Predicting Financial Account Delinquencies with Utility and Telecom Payment Data

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PERC
RESULTS AND SOLUTIONS

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Abstract

Using actual consumer credit file data, utility and telecom payment histories, and performance outcomes between July 2009 and June 2010 on credit accounts, this paper examines whether utility and telecom payments (non-financial data) are predictive of either future delinquencies on traditional credit accounts (bank card or mortgages) or of having future derogatory public records. The non-financial data was found predictive in all three outcomes examined when no other 'traditional' credit information was used, strongly suggesting that alternative data would be useful to lenders in underwriting the so-called 'no-file' or 'no-score' consumer who have little or no payment/credit information available. This alone could have enormous implications given that at least 1-in-5 Americans are likely unscoreable by traditional credit scores. The data was also found predictive (added value) after accounting for traditional credit file data as summarized in the VantageScore credit score. This strongly suggests that alternative data could aid in underwriting beyond the 'no-file' or 'no-score' segments. This also indicates that non-financial data contains important information not found in traditional credit data. This may be due to a polarization or prioritizing of bill payment among consumers under financial stress. Some consumers may initially fall behind on only non-financial accounts. Since lenders (and credit scores) do not typically monitor these accounts, this stress would not be observed. Non-financial data was also found to be predictive of future delinquencies on mortgage accounts, including previously well performing mortgage accounts, controlling for credit scores. This suggests a role for non-financial data in risk assessment beyond originating small loans to originating larger loans as well as account maintenance.

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Key Findings

This paper reexamines 2009 and 2010 data from PERC's 2012 study *A New Pathway to Financial Inclusion to explore* whether utility and telecom payment histories (non-financial data) are predictive of future delinquencies on traditional financial credit accounts (bank cards or mortgages) or of having future derogatory public records. This work uses traditional credit file data from millions of consumers (including credit outcomes) and utility and telecom payment histories. The predictive potential of non-financial data is examined in two ways, first without using other information and then in conjunction with all of the traditional data in consumer credit files as summarized by the VantageScore credit score. The *Key Findings* follow.

- **Utility/Telecom Payment History Predictive of Future Credit Delinquencies:** Among active bank card holders the overall rate of delinquency on bank cards was 11.3% between July 2009 and June 2010. For consumers with a severe delinquency on a utility or telecom account in the year prior to July 2009 the rate was 47.7%. For consumers with no past delinquency reported for utility or telecom accounts that were older than 24 months, this rate is just 4.5%.
- **After Controlling for Traditional Data Credit Scores, Utility/Telecom Data Still Predictive:** Active bank card customers with VantageScore credit scores in the 800-899 range had a bank card delinquency rate of 2.7% if they had no prior utility/telecom delinquencies reported and a rate of 11.4% if they did have one.
- **Seeing Only Credit Accounts Misses the Whole Picture:** For the subset of consumers with active bank cards in 2009, 10% had a 90+ Days Past Due (DPD) delinquency in the past year on an account (financial or non-financial). These consumers had much higher bankcard delinquency rates the following year regardless of whether the 90+ DPD was on a financial or non-financial account. Of this high-risk group, 25% had only utility/telecom 90+ DPDs that would not be identified by only looking at credit accounts.
- **Utility/Telecom Data Predictive of Outcomes of Previously Well Performing Loans:** Among consumers with a mortgage and no mortgage delinquencies in the two years prior to July 2009, those with no past utility/telecom delinquencies had a mortgage delinquency rate of 4.9% while those with a serious utility/telecom delinquency in the past year had a mortgage delinquency rate of 22.3%.
- **Not Fully Reporting Utility/Telecom Payments is Unfair to Those Who Pay On Time:** Utility and telecom customers who pay on time appear to have lower scores than they would if those payments were reported to the main consumer credit databases of the nationwide consumer reporting agencies (CRAs). These on-time customers are penalized by the status quo in which non-financial payment histories are not fully reported to CRAs. Conversely, utility and telecom customers who pay very late are higher risk than their traditional data based credit scores indicate.

- **Utility/Telecom Data Found Predictive During Financial/Mortgage Crisis:** The period examined in this study for credit/financial outcomes was from July 2009 to June 2010 and a payment history prior to July 2009. These results speak well to the predictive potential of non-financial data in times of financial crisis, when risk assessment is particularly crucial.
- **Use of Utility/Telecom Data Can Expand Safe Lending:** By segmenting consumers by utility/telecom payment histories or using this data in credit scores we found that lending could safely expand over five percent. Many consumers with no credit data, who as a group might be viewed as too high risk, could be safely extended credit if their utility/telecom payment histories were considered.

Taking the results for bank card delinquencies, derogatory public records, and mortgage delinquencies together it appears that non-financial or transactional payment data *should* be useful for predicting financial account outcomes for those that are thin file, no-file or no-score. This will depend on how well results based on bank card holders, for example, can be extrapolated to those with no accounts. The results also show that for scoreable consumers, such as consumers with active bank cards or mortgages, the addition of past utility and telecom performance information to the consumer credit scores aids risk assessment. An illustration that utility / telecom payment data contains information not fully captured with traditional credit data is that of consumers with active bank cards in 2009, one-quarter of those with a 90+ DPD in the previous year only had such a severe delinquency on their utility / telecom accounts (typically not seen by lenders). These consumers, as with consumers with severe delinquencies in credit accounts, were much higher risk in terms of likelihood of having future bank card delinquencies.

The results also show potential value in not only small niche credit products aimed at the no-file/no-score population but across many traditional credit silos. Beyond loan origination, the finding that alternative data is predictive of mortgage delinquency and delinquency in otherwise well performing mortgages also suggests value for that data in account maintenance, risk management, and 'early warning' purposes more broadly.

Introduction

Should lenders consider whether loan applicants pay their utility, mobile phone and other non-financial obligations on time? How useful is this information in assessing whether someone will pay off a loan as agreed? Presumably, a lender would be more willing to extend credit (and in larger amounts) to an applicant who has regularly paid her bills on time versus an applicant who has recently and repeatedly been very delinquent. Regulators, lenders and consumers should be interested in any information that can improve financial access and enable responsible lending, that is, making affordable credit available to those who have the capacity to manage it and preventing loans from being extended to those who cannot afford it.

The use of utility and telecom bill payment histories in lending is not unprecedented. For example, Fannie Mae has long accepted utility and telecom payment histories, especially when traditional credit account payment histories are unavailable, so long as an independent third party, such as a CRA, has verified the payment history.[1] Currently, a few million consumers have their utility or telecom payment histories fully reported to credit bureaus, and for many this information is factored into their credit scores. But these few million represent only a small fraction of consumer credit files.

PERC examined the extent to which adding fully reported utility and telecom accounts to credit reports (and credit scores) could improve the ability to predict the likelihood of future severe delinquencies. Two separate studies—one using 2005/2006 data and another using 2009/2010 data, i.e., pre- and post-financial crisis—showed that utility and telecom payment information can improve access to finance while reducing the extension of loans to those who cannot afford credit, as measured by future delinquencies. That is, utility and telecom payment histories could be used to help predict the likelihood that a consumer would have a future severe delinquency, in general.

This work was not motivated by a desire to *simply* increase the data available for lenders to make their decisions, but rather by the fact that tens of millions of Americans have no credit reports or traditional credit scores or have lower credit scores than they should owing to a lack accounts in their credit files. Specifically, a March 2015 PERC report summed up the research to date from PERC, Brookings, and various industry actors finding that between 1 in 4 adult Americans to 1 in 5 adult Americans (depending on definitions used) were unscoreable by traditional credit scores.[2] Following this report, the CFPB released a study using new analysis finding an estimated 1 in 5 adult Americans (45 million) were unscoreable by traditional credit scores.[3] Both reports also showed that the unscoreable rates are much higher among lower-income households and members of ethnic minority groups.

