | Small | - | - | - | 0% | - | 2 | 1,167 | 0% | - |
| | Mid-Size | - | - | - | 0% | - | 3 | 23,606 | 0% | - |
| | Large | - | - | - | 0% | - | - | - | 0% | - |
| | Subtotal | - | - | - | 0% | - | 5 | 24,773 | 0% | - |
| Endangered | Small | 8 | 1,455 | 11,133 | 13% | 182 | 89 | 86,095 | 2% | 16 |
| | Mid-Size | 19 | 31,250 | 207,889 | 15% | 1,645 | 54 | 515,533 | 6% | 579 |
| | Large | 4 | 15,000 | 364,602 | 4% | 3,750 | 6 | 546,110 | 3% | 2,500 |
| | Subtotal | 31 | 47,705 | 583,624 | 8% | 1,539 | 149 | 1,147,738 | 4% | 320 |
| Neither Endangered nor Critical | Small | 83 | 35,105 | 102,990 | 34% | 423 | 520 | 514,924 | 7% | 68 |
| | Mid-Size | 81 | 94,823 | 710,088 | 13% | 1,171 | 255 | 2,080,557 | 5% | 372 |
| | Large | 14 | 452,970 | 2,674,491 | 17% | 32,355 | 22 | 3,164,644 | 14% | 20,590 |
| | Subtotal | 178 | 582,898 | 3,487,569 | 17% | 3,275 | 797 | 5,760,125 | 10% | 731 |
| Total | | 345 | 1,596,568 | 6,663,402 | 24% | 4,628 | 1,249 | 10,277,979 | 16% | 1,278 |

Source: Plan Year 2015 Form 5500 Filings. Excludes plans currently receiving Financial Assistance, terminated plans currently booked by PBGC and plans reporting more orphans than total inactive participants. Plans categorized by size using criteria for Figures 5 – 9. Data reflects correction to zone statuses.

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While the number of total orphan participants are similar between the C&D, Red and Green zones, the proportion of orphans to total participants is much higher in the C&D zone (41 percent) and the Red zone (22 percent) than for the Green zone plans (10 percent).

Further, plans in a C&D or Red zone appear more likely to have orphans than Green zone plans. 59 of 107 C&D plans (55 percent) and 77 of 191 Red zone plans (40 percent) report having orphans, compared to only about 22 percent (178 of 797) plans in the Green zone.

We tested these inferences statistically and found that these three groups (C&D, Red and Green zones) have a statistically significant difference in the proportion of the plan population that are orphans. We tested for significance using a grouped t-test to compare the ratios of orphan participants within a plan to total plan participants across zones. Figure 14 shows the resulting *p-values*. In this test, the *p-value* may be thought of as the probability that the observed ratio of orphans to participants is different by zone merely due to chance. Areas marked in blue with green italic font are statistically significant at the 5 percent level – in other words they have less than a 5 percent likelihood of occurring merely by chance.

Figure 14 - Likelihood that Orphan to Participant Ratio by Zone is due to Chance

| Plans Reporting Orphans, Testing Ratio of Orphans to Participants | | | | |
|---|----------------------|---------------|------------------|---------------------------------|
| P-Values | Critical & Declining | Critical | Endangered | Neither Endangered nor Critical |
| Critical & Declining | n/a | <i>0.0152</i> | <i><.0001</i> | <i><.0001</i> |
| Critical | <i>0.0152</i> | n/a | <i>0.0205</i> | 0.3052 |
| Endangered | <i><.0001</i> | <i>0.0205</i> | n/a | <i>0.0457</i> |
| Neither Endangered nor Critical | <i><.0001</i> | 0.3052 | <i>0.0457</i> | n/a |

Source: PBGC Calculations Based on Plan Year 2015 Form 5500 Filings

Reporting on Inactive Participants

Orphans are generally viewed as relating primarily to a plan's inactive population. The orphan data collected via Form 5500 reporting is explicitly limited to inactive participants. The analysis thus far indicates that a high concentration of orphans, at a minimum, signals the potential for funding issues. However, since orphans are a subset of inactive participants, expanding the analysis to include the inactive participant group may provide additional insights.