CFPB Director Richard Cordray in discussing the implications of the new CFPB report noted, "So when consumers do not have a credit report, or have too little information to have a credit score, the impact on their lives can be profound. It can preclude them from accessing credit and taking advantage of certain opportunities. And given that

1. For instance, for consumers with no credit history Fannie Mae requires "a minimum of three sources of nontraditional credit that have been active for at least 12 months" and that at least "one of the sources must be a utility company..." See https://www.fanniemae.com/content/guide/sel022415.pdf
2. Turner, Michael, et al. "Research Consensus Confirms Benefits of Alternative Data." PERC. March 2015. Available at http://www.perc.net/wp-content/uploads/2015/03/ResearchConsensus.pdf
3. Kenneth P. Brevoort, Philipp Grimm, and Michelle Kambara. "Data Point: Credit Invisibles." CFPB. May 2015. Available at: http://files.consumerfinance.gov/f/201505_cfpb_data-point-credit-invisibles.pdf

we found that consumers in low-income neighborhoods are more likely to be credit invisible or unscored, this may be limiting opportunities for some of the most economically vulnerable consumers. Our report found that of the consumers that live in low-income neighborhoods, almost 30 percent are credit invisible and an additional 15 percent have records that are unscored."[4]

The March 2015 PERC report also includes evidence to date demonstrating that alternative data is predictive of credit outcomes and that a large share (if not most) of the unscoreable consumers could have alternative data reported to the nationwide CRAs to create or build their credit files. For instance, the Equifax managed NCTUE database alone is reported to contain utility and telecom payment histories of 25 million consumers that are not in Equifax's traditional credit file database.

Despite the growing evidence of alternative data's potential, some observers and skeptics have wondered whether there is a relationship or insisted that there is no relationship between paying a phone or utility bill and credit risk.[5] We do agree that for particular loan products the specific degree of credit risk associated with non-financial past delinquencies needs to be determined by lenders as more utility and telecom payment data enters credit files. However, as a general matter, the evidence to date shows that non-financial bill payment behavior is associated with credit risk.[6]

The purpose of this study is to more narrowly focus on the relationship between past payment behavior on non-financial accounts (specifically utility and telecom accounts) and future payment behavior on specific types of credit accounts (or financial behavior). This analysis reexamines the 2009/2010 data from PERC's 2012 study *A New Pathway to Financial Inclusion*.[7] The results of this analysis, we hope, will leave little doubt that a person's non-financial payment history can be useful in expanding access to finance while reducing delinquencies and over-indebtedness. Importantly, if the reporting of non-financial payment histories became pervasive, consumers would no longer need to obtain credit simply to build their credit profile (getting into debt to build credit). They could do so with their everyday bills. This would help break the credit catch-22 that has kept millions credit invisible.

Data and Methodology

This study reexamines the data used for the 2012 PERC report *A New Pathway to Financial Inclusion* with a focus on the relationship between bill payment behavior on non-financial (utility and telecom) accounts and future delinquencies on financial accounts.[8] That 2012 report utilized credit scores and credit file data from two CRAs (Trans Union and Experian) and socio-economic data from Acxiom (such as household income, race/ethnicity, and age). This report uses a subset of that data. It uses data from only one of the CRAs that happened to provide data in such a way that it was possible distinguish between past utility/telecom delinquencies and past financial delinquencies. This sample consists of data fields on a little over 4 million credit files. It contains measures of delinquencies for specific financial accounts during a year-long observation period (July 2009-June 2010), as well as information on utility and telecom payment histories prior to July 2009. The only available measures of financial account delinquencies are for 30+ days past due (DPD) delinquencies, hence we cannot examine more

4. Richard Cordray. "Prepared Remarks of CFPB Director Richard Cordray on the Credit Reporting Press Call," CFPB. May 5, 2015. Available at: http://www.consumerfinance.gov/newsroom/prepared-remarks-of-cfpb-director-richard-cordray-on-the-credit-reporting-press-call/
5. As an example see O'Dowd, Peter. *Don't have a credit history? Utility bills could soon help.* Marketplace. November 12, 2013. Available at: http://www.marketplace.org/topics/life/dont-have-credit-history-utility-bills-could-soon-help
6. See Turner, Michael, et al. "Research Consensus Confirms Benefits of Alternative Data." PERC. March 2015. Available at http://www.perc.net/wp-content/uploads/2015/03/ResearchConsensus.pdf
7. Turner, Michael, et al. A New Pathway to Financial Inclusion. PERC. June 2012. Available at: http://www.perc.net/publications/new-pathway-financial-inclusion/
8. Turner, Michael, et al. *A New Pathway to Financial Inclusion.* PERC. June 2012. Available at: http://www.perc.net/publications/new-pathway-financial-inclusion/

severe 60+, 90+ or 120+ DPD delinquencies over the observation period. While it is certainly the case that the CRAs capture and report on these more severe delinquencies, the data requests for the 2012 report did not anticipate the need for analysis on specific credit silos and so did not request these 90+ DPD measures for the specific financial products.

The types of financial accounts available for closer examination in this analysis are credit cards issued by banks (a.k.a. bank cards) and mortgage accounts. In addition, we examine the incidence of derogatory public records (which includes bankruptcies).

For comparisons of bank card delinquencies, we use the subset of consumers that have one or more active bank cards. Similarly, for comparisons of mortgage delinquencies, we restrict ourselves to those consumers with one or more active mortgages. But since any consumer (whether or not they have an active credit account) can have a derogatory public record, no special subsets need be used. The down side of looking at only consumers with an active bank card or mortgage is that most of the thin-file/no-file consumers will be excluded. But this restriction is unavoidable. After all, to see how a consumer performs on a bank card account, they need to have an active bank card account. From that fact we would then assume that a no-file (no-account) consumer would act in a similar way *if* they had a bank card account. A prudent lender would want to test this further.

The analysis performed is very basic, such as dividing groups of consumers by whether they have had a 90+ DPD on a utility or telecom account in the 12 months prior to July 2009. This produces results that can be interpreted as how groups of consumers would perform on accounts given only basic information about their recent payment behavior on an alternative account. This analysis is useful in determining how alternative data might be used in lending to those with no credit history. Presumably, more sophisticated credit scoring models would be built if these data were pervasively reported. Second, we segment outcomes further by the consumers' July 2009 VantageScore credit score. The credit score used in much of the analysis does not factor in any alternative data. So this analysis tells us, with a credit score solely based on traditional data, whether the addition of alternative data provides any additional benefits.

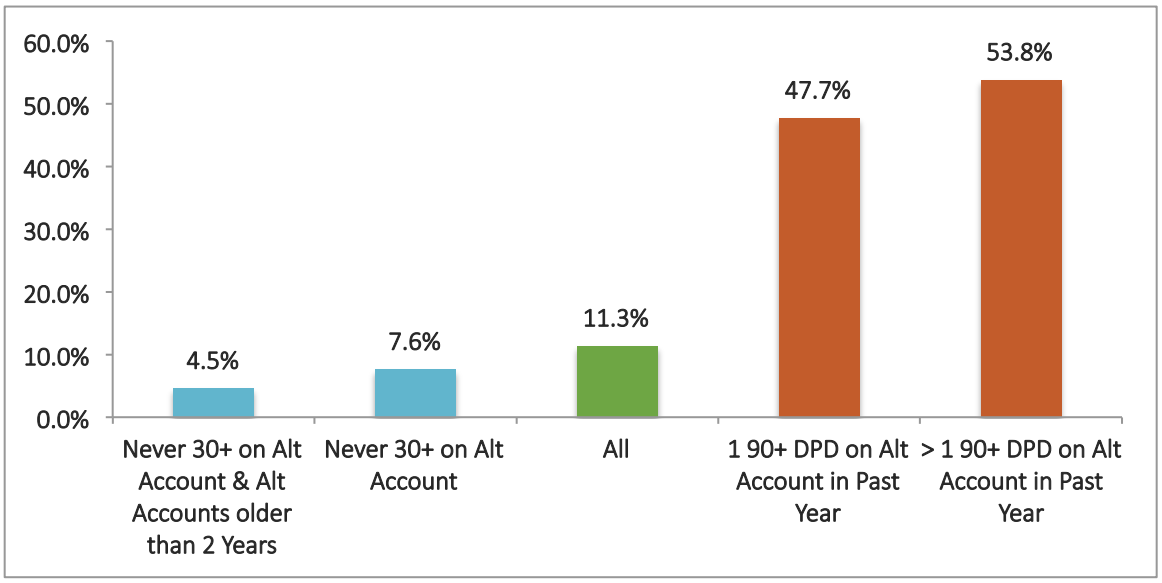
The results that follow are broken out by the three types of accounts/derogatories mentioned above: bank card, mortgage, and derogatory public records.