To remain sustainable, an ongoing multiemployer pension plan requires new active participants to replace those who retire or leave the plan. When a plan fails to maintain its active population,

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the legacy costs associated with inactive participants (those who are currently retired or separated participants with vested benefit promises from currently contributing employers, along with orphaned participants) can overwhelm the ability of the remaining contributing employers and their active participants to sufficiently fund the plan.

Participant Status and Plan Zone Status

Figure 15 is taken from the 2016 PBGC Data Tables and shows the participant status (active, in-pay [retired or a beneficiary] or separated entitled to future vested benefit) by zone for a 7-year period.

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Figure 15 - History of Participants by Plan Zone Status and Participant Status

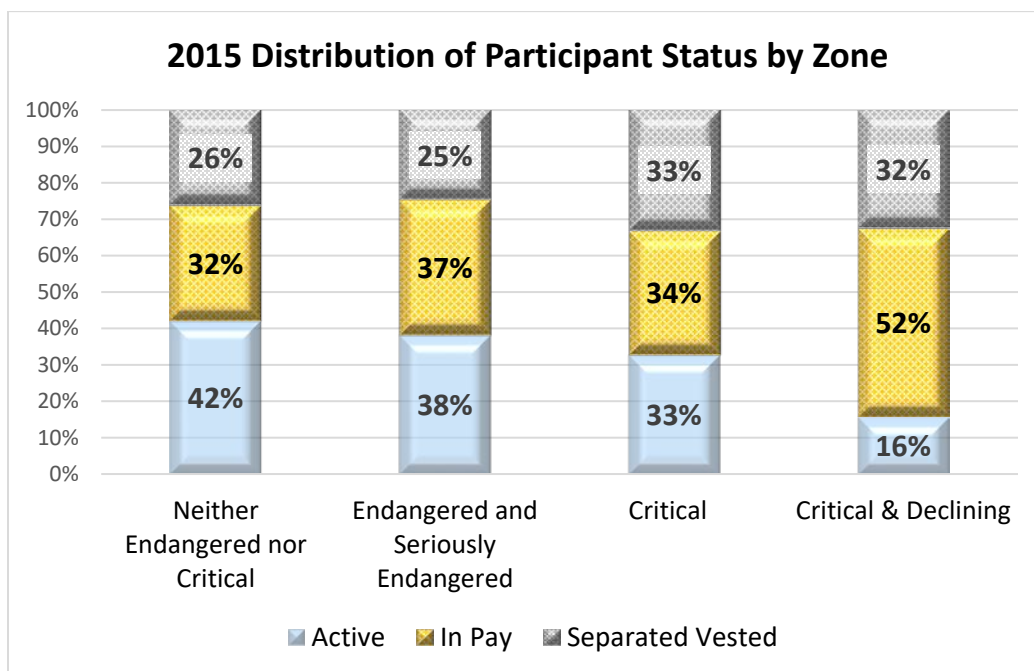
| Zone Status | Participant Type | Participants | | | | | | |
|---------------------------------|--------------------|--------------|------------|------------|------------|------------|------------|------------|
| | | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
| Critical & Declining | Active | n/a | n/a | n/a | n/a | n/a | n/a | 198,918 |
| | In Pay | n/a | n/a | n/a | n/a | n/a | n/a | 647,658 |
| | Separated Vested | n/a | n/a | n/a | n/a | n/a | n/a | 405,065 |
| | Total Participants | n/a | n/a | n/a | n/a | n/a | n/a | 1,251,641 |
| | Percent of System | | | | | | | 12.1% |
| Critical | Active | 1,517,745 | 1,340,071 | 1,086,423 | 1,024,780 | 1,010,536 | 929,960 | 692,675 |
| | In Pay | 1,273,112 | 1,363,805 | 1,260,081 | 1,316,254 | 1,335,741 | 1,389,368 | 715,693 |
| | Separated Vested | 1,110,833 | 1,225,245 | 1,127,983 | 1,106,196 | 1,111,141 | 1,110,573 | 696,337 |
| | Total Participants | 3,901,690 | 3,929,121 | 3,474,487 | 3,447,230 | 3,457,418 | 3,429,901 | 2,104,705 |