Results

Bank Cards

Figure 1 below shows the rate of any reported delinquencies (30+ DPD) on bank card accounts between July 2009 and June 2010 for borrowers segmented by their non-financial (or alternative) payment histories. The population examined here are consumers with at least one active bank card. The overall rate of delinquency on bank cards is 11.3% for this population ("All"). The bars to the right of "All" show that the delinquency rates are around 50% for those with one or more 90+ DPD on a utility or telecom account in the 12 months prior to July 2009. On the other hand, for consumers with no past delinquency reported for a utility or telecom, the delinquency rate is 7.6%. It is 4.5% for those with utility or telecom accounts that are at least 24 months old and also with no past delinquencies ever reported.

Figure 1: 30+ DPD Delinquency Rate on Bank Cards (July 2009- July 2010)*



*Only includes those with an active bank card in July 2009

By very basic segmentation by the past performance of utility/telecom accounts, we see that the riskiest segment is over 11 times as likely to have a delinquency as the least risky segment. To the extent that those with no traditional credit file data also exhibit the risk profiles shown above, the use of utility and telecom payment data in underwriting the no-file/no-score segment would appear valuable.

Figure 2a takes the Never 30+ DPD and 1 90+ DPD segments shown in Table 1 and further segments by the consumers' July 2009 VantageScore credit score tiers with no utility and telecom data. Note that since this population contains only consumers with an active bank card there are virtually no unscoreable consumers.

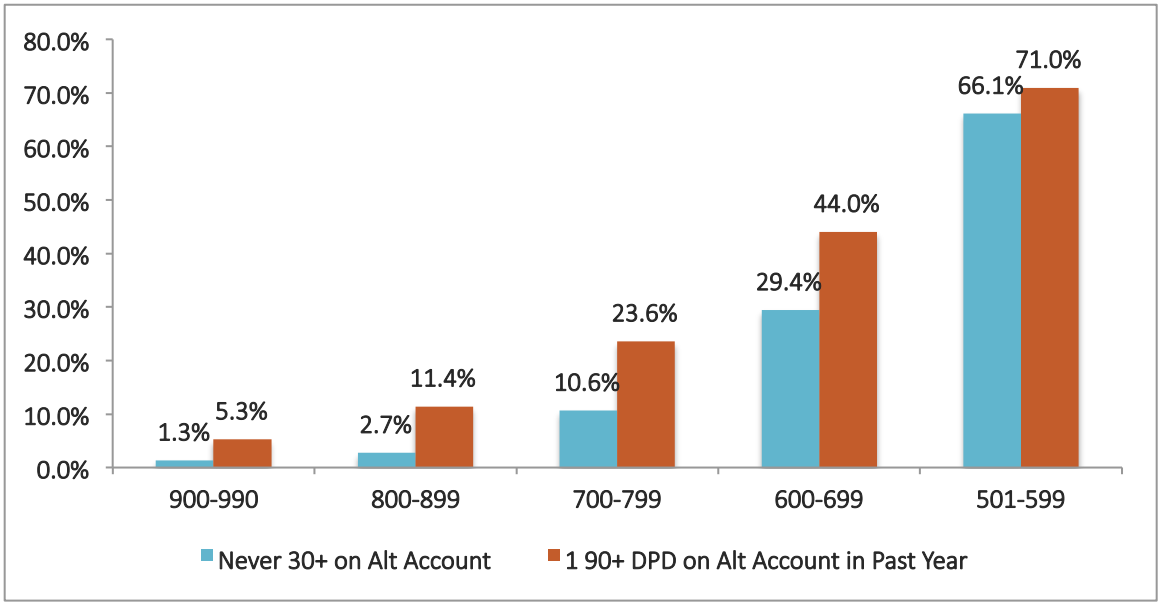
What Figure 2a shows is that even if a lender used information from traditional credit sources as embedded in the VantageScore, the addition of utility and telecom data still adds considerable value. For example, if a lender uses a general cutoff of 700, it would be better off (lower default rates and or higher accept rates) having a lower cutoff for those with a pristine utility/telecom payment history and a higher cutoff for those with a recent major derogatory on a utility or telecom account.

Figure 2b shifts to finer, 20pt-credit score bands to demonstrate more clearly the different risk levels of the consumer groups examined. As can be seen, in the middle portion of the distribution (in the middle 700s) the difference between the never late group and recently very late group is the equivalent of over 60 points. So, for the vast majority of consumers for which utility and telecom payments are not fully reported to the nationwide CRAs, consumers with no past utility/telecom delinquencies have lower scores and those with recent, severe delinquencies have higher credit scores than they would if the alt data was fully reported (at least in terms of bank card delinquencies).

To illustrate how acceptance rates could be impacted by the use of alternative data we take the VantageScore credit score cutoffs (one with alternative data and one without) associated with a 7% total portfolio delinquency rates for those consumers with bank cards and apply them to the entire VantageScore distributions. We find that acceptance can increase by 5.7% with the additional of alternative data. This results from (1) a better risk assessment of those with scores and (2) the scoring of those previously unscoreable consumers. It should be noted that these are likely lower bounds on the potential impact of alternative data since scores such as the VantageScore that do consider alternative data are not as optimized for it as they would be if that data was pervasively reported.

However, again looking at figure 2, one could ask: why in the *active* bank card population with consumers that have credit files and active accounts would non-credit accounts add value in credit risk assessment?

Figure 2a: 30+ DPD Delinquency Rate on Bank Cards (July 2009- July 2010) by VantageScore Tiers*



*Only includes those with an active bank card in July 2009, the VantageScore only contains traditional account data and no utility/telecom account data

Figure 2b: 30+ DPD Delinquency Rate on Bank Cards (July 2009- July 2010) by VantageScore Tiers*

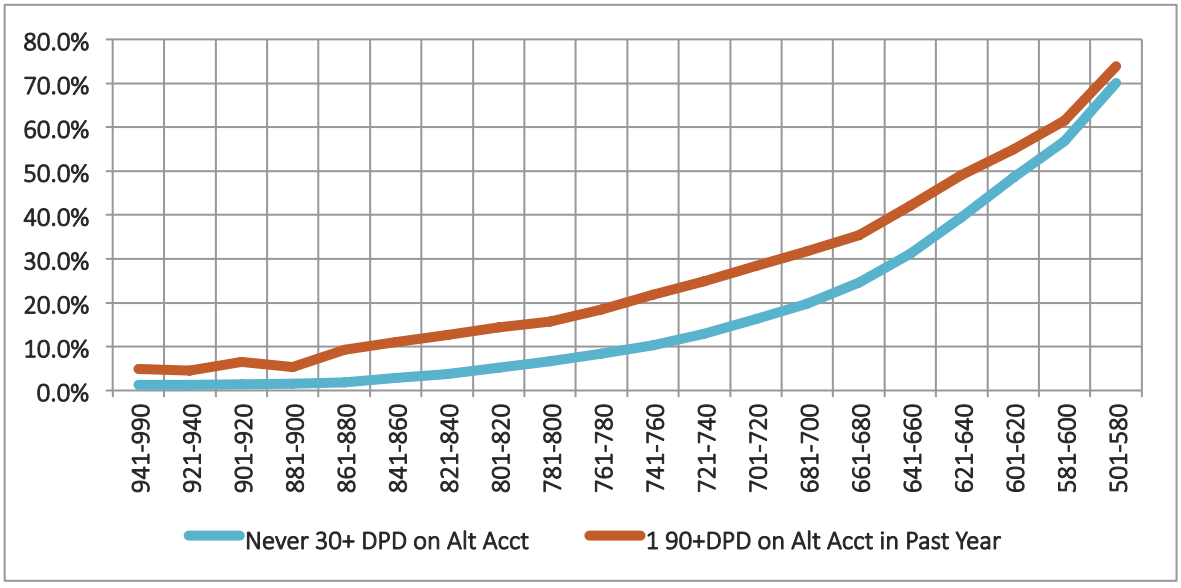


Table 1 reveals that of the approximately 10% of the sample of active bank card consumers who had 90+ DPD in the previous year, about a quarter had such occurrences *only* on a non-financial account.

As Table 2 next shows, regardless of whether a consumer had a 90+ DPD in the previous year on a financial or non-financial account, they were of much higher risk of becoming delinquent on a bank card in the following year.

This shows that those consumers that were only severely late on their non-financial accounts are high risk for future financial credit delinquencies.

This may be due to consumers who are under financial stress (or beginning to come under financial stress) prioritizing some obligations over others. Thus the financial stress shows itself (perhaps initially) on either financial *or* non-financial accounts. Only about 20% of consumers were severely delinquent on *both* financial *and* non-financial accounts.

This notion of consumers prioritizing some payments (such as non-financial over financial accounts or vice versa) was previously discussed in an Experian white paper using 2005 data.[9] That paper identified a bill payment polarization behavior in which consumers would become delinquent in some bills but typically not all. And sometimes these bills would be financial and sometimes they would be non-financial.

This fact should be troubling to lenders since while lenders receive consumer payment information on financial accounts from CRAs, they typically do not on non-financial accounts. This may present a blind spot on a segment of high-risk consumers, especially if there are no other indicators of financial stress (such as collection accounts of public records).

Table 1: Shares of Active Bank Card Sample with / without Previous 90+ DPDs

		Financial Account 90+ DPD in Previous 12 Months	
		No	Yes
Non-Financial Account 90+ DPD in Previous 12 Months	No	90.2%	5.4%
	Yes	2.5%	1.9%

Table 2: Bank Card Delinquency Rates with / without Previous 90+ DPDs

		Financial Account 90+ DPD in Previous 12 Months	
		No	Yes
Non-Financial Account 90+ DPD in Previous 12 Months	No	7.4%	47.5%
	Yes	36.4%	63.5%

9. Experian, "Consumer Payment Behavior Toward Telecommunications, Energy, and Cable Credit Grantors," available at http://www.experian.com/whitepapers/tec_wp.pdf

Derogatory Public Records

Utility and telecom payment histories are also useful in predicting the likelihood of future derogatory public records (including bankruptcies, liens, and judgments), that is, some form of default. Figure 3 shows the correlation between past payment performance on non-financial obligations and rates of future public record derogatories.

From figure 3 we see that the overall rate of consumers having one or more new derogatory public records between July 2009 and June 2010 is 3%. As with bank card delinquencies shown earlier, the rate of new derogatory public records is much higher for those consumers that had a previous and recent 90+ DPD compared to those consumers that never had a late payment reported on a utility or telecom account. In fact, those who had multiple 90+ DPD reported on utility or telecom accounts were 10 times as likely to have a derogatory public record placed on their credit report in the observation period than consumers who were never reported late on their utility or telecom account. Again, this suggests that without any other information, past payment performance on utility/telecom accounts can be potentially valuable for lenders.

Figure 3: Rate of New Derogatory Public Record(s) (July 2009-July 2010)

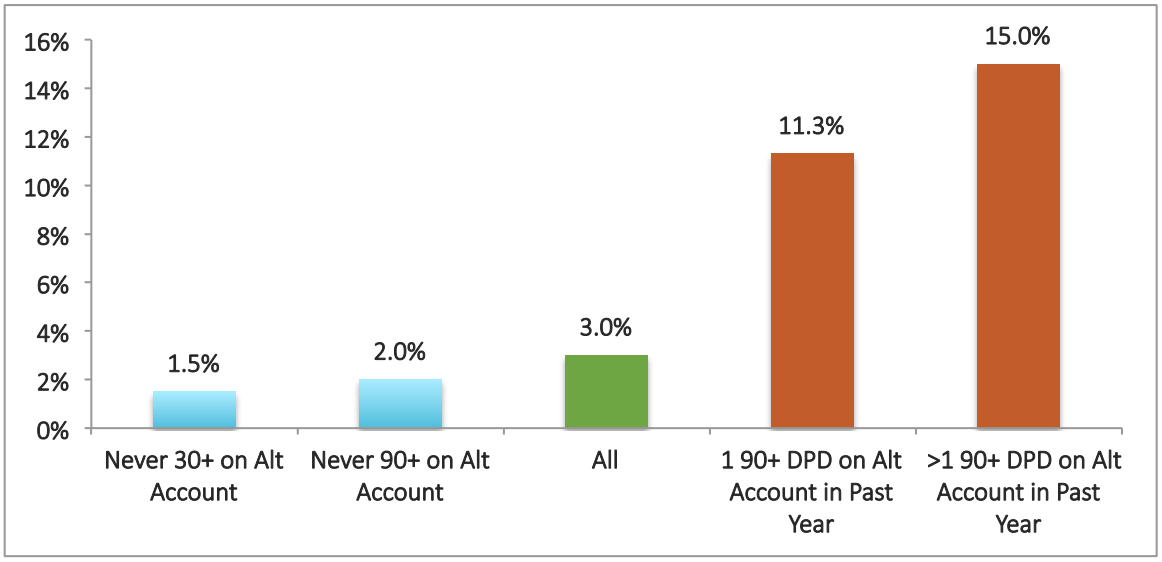


Figure 4a further segments the never 30+ DPD and the recent 90+ DPD on a utility/telecom account groups by credit score containing only traditional credit data. This segmentations shows us that, controlling for credit score tiers, consumers with a recent past serious derogatory on an alternative account are a higher risk for a future derogatory public record compared to consumers with no such delinquencies. Effectively, payment information on the alternative accounts is still valuable even if consumers have traditional credit file information and credit scores. For instance, while consumers with pristine utility/telecom payment histories and with credit scores in the range of 700-799 have a 1.4% rate of having a new derogatory public record, those consumers in that same score range but with a recent 90+DPD on an alternative data account have a 3.1% rate of having a new derogatory public record. Interestingly, those with the very lowest VantageScore credit scores had similar, high rates of new public records regardless of their utility/telecom payment history. This is interesting but may not have practical impacts since this group is sufficiently high risk in terms of their traditional credit record that regardless of their alternative payment history credit access would be constrained and what was available would be higher priced.[10]

10. One explanation could be that consumers with extremely low credit scores *and* who have never been late on a reported utility or telecom bill might have non-payment history issues that are bringing down their scores (such as public records). And, perhaps, people in this category have a higher propensity for new public records. This could be further explored by restricting analysis to a segment of consumers with no past public records.