| | Percent of System | 37.9% | 38.6% | 34.3% | 34.3% | 34.4% | 33.9% | 20.4% |
| Seriously Endangered | Active | 530,380 | 94,604 | 40,040 | 39,360 | 18,927 | 1,994 | 9,987 |
| | In Pay | 563,156 | 178,804 | 126,012 | 125,890 | 105,646 | 2,243 | 10,776 |
| | Separated Vested | 376,535 | 61,484 | 31,723 | 27,406 | 13,523 | 1,149 | 4,010 |
| | Total Participants | 1,470,071 | 334,892 | 197,775 | 192,656 | 138,096 | 5,386 | 24,773 |
| | Percent of System | 14.3% | 3.3% | 2.0% | 1.9% | 1.4% | 0.1% | 0.2% |
| Endangered | Active | 854,376 | 623,495 | 494,565 | 540,262 | 518,314 | 463,100 | 441,553 |
| | In Pay | 553,512 | 436,028 | 417,803 | 468,800 | 500,775 | 420,049 | 427,162 |
| | Separated Vested | 383,906 | 283,399 | 267,747 | 291,814 | 304,329 | 275,406 | 285,406 |
| | Total Participants | 1,791,794 | 1,342,922 | 1,180,115 | 1,300,876 | 1,323,418 | 1,158,555 | 1,154,121 |
| | Percent of System | 17.4% | 13.2% | 11.6% | 12.9% | 13.1% | 11.4% | 11.2% |
| Neither Endangered nor Critical | Active | 1,435,342 | 1,972,096 | 2,230,143 | 2,153,044 | 2,168,706 | 2,295,794 | 2,435,851 |
| | In Pay | 932,355 | 1,416,462 | 1,661,784 | 1,569,166 | 1,597,576 | 1,757,024 | 1,825,552 |
| | Separated Vested | 757,053 | 1,174,192 | 1,390,276 | 1,391,463 | 1,379,723 | 1,482,209 | 1,507,286 |
| | Total Participants | 3,124,750 | 4,562,750 | 5,282,203 | 5,113,673 | 5,146,005 | 5,535,027 | 5,759,236 |
| | Percent of System | 30.4% | 44.9% | 52.1% | 50.9% | 51.1% | 54.6% | 55.9% |
| Total | Active | 4,337,843 | 4,030,266 | 3,851,171 | 3,757,446 | 3,716,483 | 3,690,848 | 3,778,984 |
| | In Pay | 3,322,135 | 3,395,099 | 3,465,680 | 3,480,110 | 3,539,738 | 3,568,684 | 3,626,841 |
| | Separated Vested | 2,628,327 | 2,744,320 | 2,817,729 | 2,816,879 | 2,808,716 | 2,869,337 | 2,898,104 |
| | Total Participants | 10,288,305 | 10,169,685 | 10,134,580 | 10,054,435 | 10,064,937 | 10,128,869 | 10,303,929 |
| | Percent of System | | | | | | | |