Figure 4a: Rate of New Public Record(s) (July 2009- July 2010) by VantageScore Credit Score Tier

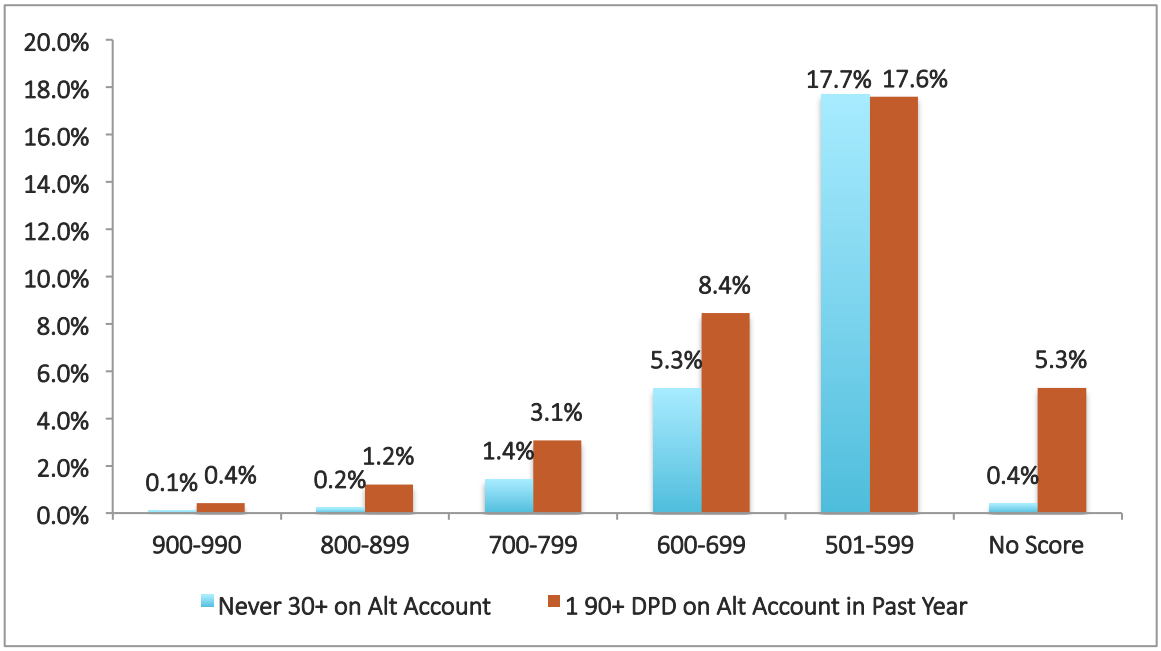


Figure 4b: Rate of New Public Record(s) (July 2009- July 2010) by VantageScore (20-pt bands)

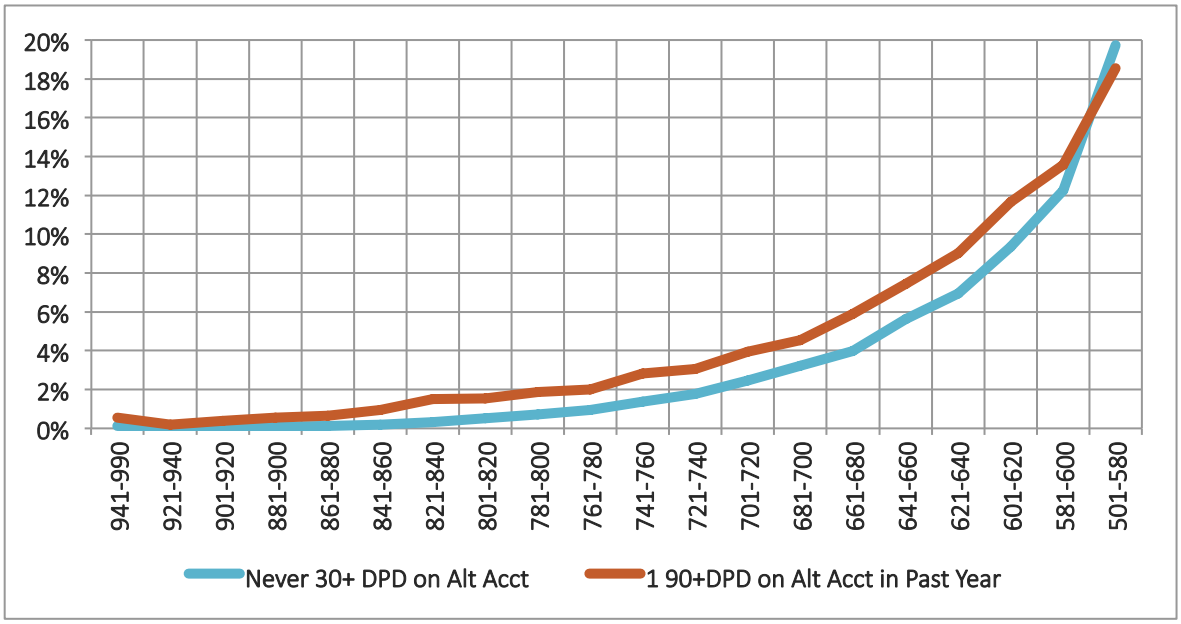


Figure 4b, as with figure 2b with bank cards, shows us that in the middle of the credit score distribution those consumers with no late payments are much less risky in terms of the rate of new public records than are consumers with recent severer delinquencies. Again, the never late consumers receive a lower credit score than they should when the alt data is *not* reported and those who were very late receive higher scores than they should.

One advantage of looking at the rate of derogatory public records is that we need not examine a population with active credit cards or mortgage accounts; we can look at the *entire* population, including the no-file/no-score group. For the no-file/no-score group we see that consumers with no past utility/telecom delinquencies have a 0.4% rate of having a new derogatory public record, whereas the no-score consumers with a recent 90+DPD on an alternative data account have a 5.28% rate of having a new derogatory public record.

By adding utility and telecom data, it would not simply be the case that those with major derogatories would be excluded from credit. On the contrary, while some with utility or telecom derogatories would have reduced access to credit more consumers *overall* would gain access. For example, let's say we choose to have a target rate of derogatory public records of 1% for a portfolio. By just using the VantageScore credit score (without alternative data) and bifurcating on whether a consumer had a 90+ DPD in the previous 12 months on an alternative account, an additional 6.6% of consumers could be safely accepted. A key fact is that with a target public record rate of 1% none of the unscoreable population (without alternative data) could be accepted. This is because their unsegmented rate of derogatory public records is greater than 1%. Bifurcating by past 90+ DPD on alternative accounts allows those who are unscoreable and without a 90+ DPD in the previous 12 months to be safely accepted.

Alternatively, using the method of comparing VantageScores with and without alternative data (as was also done in the bank card example) we find that an additional 6.4% of consumers could be safely accepted. Many of these are consumers that were previously unscoreable (as just mentioned, the target public record rate of 1% is lower than the public record rate of 1.57% found for the unscoreable population, so, as mentioned above, none could be accepted with without considering alternative data). However, as can be seen in Table 3, this separation of public record rate for the unscoreable population also occurs with VantageScore credit score that are based on the alternative data (as seen in table 1). The VantageScore shown in Table 3 only exists because the utility/telecom payment data was included in the score, these consumers would have no score without that data.

Table 4 shows that of the 17% of consumers with a 90+ DPD in the past year, 5.5%, or about one-third of the 17%, only had them on a non-financial accounts. Again, this is a high risk segment that may be unobserved by lenders since non-financial account information is typically not fully reported to CRAs.

Table 3: Rate of New Derogatory Public Record(s) (July 2009- July 2010) by VantageScore for the Population Unscoreable with only Traditional Data (based on VantageScore *with* Alternative Data)

VantageScore Range	Rate of New Derogatory Public Record(s
900-990	0.00%
800-899	0.08%
700-799	0.12%
600-699	1.56%
501-599	5.53%

Table 4: Shares of Entire Sample with / without Previous 90+ DPDs

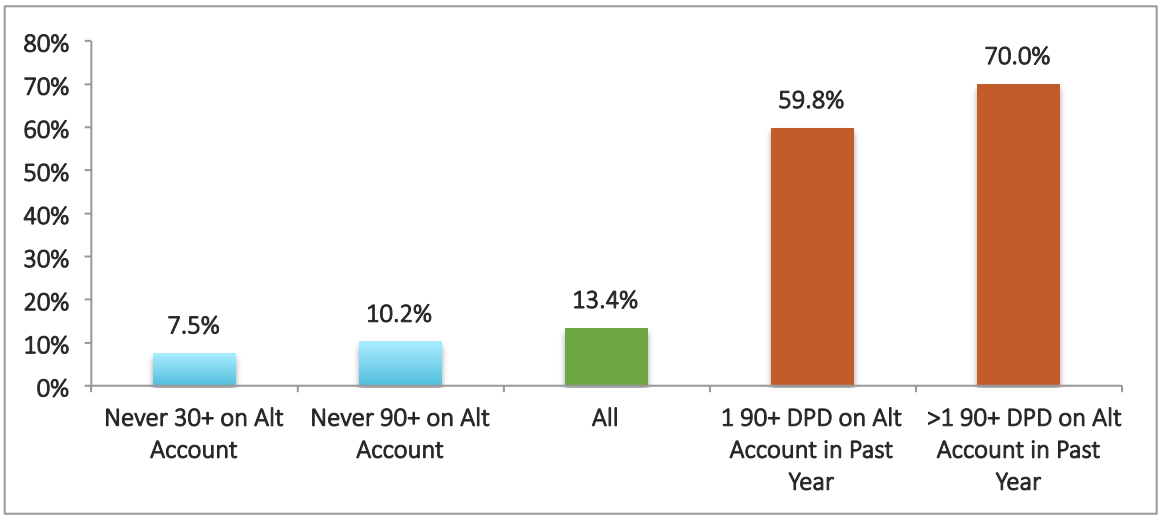
		Financial Account 90+ DPD in Previous 12 Months	
		No	Yes
Non-Financial Account 90+ DPD in Previous 12 Months	No	83.0%	7.2%
	Yes	5.5%	4.2%