Source: Plan Year Form 5500 Filings. Based on PBGC 2016 Data Book, Table M-17. Excludes plans currently receiving Financial Assistance and terminated plans currently booked by PBGC. 2015 Data reflects correction to zone statuses.

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Figure 16 graphs the percentage of participants by type for the 2015 plan year from Figure 15 (combining the few Seriously Endangered zone status plans into the general Endangered zone status). Moving through the zones the proportion of inactive participants increases, particularly the proportion of participants in pay status. Green zone plans retain an average of 42 percent of the population as active workers, and just under one-third of the population is retired and in payment status. Moving to Critical & Declining status, the proportion of active workers decreases to 16 percent and the proportion of retirees to 52 percent. The more serious the funding issues, the higher, on average, the percentage of inactive participants, particularly of retirees in pay status.

Figure 16 - Average Percentage of Inactive Participants Grows as Plan Zone Status Worsens



Source: Plan Year 2015 Form 5500 Filings, Data reflects correction to zone statuses.

Figure 17 tests for statistically significant differences between zone statuses on the basis of the ratio of inactive to active participant counts. Plans in the Critical and Declining zone differ from plans in the Critical, Endangered and Green zone at the 5 percent level of significance (and at the 1 percent and lower levels as well).

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Figure 17 - Likelihood that Inactive to Active Participant Ratio by Zone is due to Chance

| All Plans, Ratio of Inactive to Active Participants | | | | |
|---|----------------------|----------|------------|---------------------------------|
| P-Values | Critical & Declining | Critical | Endangered | Neither Endangered nor Critical |
| Critical & Declining | n/a | 0.0004 | <.0001 | <.0001 |
| Critical | 0.0004 | n/a | 0.001 | 0.5255 |
| Endangered | <.0001 | 0.001 | n/a | 0.5337 |
| Neither Endangered nor Critical | <.0001 | 0.5255 | 0.5337 | n/a |

Source: PBGC Calculations Based on Plan Year 2015 Form 5500 Filings

Inactive to Active Participant Ratio

Based on the observation of statistically significant differences in the ratio of inactive to active participant by zone status, we created categories based on the inactive to active participant ratios and organized the data by zone. Figure 18 displays the plan, participant and orphan count by these categories.

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Figure 18 - Plan, Participant and Orphan Counts, by Inactive/Active Ratio and Zone (2015)

| Ratio of inactive to active participants within plans | | Overall Counts | Zone Status | | | | |
|---|---|----------------|---------------------------------|------------|----------------------|-----------|----------------------|
| | | | Neither Endangered nor Critical | Endangered | Seriously Endangered | Critical | Critical & Declining |
| Less than 1 | Plans | 185 | 160 | 20 | - | 5 | - |
| | Participants | 1,107,077 | 1,006,725 | 77,465 | - | 22,887 | - |
| | Inactive | 453,538 | 407,479 | 35,147 | - | 10,912 | - |
| | Orphans | 44,183 | 44,078 | 99 | - | 6 | - |
| 1 <= x < 2 | Plans | 577 | 411 | 75 | 4 | 80 | 7 |
| | Participants | 5,883,370 | 4,028,952 | 736,731 | 21,039 | 1,009,502 | 87,146 |
| | Inactive | 3,480,155 | 2,385,824 | 430,551 | 12,237 | 594,937 | 56,606 |
| | Orphans | 551,771 | 474,723 | 26,049 | - | 41,751 | 9,248 |
| 2 <= x < 5 | Plans | 354 | 183 | 48 | 1 | 86 | 36 |
| | Participants | 2,181,741 | 651,043 | 306,983 | 3,734 | 1,011,682 | 208,299 |
| | Inactive | 1,606,373 | 468,452 | 219,372 | 2,549 | 754,369 | 161,631 |
| | Orphans | 516,940 | 41,547 | 16,283 | - | 405,931 | 53,179 |
| 5 <= x < 10 | Plans | 61 | 20 | 2 | - | 11 | 28 |
| | Participants | 777,603 | 39,342 | 17,118 | - | 30,537 | 690,606 |
| | Inactive | 661,574 | 34,106 | 15,083 | - | 26,060 | 586,325 |
| | Orphans | 337,066 | 7,217 | 5,274 | - | 3,540 | 321,035 |
| 10 <= x < 25 | Plans | 43 | 13 | 4 | - | 6 | 20 |
| | Participants | 283,869 | 17,326 | 9,441 | - | 19,299 | 237,803 |
| | Inactive | 263,764 | 16,320 | 8,649 | - | 17,759 | 221,036 |
| | Orphans | 134,807 | 8,466 | - | - | 214 | 126,127 |
| 25 <= x | Plans | 29 | 10 | - | - | 3 | 16 |
| | Participants | 44,319 | 16,737 | - | - | 619 | 26,963 |
| | Inactive | 43,336 | 16,265 | - | - | 610 | 26,461 |
| | Orphans | 11,801 | 6,867 | - | - | 193 | 4,741 |
| Totals | Plans | 1,249 | 797 | 149 | 5 | 191 | 107 |
| | Participants | 10,277,979 | 5,760,125 | 1,147,738 | 24,773 | 2,094,526 | 1,250,817 |
| | Inactive | 6,508,740 | 3,328,446 | 708,802 | 14,786 | 1,404,647 | 1,052,059 |
| | Orphans | 1,596,568 | 582,898 | 47,705 | - | 451,635 | 514,330 |
| | Orphans as a % of Inactive Participants | 25% | 18% | 7% | 0% | 32% | 49% |

Source: Plan Year 2015 Form 5500 Filings. Data reflects correction to zone status. Excludes plans reporting more orphans than total inactive participants and plans currently receiving Financial Assistance and terminated plans currently booked by PBGC.

The analysis shows that:

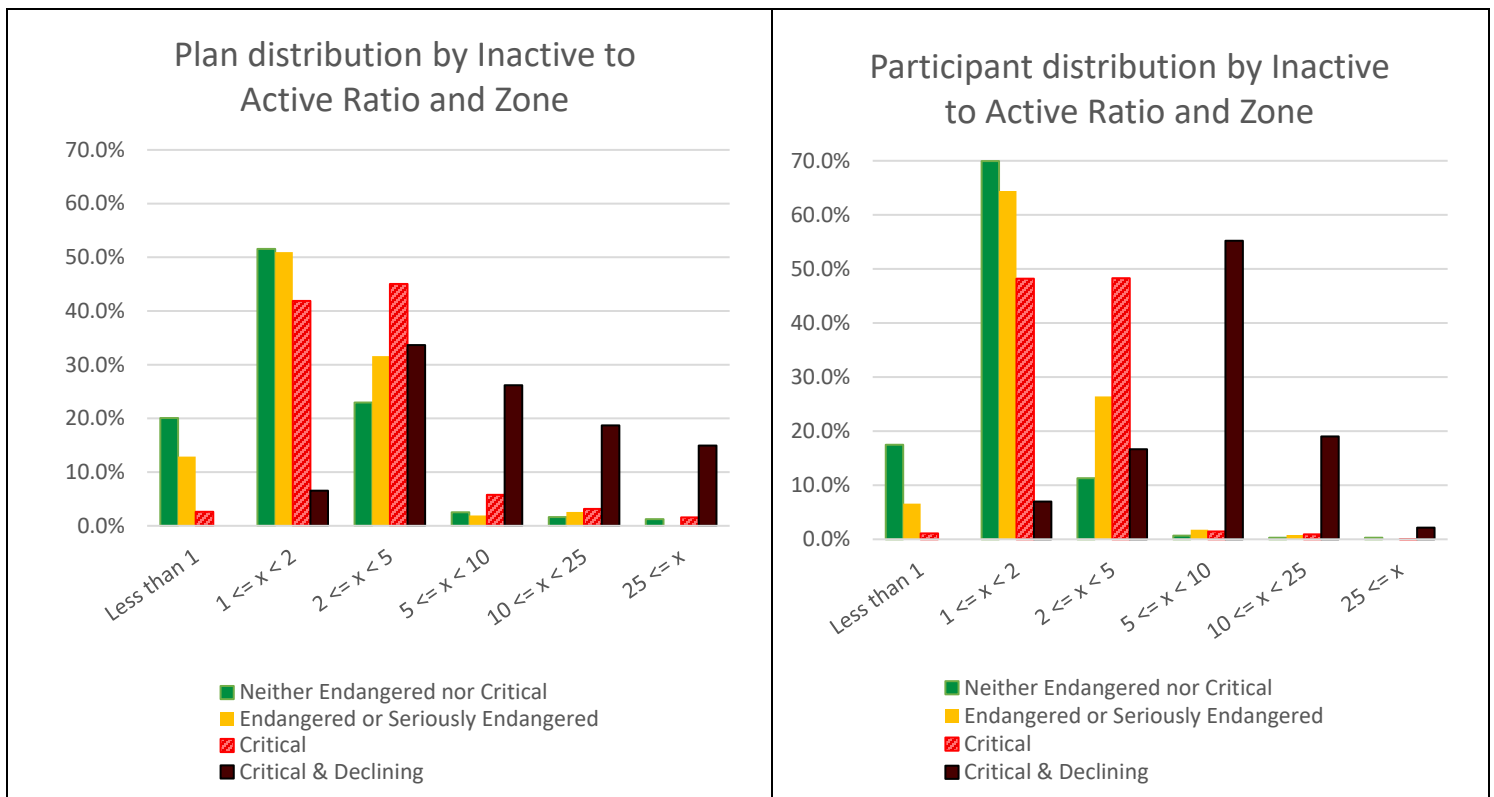
- Green zone plans predominate in the classes of plans with lower ratios of inactive to active participants.
 - 160 green zone plans have fewer inactive participants than active participants and 411 plans have an inactive to active ratio of between 1 and 2. In combination these 571 plans represent 72 percent of the 797 green zone plans.