Mortgages

Most discussions on the value of alternative or non-financial data focus on its role in underwriting small loans for the no-file / thin-file population. While the data may be most frequently used for underwriting these loans, it may also have value for larger loans, such as mortgages.

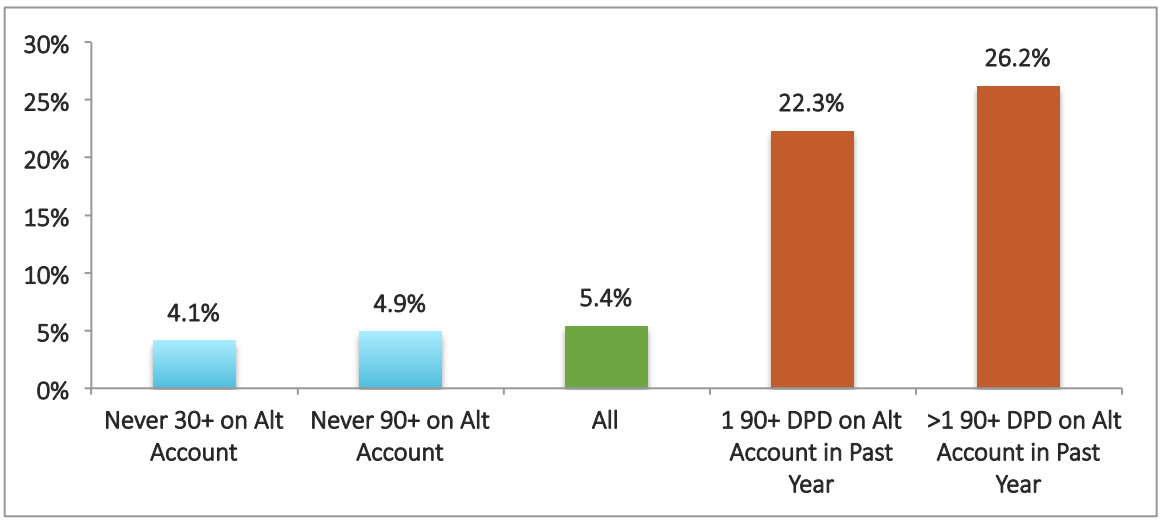
Figure 5 reveals that, as with the other credit lines, a previous 90+ DPD on a consumer's utility or telecom is associated with a much higher rate of future delinquencies on mortgage accounts. One interesting aspect of the timing of this data is that this captures mortgage delinquencies during the housing/financial crisis. The fact that utility and telecom data is predictive of mortgage delinquencies during a time of extreme crisis with mortgage portfolios only underscores the potential value of alternative data to lenders. Shockingly, the majority of those with a past 90+ DPD derogatory reported on their utility/telecom accounts that were reported to the participating CRA also had a delinquency on a mortgage account during the observation period. On the other hand, those consumers that never had a delinquency reported on their utility/telecom account had a mortgage delinquency rate of 7.5%.

Figure 5: 30+ DPD Delinquency Rate on Mortgage Accounts (July 2009- July 2010)*



*Only includes those with an active mortgage

Figure 6: 30+ DPD Delinquency Rate on a previously Clean Mortgage Accounts (July 2009- July 2010)*



*Only includes those with an active mortgage

Since it could be the case that those consumers who were 90+ DPD on an alternative account were also delinquent on their mortgage (and so there would be little new information for lenders), we looked at a further subsample of consumers who had no delinquencies reported on the mortgage for the 24 months prior to July 2009. We refer to these as *clean* mortgages. Again, while the delinquency rates are considerably lower, consumers who had a previous derogatory on their utility/telecom accounts were more likely to later have a derogatory on their previously clean mortgage. So, even among consumers with good standing mortgages, their utility and telecom payment patterns are useful as predictors of future mortgage delinquencies.

Figure 7 shows how the utility/telecom payment data helps to sort risk even among credit score based segments of this clean mortgage subpopulation.

Even for these "clean" mortgages, i.e., those in good standing, when segmented by credit scores in July 2009 (at the beginning of the observation period), there persists a much higher future mortgage delinquency rate for consumers with past recent 90+ DPD utility/telecom delinquencies relative to consumer with no past utility/telecom delinquencies.

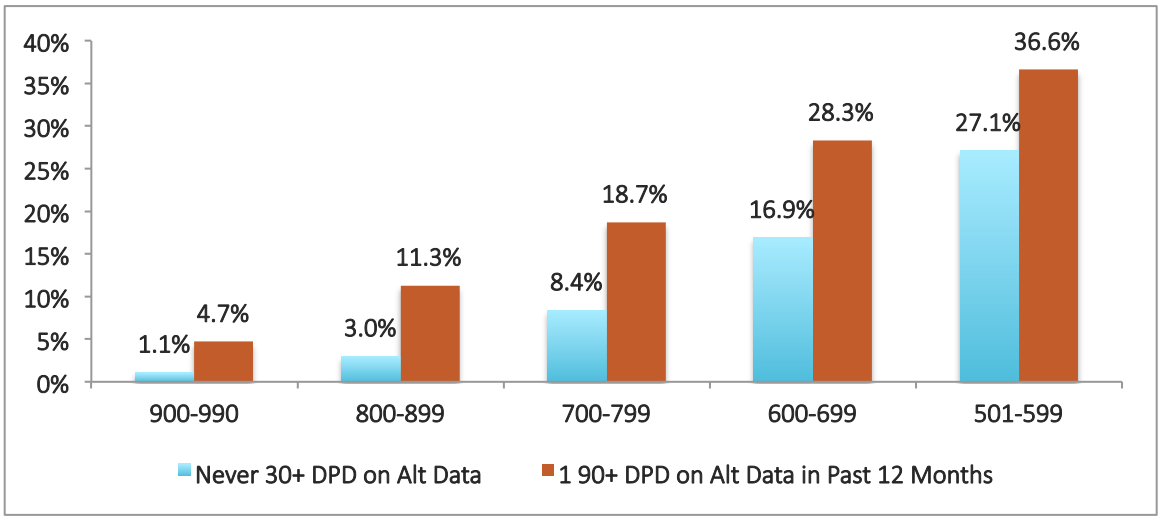
These results again show that consumers with the same traditional data credit scores can be of very different risk levels when alternative data is taken into account. For instance, consumers who were never late on an alt data account and have a credit scores in the 701-720 range show a 10% 30+ DPD rate, about the equivalent of consumers who were recently very late and have traditional credit score in the 821-840 range. As seen previously, when alternative data is *not* factored into credit scores, those who pay on-time on alternative accounts are penalized (by not having a higher score) and those who pay very late are rewarded (by not having a lower score). Beyond credit access issues for no-file consumers associated with the benefits of fully reporting alternative data, this raises broader fairness issues for those who do pay on time but are not receiving any benefit.

These results also underscore the potential value of non-financial or transactional data for not only underwriting but also for account maintenance and early warning when borrowers may be in trouble.