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- Similarly, green zone plans with an inactive to active participant ratio of less than 2 cover 87 percent of the 5.8 million green zone plan participants.
- Plans in more troubled zone statuses tend to have higher ratios of inactive to active participants.
 - Critical status plans are primarily clustered in plans that have an inactive to active participant ratio of between 1 and 5.
 - Critical & Declining status plans tend to have higher ratios of inactive to active participants than any other group.
- Over 30 percent of Critical Status inactive participants are orphans.
 - This increases to 49 percent of Critical and Declining zone inactive participants.
 - But only 18 percent of green zone inactive participants are orphan participants.

Figure 19 shows the distribution of the Inactive/Active ratio for Green, Red and C&D zones, across the ratio groups.

Figure 19 - Plan and Participant Distributions, by Inactive/Active Ratio and Zone (2015)



Source: Plan Year 2015 Form 5500 Filings. Data reflects correction to zone statuses. Excludes plans reporting more orphans than total inactive participants. Excludes plans currently receiving Financial Assistance and terminated plans currently booked by PBGC.

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The left pane of Figure 19 shows, for each zone status, the percentage of plans in that zone with inactive to active participant ratios of less than 1, 1 to 2, 2 to 5, 5 to 10, 10 to 25, and more than 25 inactive participants per active participant.

For example, looking at Critical status plans, the left pane graph shows less than 5 percent of these plans have an inactive to active participant ratio less than 1, but that over 40 percent of critical status plans have inactive to active participant ratio between 1 and 2. In addition, over 40 percent of Critical status plans have an inactive to active participant ratio between 2 and 5. The tendency of troubled zone status plans to have higher inactive to active participant ratios is seen in the shapes of the distributions.

The right pane of Figure 19 similarly shows the distribution of participants in plans with a particular zone by inactive to active participant ratio. Thus, for example, over 50 percent of participants in Critical and Declining zone plans are in plans that have an inactive to active participant ratio of between 5 and 10.

As shown in this chart, Critical and Declining plan participants, and to some extent Critical plan participants, tend to be in plans more burdened by legacy costs, regardless of delineation between being a traditional inactive participant vs. an orphaned participant.

Conclusions

Overall, multiemployer plans are seriously underfunded, with about 130 projected to become insolvent within the next 15-20 years.¹⁸ In summary, the analysis in this report indicates:

- 1.6 million (16 percent of) participants in ongoing multiemployer plans were identified by plan administrators as orphan participants in 2015. Due to reporting weaknesses, this should be considered an approximate measurement and as the lower end of the number of orphan participants in these plans. As demonstrated above, an estimated upper bound is 2.5 million participants (24 percent).
- The concentration of orphan participants in plans varies by industry, with five industries (Agriculture, Mining, Manufacturing, Transportation/Utilities, and Leisure/Hospitality) reporting that 25 percent or more of participants are orphans.
- The orphan participant burden is significantly higher, when measured as the ratio of the number of orphans to the number of active participants, for plans in Agriculture and Mining (with ratios of 9.9 and 4.8, respectively).
- Construction industry plans report relatively few orphan participants in the Form 5500 data. This may, in part, reflect industry dynamics, with less orphans than in most other industries. However, it is also partially due to the special rules defining a “withdrawal” in such plans, which may make the determination of orphan participants more difficult.

¹⁸ https://www.pbgc.gov/sites/default/files/pbgc_testimony-joint_select_committee_on_solvency_of_multiemployer_plans-5.17.2018.pdf

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- Plans reporting a zone status of Critical or Critical & Declining have a much higher concentration of orphans than plans in the Green zone.
- Plans with a higher ratio of inactive to active participants report being in Critical or Critical & Declining zone status with a higher frequency than other plans in the system.
- Reporting weaknesses with respect to orphan data are significant and appear to have increased somewhat over time. Small and medium size plans contain all instances of reports of more orphans than inactive participants and the frequency of blank and zero reports decreases with plan size. But plans of all sizes failed to report orphans following recent withdrawals. Even where otherwise plausible data is reported, trend analysis and interviews with experts indicate that the data must be viewed with some degree of skepticism. Improved data could drive more informed decisions on policy development affecting orphan participants.
- The data shows that the worse the zone status, the higher the concentration of orphans and the higher the ratio of inactive to active participants. Both orphaned participants and inactive participants are concentrated in plans experiencing financial distress.