Table 5 shows that about a third of those with clean mortgages who had prior year 90+ DPDs only had them on non-financial accounts.

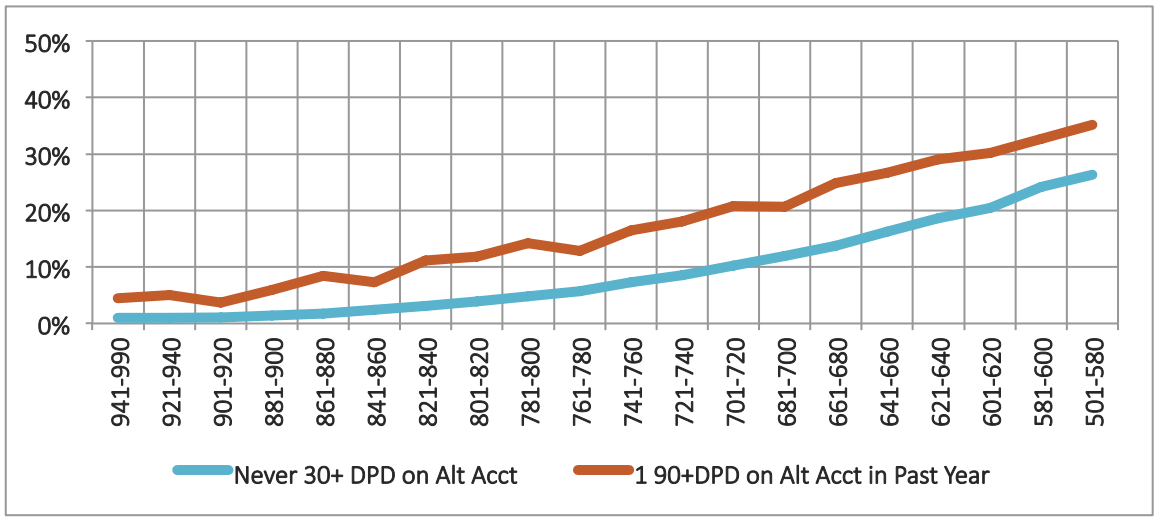
Table 6 shows that consumers with prior year 90+ DPDs on non-financial accounts were of similarly high risk for mortgages delinquencies as those with prior year 90+ DPDs on financial accounts.

Figure 7: 30+ DPD Delinquency Rate on previously Clean Mortgage Accounts (July 2009- July 2010) by VantageScore Credit Score Tiers*



*Only includes those with an active mortgage in July 2009, Clean Mortgage defined as no delinquencies reported for mortgages for the 24 months prior to July 2009

Figure 7b: 30+ DPD Delinquency Rate on previously Clean Mortgage Accounts (July 2009- July 2010) by VantageScore Credit Score (20-pt bands)*



*Only includes those with an active mortgage in July 2009, Clean Mortgage defined as no delinquencies reported for mortgages for the 24 months prior to July 2009

Table 5: Shares of Previously Clean Active Mortgage Sample with / without Previous 90+ DPDs

		Financial Account 90+ DPD in Previous 12 Months	
		No	Yes
Non-Financial Account 90+ DPD in Previous 12 Months	No	94.1%	3.2%
	Yes	2.0%	0.7%

Table 6: Previously Clean Mortgage Delinquency Rates with / without Previous 90+ DPDs

		Financial Account 90+ DPD in Previous 12 Months	
		No	Yes
Non-Financial Account 90+ DPD in Previous 12 Months	No	4.5%	18.1%
	Yes	20.3%	28.9%

Conclusions

Taking the results for bank card delinquencies, derogatory public records, and mortgage delinquencies together, it appears that non-financial or alternative payment data is useful for not only expanding credit access to the no-file, no-score, thin-file, underserved populations, but also for the broader population. And the results also show potential value in not only small niche credit products aimed at the no-file/no-score population but across many traditional credit silos.

There is currently a tremendous buzz around the concept of *Big Data*. Some startups are experimenting with innovative uses of *Likes* on Facebook and *Connections* on LinkedIn for purposes of credit underwriting. While these datasets may hold promise for lending, there are other datasets that are clearly valuable for risk assessment and are easily covered under the regulatory ambit of the FCRA/FACT Act: namely consumer payment histories, such as from energy utility, water, telecom, cable, Internet, rent, and other such non-financial account payments that are typically *not* reported to CRAs (credit bureaus). Importantly, compared with more exotic data that uses social media or how fast an online application is filled out, consumers and regulators should be much more comfortable with the notion of using a consumer's past payment performance on a utility account or rent in credit underwriting (lenders do accept such information when a mortgage applicant has no traditional credit accounts, for instance).

There is a great need for new data sources to fill the data gaps of the no-file / no-score consumers. A 2015 PERC survey of research found that between 1-in-4 and 1-in-5 Americans were unscoreable and a just released report by the CFPB using new analysis finds that 1-in-5 Americans are unscoreable using traditional data and traditional credit scores.[11]

And as high as these rates are, they are much higher in lower income communities and among members of ethnic minority groups. The CFPB report found a shockingly high rate of unscoreabilty, 45%, in the lowest income neighborhoods.

In 2006 PERC completed its first empirical analysis of the impact from adding utility and telecom payment histories to consumer credit reports.[12] That report showed that safe lending could be expanded an additional 9-10% (based on a sample of utility/telecom customers) if their utility/telecom payment data was fully reported to the CRAs. This analysis used actual credit file data (from TransUnion), actual utility and telecom payment data, and commercially used credit scores from 2005 and 2006 on several million consumers. Crucially, the results showed that safe lending could increase by over twice this rate for low-income households. Alternative data could not only increase safe lending but could also make lending fairer and more inclusive.

PERC's follow up to this report was similarly structured but used data from the financial crisis, 2009 and 2010.[13] This 2012 report found very consistent results to those seen in the 2006 study. The 2012 report showed that among the utility/telecom customers examined, safe lending could be expanded an additional 8% when utility/telecom payment data was fully reported to the CRAs. And as with the 2006 report, the benefit to lower income households was much greater, with safe credit access expanded by over 20% for households in the lowest income group (household income less than $20,000 a year). This report used credit file data from two CRAs (Experian and TransUnion).

The takeaway from these two reports was that including fully reported utility and telecom payments could have expanded lending,

11. See Turner, Michael, et al. "Research Consensus Confirms Benefits of Alternative Data." PERC. March 2015. Available at http://www.perc.net/wp-content/uploads/2015/03/ResearchConsensus.pdf and Kenneth P. Brevoort, Philipp Grimm, and Michelle Kambara. "Data Point: Credit Invisibles." CFPB. May 2015. Available at: http://files.consumerfinance.gov/f/201505_cfpb_data-point-credit-invisibles.pdf
12. Turner, Michael, et al. *Give Credit where Credit is Due: Increasing Access to Affordable Mainstream Credit Using Alternative Data.* PERC and The Brookings Institution Urban Market Initiative. December 2006. Available at: http://www.perc.net/wp-content/uploads/2013/09/WEB-file-ADI5-layout1.pdf
13. Turner, Michael, et al. *Pathway to Financial Inclusion.* PERC. June 2012. Available at: http://www.perc.net/publications/new-pathway-financial-inclusion/

particularly to the no-file/thin-file population and underserved populations. Needless to say, the reporting of non-financial data, such as utility and telecom payment data would largely eliminate the no-file / no-score population among those non-financial service customers. Given the broad coverage of those and other non-financial services, this would greatly reduce the no-file / no-score population as a whole.

The other takeaway is that the simulated impact of using alternative data (and its potential to predict future payment outcomes) in credit risk assessment is stable over time, in calm economic times of moderate to good economic growth as well as during one of the worst economic crises the nation has faced.

The 2006 and 2012 PERC reports, however, tended to focus on using utility and telecom data to predict general delinquencies, whether on bank cards, auto loans, mortgages, telecoms, or utilities. By contrast, here, we have used the 2009 and 2010 data and reexamine it with focus on how well utility and telecom data can predict specific outcomes, bank card delinquencies, mortgage delinquencies, and derogatory public records (including bankruptcies).

In all three cases, utility and telecom data was found to be predictive, as shown below in Table 7.

Table 7: Delinquency Rates (30+ DPD) by Past Alt Data (Utility/Telecom) Performance

	All	Never 30+ DPD on Alt Account	A 90+ DPD on an Alt Account in Previous 12 months
Bank Card Delinquency Rate	11.3%	7.6%	47.7%
Derogatory Public Record Rate	3.0%	1.5%	11.3%
Mortgage Delinquency Rate	13.4%	7.5%	59.8%
Clean Mortgage Delinquency Rate	5.4%	4.1%	22.3%

This data also added predictive power *after* controlling for the consumers' credit scores that was based on traditional credit data. For example:

- Consumers with a VantageScore in the 700-799 range, the bank card delinquency rate is 9% for consumers with no past alternative account delinquency but 20.2% for those with a 90+ DPD on such an account in the past year,
- For consumers with a VantageScore in the 800-899 range, the corresponding delinquency rates are 2.4% and 10%.

So, even among consumers with traditional credit files and credit scores, the alternative data could enhance risk assessment. This suggests that the alternative data is not only helpful for underwriting those with no traditional credit data but can also aid lenders and borrowers more broadly.

When predicting bank card delinquencies with the VantageScore with only traditional credit data, by segmenting only on whether a consumer had a past a 90+ DPD in the previous 12 months on a non-financial account, the number of consumers that could be safely accepted for a target delinquency rate of 7% rises by 5.7%. Similar calculations based on rates of derogatory public records found that no unscoreable consumer would be accepted without segmenting by whether there was a past 90+ DPD in the previous 12 months on a non-financial account. Thus, while the overall change in lending outcomes may be modest with the added data, the impacts for certain segments such as the no-file population (or low-income households as shown in previous PERC work) could be considerable.

The alternative data was also found predictive of future delinquencies among clean mortgage accounts (no delinquencies on mortgages for the past 24 months) after they were segmented by credit score. And this was during the worst housing crisis in the nation's history (a time when risk assessment is crucial). For those with VantageScores in July 2009 in the 800-899 range, the delinquency rate on a clean mortgage is 3.0% for consumers with no reported past utility/telecom late payments but is 11.3% for those with a 90+DPD in the past 12 months on such accounts. And it

should be noted that these examples use, typically, only one alternative account and one or two data points (whether the consumer had a past 90+ DPD).

Thus, non-financial or alternative payment data appears useful for not only expanding credit access to the no-file, no-score, thin-file, underserved populations, but potentially also for the broader population across many traditional credit silos.

The key finding that even among scoreable consumers with active bank cards or mortgages, the addition of utility and telecom payment histories still aids risk assessment may result from a phenomenon observed earlier in a white paper by Experian using 2005 data. That work found that while some consumers would fall behind on all payments in periods of apparent financial stress, most would either (initially at least) fall behind on some accounts but not others. For example, consumers may fall behind on only non-financial *or* financial accounts. This was referred to as a polarization of payment behavior. The Experian research found that this polarization was due to bill payment prioritizing in times of financial stress. (The aim of that research was collection efforts in an environment in which utilities/telecoms payments were not always prioritized.) Using different data, from a period five years later, and in a very different economy, we find the same thing (bill payment polarization). Some consumers become very late on only financial accounts, some on only non-financial accounts, and the smallest group becomes very late on both. These severe delinquencies (regardless of type) are then related to increased risk of future financial delinquencies. This is important for origination and account maintenance since this may indicate that in the beginning stages of financial stress, most consumers appear to choose to fall behind on only a subset of their accounts. Therefore, reviewing only financial accounts for signs of creditworthiness or financial stress could miss a segment of consumers that would initially reveal the financial stress via non-financial accounts.

As opposed to identifying high risk consumers, results also show that consumers who have been on time on their non-financial accounts for an extended period of time (up to two years) or who do not have a severe delinquency were found to be of lower risk.

Being able to better identify higher and lower risk consumers among otherwise scoreable consumers improves lending and account maintenance in a way that benefits both consumers and lenders. And being able to better identify high-risk consumers that may be beginning to undergo financial stress and initially revealing that via non-financial accounts has clear consumer protection and safety and soundness implications. What is not known is whether any of the new 'risk' information found in non-financial data is already contained in other information used by lenders, such as application data or other third-party data that may be utilized.

The next steps for industry and researchers appear to be continuing or beginning: (1) work with major utilities and or telecoms to determine the optimal ways to report customer payment data to be cost-effective and most beneficial to their low-income customers; (2) tests of the value of alternative data with one or more lenders so as to see how incorporating that data into their actual

underwriting process (with in-house scores, application data and other data) would specifically impact lending outcomes; (3) analysis of how non-financial data is related to more severe delinquencies and write-offs; and (4) research on how generic and custom credit scores can best utilize non-financial tradelines. That is, the next steps should move beyond generalities to the specifics of how data users (lenders/score developers) can best use non-financial data and how data furnishers can best to report non-financial data.

Finally, since the key aim and benefit sought from reporting alternative data has been increased credit inclusion among low-income households and the credit excluded, it bears repeating that utilities, telecoms and other large non-financial service providers should first test how they plan to report their customer payment histories with CRAs using actual credit file data and credit scores. This will enable the data furnisher to verify and adjust data reporting details if need be (such as when to report a payment as late) to ensure the desired credit inclusion benefits from full-file credit reporting. This approach will allow millions of low-income Americans that pay their bills on time to benefit while alleviating concerns about undesired or unintended impacts of full-file reporting.

Appendix: Additional Results

The data for mortgage accounts allows us to examine whether alternative data can also predict more severe delinquencies. These severe delinquency outcomes, however, are not over the entire July 2009-June 2010 period but just at the July 2010 snapshot. Nonetheless, there appears little substantial difference between predicting 30-59 DPD delinquency rate and 120+ DPD delinquency rates (other than the actual levels involved).

Rates of Delinquency (of various DPD) on Clean Mortgages

Amount DPD as of July 2010	Not 90+ DPD on Alt Account in year prior to July 2009	90+ DPD on Alt Account in year prior to July 2009
30-59	0.9%	4.8%
60-89	0.4%	2.1%
90-119	0.3%	1.2%
120+	1.2%	4.8%

Next, we see that past performance on alternative accounts is predictive of future bank card delinquencies when segmented by similar past performance measures on traditional accounts.

So, if a banker only knew a consumer had no severe delinquencies on traditional accounts in the past year, the expected delinquency rate is 8.2%. But adding that they have never been late on an alternative account lowers this to 6% or knowing that they were severely late on an alternative account in the past year raises this to 36.4%.

Bank Card Delinquency Rates (July 2009 – June 2010) for various combinations of past traditional and alternative account performances

	No Traditional Acct. Delinquency Ever	No Traditional Acct. 90+ in past year	Traditional Acct. 90+ in past year	All
No Alt Acct. Delinquency Ever	2.7%	6.0%	44.3%	**7.6%**
No Alt Acct. 90+ past year	2.9%	7.4%	47.5%	**9.6%**
Alt Acct. 90+ past year	18.3%	36.4%	63.5%	**48.1%**
All	**3.0%**	**8.2%**	**51.7%**	**11.3%**

The two extreme segments from above are further broken down by VantageScore credit score.

Bank Card Delinquency Rates (July 2009 – June 2010) by credit score, past performance on traditional accounts

	No Traditional Acct. Delinquency Ever		Traditional Acct. 90+ in past year	
VantageScore	No Alt Acct. Delinquency Ever	1 Alt Acct. 90+ in past year	No Alt Acct. Delinquency Ever	1 Alt Acct. 90+ in past year
900-990	0.9%	3.4%	10.4%	23.6%
800-899	1.6%	7.0%		
700-799	6.6%	16.1%	19.1%	31.9%
600-699	18.4%	27.8%	39.5%	50.7%
501-599	42.6%	54.1%	67.2%	72.0%

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